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**READING IN THE CONTENT AREA:  
ITS IMPACT ON TEACHING  
IN THE SOCIAL STUDIES CLASSROOM**

**A Dissertation  
Presented for the  
Doctor of Education  
Degree  
The University of Tennessee, Knoxville**

**Peter A. Wilson  
August 2009**

## **DEDICATION**

To The Memory of

My Father

William Burton Wilson  
1906-1994

and

My Mother

Irmgard Hammel Wilson  
1913-2005

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I am indebted to many people who have contributed to my understanding of Reading in the Content Area.

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## ABSTRACT

This study focused on evaluating the sufficiency of research in reading in the content area used to instruct classroom teachers. The research used was conducted between 1970 and 2000 and incorporated into textbooks written between 1975 and 2005. Studies examined were those reported in the following journals: Review of Educational Research, Review of Research in Education, Social Education, Theory and Research in Social Education, Reading Research Quarterly, and Research in the Teaching of English. Some attention was also given to two major educational curriculum and issue journals- Educational Leadership and Phi Delta Kappan as these sources might identify relevant research studies for further investigation. References cited in more than one text helped identify and establish a baseline of those studies considered most significant by textbook authors.

The findings of this study showed that the majority of citations looked at the following themes:

- Learners acquire meaning from the printed page through thought.
- Reading can and should be done for different purposes using a variety of materials.
- A number of techniques can be used to teach reading skills.
- Reading materials need to be selected according to changes in a child's interests.
- Reading ability is the level of reading difficulty that students can cope with. It depends on ability rather than age or grade level.
- Readability contributes to both the reader's degree of comprehension and the need for teacher assistance when reading difficulty exceeds the reader's capability.
- Reading instruction, in some form, needs to be carried on into the secondary grades.

Research findings from the 1970s were concerned with reading strategies, reading skills, reading comprehension, readability, attitudes towards reading, vocabulary, study skills, and content area reading programs.

In the 1980s research cited in content area reading books looked at reading comprehension, reading skills, vocabulary, learning strategies, curriculum issues, purposes for reading and writing, content area

reading programs, readability, schema theory, thinking skills, summarizing, comprehension strategies, and cooperative learning.

By the 1990s more research cited in content area reading books focused on reading strategies, curriculum issues, how to read documents and graphs, reading skills, vocabulary, attitudes towards reading, reading comprehension, and activating background knowledge.

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## Chapter 1—Introduction

The various disciplines covered by the social studies are information-based. Unlike the natural sciences where there is an opportunity to observe the results of controlled experiments, the extent to which students can experiment, collect or manipulate data in the social studies is extremely limited. That means that the majority of information that students obtain comes primarily from reading some type of text. One of the major factors that cause students difficulty in comprehending social studies texts is that they presented students with events and ideas that are often quite different from their day-to-day experiences. This information is also usually presented in a detached, third-person, passive voice (Bean and Ericson, 1989, p.338).

In the past, when teachers in middle and secondary classrooms thought about their responsibilities they tended to concentrate on teaching subject content and not on teaching reading skills. The assumption made being that normal students, making normal progress, should enter the subject classroom knowing how to read. These teachers do have tradition on their side, for reading instruction and reading programs have long been thought of as the responsibility of the elementary schools. This position assumes that you define reading instruction as things like basic decoding skills, onset and rhyming, and syllabication. If you include in the definition of reading instruction tasks such as expanded homework, independent reading assignments, detailed notetaking in class, and increased dependence on a more complex textbook in both organization and difficulty level, than reading instruction extends beyond the elementary level into the secondary subject classroom. Beginning in the third grade there is a discernable shift from learning to read, the customary vehicle for which is narrative text, to reading to learn, for which expository text is the chief medium (Duffelmeyer, 1994).

According to Leu and Kinzer (1999 p. 422) in all subjects areas, “different types of texts demand different strategies from the reader.” They identified a set of common skills that all students need to be taught and they note skills that are particular to specific content area subjects. General skills include determining the role that text organization plays in helping the reader to anticipate content; the role that superordinate and subordinate concept play in comprehension; the need for readers to vary their reading rate; the use of skimming and scanning; how to use research materials; learning strategies such as Think-alouds, Questioning the Author, and Jigsaw. The use of study guides, marginal glosses, advanced organizers, semantic mapping, and SQ3R. Writing skills include the K-W-L technique, learning to

summarize, take notes, and organize information. In the social studies, students need to develop the following additional skills: 1) The ability to recognize that social studies materials can be organized along a time sequence or an organized hierarchy. 2) How to read and interpret graphs and charts. 3) In addition to being map readers (someone who can locate information on a map), they need to become map thinkers (someone who can interpret the presented material). 4) The ability to distinguish facts from opinion, and the ability to grasp concepts related to time, space, and distance. Finally, an appreciation of the effects that technological developments have had on historical events as far as an understanding of what how things are different today than during any particular period in the past. These skills should be being taught in the content classroom. Other challenges that the social studies learner faces includes: 1) Vocabulary terms that involve a larger than normal proportion of words with Latin and Greek roots, prefixes, or suffixes. 2) The amount of details that most social studies books present about a topic, often without drawing clear relationships to the bigger picture. 3) Changes that occur in the validity and currency of subject matter in textbooks because of changing world events.

Today, there is strong evidence that many secondary students have under-developed reading skills and could benefit from direct reading instruction in the content classroom. One of the primary reasons for the increased difficulty that students encounter with learning in the content areas can be linked to the fact that expository text is more difficult to comprehend because of the complexity of the concepts presented (Vacca & Vacca, 1986, p. 33). However, reading in the content areas is more about how to read than about reading skills per se. Kintsch (1986) suggested that learning occurs when readers use their own relevant knowledge to think about, rearrange, critique, and retain or discard the content of text. It is more than just a mechanical process of seeing and recognizing words on a page. Reading also involves thinking and making sense of the words encountered through association with things that we have already read. Learning brings about a change in what readers know, understand, and can do rather than what they remember or comprehend. Students interact with text to interpret and construct meaning before, during, and after reading using prior knowledge and strategies such as structural analysis, syllabication to decode unfamiliar words, and context clues to figure out meaning (Lentz & Hughes, 1990). Students need to be taught when to apply good reading strategies and have opportunities to practice and use these strategies in order to become more proficient. Table 1 presents a summation of what differentiates a good reader from a poor reader:

**Table 1 Comparison of what good readers do while reading vs. poor readers**

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**Good Readers**

**Poor Readers**

**Before Reading**

Engage in practices that increase their background knowledge.

Start reading without thinking about what they know about the topic.

Know their purpose for reading.

Don't know why they are reading.

Focus their complete attention on the reading process.

**During Reading**

Give their complete attention to the process of reading

Constantly check their understanding of what they are reading.

Do not know whether they understand what they are reading or not.

Monitor their reading comprehension and do so automatically.

Do not monitor their reading comprehension

Stop reading and use a fix-up strategy only when they do not understand what they are reading.

Seldom use any fix-up strategies.

**After Reading**

Decide if they have achieved their reading objective.

Do not know what they have read.

Self-check their comprehension of what they have read.

Do not follow up reading with a comprehension self-check.

Summarize major ideas in some manner such as a graphic organizer.

Seek any additional information from other sources.

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## **Statement of the Problem**

From early reading research (Herber, 1970; Aukerman, 1972; Mork, 1972), it seems that skill in reading is foundational. The more reading proficiency that students have, the more likely they will be able to comprehend what they read in the social studies or any other subject. This can be seen in the educational emphasis to raise reading standards across the nation (Put Reading First, 2001; Reading First, 2004) and the mandate of most states that standardized reading assessments are given to students at certain grades.

Strang (1966) identified a list of common reading skills needed in all subject areas and specific essential skills for each of the content areas. Those skills identified as prerequisites to successful reading in any of the content fields included:

Basic vocabulary, basic word recognition skills, and basic ability to get the literal meaning of a selection.

General reading skills included:

- the ability to determine, by an initial survey, the structure and purpose of the selection, pick out the main topic, and decide on an appropriate reading approach.

- flexibility in adapting one's rate and method to the nature of the material and to one's purpose in reading it.

- A good general vocabulary.

- Ability to organize the ideas one gains and relate them to one's present knowledge.

Specific skills of special importance to the social studies included:

- Locating specific information.

- Determining the authenticity of sources.

- Seeing relationships that involve time, and cause and effect.

- Drawing conclusions.

- Applying facts gained to the solution of important problems.

- Using one's background of experience and knowledge.

- Understanding key words and concepts.

- Correctly interpreting maps, graphs, and tables.

- Reading critically to detect discrepancies, propaganda, and bias.

It is more than just thought-getting, it is a complex organization of patterns of higher mental processes that should encompass all types of thinking, evaluation, judging, imagining, reasoning, and problem solving. Content teachers must be aware of the need for teaching reading skills as a part of

teaching content subjects. They need to know how to teach reading skills within the content areas since they are the ones who know what skills students need to be successful in their subject area.

Reading, then, can be said to be a general tool skill in learning. *“Reading is not a simple mechanical skill; nor is it a narrow scholastic tool. Properly cultivated, it is essentially a thought process. However, to say that reading is a “thought-getting” process is to give it too restricted a definition. It should be developed as a complex organization of patterns of higher mental processes. It can and should embrace all types of thinking—evaluating, judging, imagining, reasoning, and problem solving. Indeed, it is believed that reading is one of the best media for cultivating many techniques of thinking and imagining” (Gates, 1949).*

### **Purpose of the Study**

The purpose of the study was to identify the research related to methodologies of teaching content area reading reported in major research journals and research reports over a thirty year period to historically look at what research findings on methodology were used in teacher education content area reading textbooks.

My preliminary belief was that the research basis to support content reading textbooks used to train teachers was minimal at best and I want to find out if this was true. Textbooks should be based on the most recent research available. If there is a strong research base in the textbooks that we use to train teachers about content-area reading then we are on firm ground.

For this research, I chose a thirty-year period beginning with 1970 since this was a point at which there seems to be a marked increase in interest in reading in the content areas. The ending date of 2000 was chosen because it completed a third decade of content area reading research and allowed sufficient time to then determine to what extent these methodologies are identified and addressed in the most widely used content area reading textbooks of the period from 1975 to 2005. The reason for the difference in periods (dates) of the research journals and textbooks was to allow time for research findings to make their way into content area reading textbooks. This makes sense when we think that research findings take time to filter into the pedagogy that we incorporate in teacher education programs. This is more important for the earlier portion on my research study than today because of innovations such as high-speed printing, readily accessible databases such as ERIC and JSTOR, and the Internet, which allow dissemination of current research information much more readily.

## **Need for the Study**

Beginning in 1969 the federal government began publishing national educational progress reports (National Assessment of Educational Progress- NAEP), which attempted to establish a "measuring stick" against which state education programs could be assessed for determining eligibility to receive federal money. The NAEP reports laid the foundation for both the GOALS 2000 education program of the Clinton presidency which identified history, geography, economics, civics, and government as subjects to be tested in the fourth, eighth, and twelfth grades (Chapin and Messic, 1996), and The No Child Left Behind Act of 2001 (NCLB) of the George W. Bush presidency. Both programs were reauthorizations of the Elementary and Secondary Education Act. Through NCLB, which incorporated the Bush educational initiative, we have become acutely aware of the need for highly qualified teachers. I contend that to be highly qualified, a teacher must also be able to instruct students in all aspects of the subject area including reading, subject content, and testing.

Previous educational initiatives had focused, almost exclusively, on evaluating progress in beginning reading skills. While NCLB does address teaching of vocabulary and comprehension (mastered phonemic awareness; phonics; and fluency) in grades K-3, it does not address teaching older students skills needed to better grasp and utilize the information they have read. What it does propose is additional annual state testing at grade 11. Obviously, if reading program such as Reading First prove successful and continues for a sufficient duration of time, we could conceivably have, in six to nine years, a core of students in middle and high school who demonstrate significant improvement in reading scores on reading assessments. Today, however, there is strong evidence that many secondary students have under-developed reading skills and could benefit from direct reading instruction. This can be seen in the reading score reported by the National Assessment of Educational Progress (NAEP), mandates of most states that students be tested in certain grades on standardized assessments in reading, and end of course examinations be given in English usually after 10<sup>th</sup> and 11<sup>th</sup> grades.

High school students who do not read well are at risk for failure and for dropping out of school. They do not necessarily tend to avoid reading for pleasure but they do read required texts reluctantly, usually with the intention of doing only what is required to complete the assignment as quickly as possible. They also tend to spend less time out of school reading, and the normal school day does not provide them with much reading time (Anderson, Hiebert, Scott, and Wilkerson, 1985).

The need for this study comes down to this: If research has identified the most effective ways to

develop reading skills in content area classrooms, teachers should know them and teacher education programs should incorporate them into their course curriculum. Part of this process entails reflecting periodically on current teaching practices. We need to examine where we have been, where we are now, and how we have changed our techniques over time. This should act as a check, lest we overlook some important activity or strategy in the process of improving and updating our practices. Reading skills are tool skills in the social studies. If we are to continue to improve our teaching in the field the social studies we must ensure that, as teachers, we are diligent about reflecting upon and using best practices.

Three questions form the basis of the need for this study:

1. Is there a basis in research to support the reported literature in methods textbooks?
2. Are method textbooks used to train teacher reporting relevant research findings as found in research journals and research reports?
3. Is there a need for greater emphasis in teacher education preparation and professional development programs in the teaching of reading strategies in the social studies classroom?

### **Questions Addresses**

The study attempted to answer several questions through historical methods research. The very nature of historical research means that the researcher is limited to data that are already in existence. These questions included the following:

1. Did the body of existing research in content reading identify critical skills that need to be taught in the social studies classroom in order for students to be successful?
2. What existing research in content reading has been generated over the past 30 years and to what extent were these findings reflected in college methods textbooks?
3. What themes exist in this body of research literature concerning the teaching of reading skills in content areas?

### **Assumptions**

Several assumptions affected this study, including the following:

1. Authors of content-area reading textbooks should be informed about recent research in reading and should embody that research in their textbooks.
2. What teachers are taught about content-area reading skills can be found in college textbooks. This is not to deny that individual teachers will not add to sources supplied.

3. What works in teaching history or geography will also be effective in the teaching of other social studies subjects as well.
4. I am assuming that there is probably a need for reform in the way that we do business.

### **Limitations and Delimitations**

The following limitations and delimitations have been identified and applied to this study:

1. This study was not all-inclusive and was limited to selected sources.
2. This study was delimited to examining research reported from 1970 to 2000.
3. The study was delimited to five of the most commonly used methods textbooks pertaining to teaching reading in the content area, written during the decades covering the period of the mid 1970s through 2005.
4. The selection of textbooks was based on those identified as the most influential and books specifically focused on content area reading and in some cases consist of several editions of the same book.

### **Definition of Terms**

It was necessary to first define three major concepts that underlie this study: Content Area Reading, the Social Sciences, and Social Studies.

-Content Area—An organized body of knowledge, or a discipline, that is reflected in its technical vocabulary, as mathematics, social studies, literature or science.

-Content Area Reading--The concept that suggests that student achievement can be improved when reading instruction takes place in conjunction with subject area instruction, using appropriate learning strategies. These strategies involve vocabulary, comprehension and study skills, learning the ways that knowledge is organized in content material, and helping students learn to read their textbooks. “The most effective content area reading instruction takes place when reading strategies are taught while the teacher is guiding students in learning. To effectively plan instruction, teachers need to begin their planning from the perspective of their students. This will help them identify what they want their students to learn from the unit of instruction, and identify the skills and strategies that will enable them to achieve those objectives.” (Herber and Sanders, 1969).

For the purpose of this study, I am going to define the Social Sciences as those academic disciplines that study human relationships and their development over time and space. The various disciplines

concentrate on society (Sociology), culture (Anthropology), rules, law and governance (Political Science), human adaptation of the earth's resources and climate (Geography), human use and movement of resources (Economics), individual development (Psychology), and human civilization (History). The nature of the social sciences is schismatic. That is, there is a division within the focus in order to specifically study more limited aspects of those disciplines. For example, archaeology is an historical view of culture, looking at physical evidence of the past. Law is the specific study of legal rules and codes and how they are derived.

-Social Studies--The integrated study of the social sciences and humanities to promote civic competence. Within the school program, social studies provides coordinated, systematic study drawing upon such disciplines as anthropology, archaeology, economics, geography, history, law, philosophy, political science, psychology, religion, and sociology, as well as appropriate content from the humanities, mathematics, and natural sciences. The primary purpose of social studies is to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an independent world. (National Council for the Social Studies, 1992).

Next, it was necessary to identifying relevant terms that related to teaching reading. Definition of these terms came primarily from the Dictionary of Reading and Related Terms (Harris and Hodges, 1981) and The Literacy Dictionary (Harris and Hodges, 1995). These terms included skills and techniques that teachers should teach or reinforce so that students can master increasingly difficult material, whether before, during, or after reading a passage. Relevant terms were annotated before (B), during (D) and after (A) to identify strategies or procedures that are primarily used before, during, and after reading a passage. These help to focus the study because they represent factors that influence readability and attitudes towards reading on the part of the reader. They were also selected because they should appear in major content-area textbooks used to train teachers as well.

-Action books -- Books where objects, people, and scenes move when pull-tabs, pop-ups, revolving wheels, lift-flaps, and other triggers are manipulated. These features complement text and enhance both understanding and interest.

-Active Reading (D)--Constructing meaning from texts by transforming and integrating textual information into existing networks of knowledge and experience.

- Active Vocabulary (D)—The number of different words a person uses in speaking and writing.

-Advanced Organizers (B,D)--An instructional tool in which a brief written passage is presented prior to other text for enhancing the comprehension of that text. The organizer may be used to suggest connections

between presumed background knowledge and new material or to restate the new material at a higher level of abstraction, generalizeability and inclusiveness. (Ausubel, 1960)

-Aided Recall (D)—the act, or result, of recall helped by prompting.

-Anticipation Guide (B)--A series of statements that are relevant both to what students already know and to the material they are going to be studying which serves as a catalyst for activating relevant schemata. This type of guide leads students into reading with some personal investment in finding out what is in the text. (Called a prediction guide by Herber, 1978).

-Applied Reading (D)-- The use of basic reading skills in the content fields.

-Assimilation (D,A)—The process of incorporating new ideas to make them part of one's present knowledge.

-Attention (D)—The process, or result, of a selective, concentrated focus upon certain stimuli in perceiving.

-Auding (D)—Listening with comprehension; specifically, the process of perceiving, recognizing, interpreting, and responding to oral language.

-Background (B)—Experiences which precede a learning situation.

-Book Bank—A facility that lends books textbooks to students who cannot afford to buy them.

-Bottom-Up Process—A theoretical position that comprehension in reading consists of the accurate, sequential processing of text. It does not involve the reader's inner experiences and expectations.

-Caption—A heading or title, as in an article, chapter, major section, or page.

-Cartoon—A satirical drawing, as that of a political figure or event.

-Cause/Effect Relationship (D)—A stated or implied association between some outcome and the conditions that brought it about.

-Chunking (D)--In learning, the process or result of grouping or reorganizing sentences into small units of meaningfully related words. (Carver, 1968)

-Cloze Procedure—Any of several ways of measuring a person's ability to restore omitted portions of an oral or written message from its remaining context. A Standardized procedure to differentiate frustration, instructional and independent reading levels.

-Cognition (B,D,A)—Knowing; The process, or result, of recognizing, conceiving, judging, and reasoning.

-Cognitive Map (D,A)--A hypothetical mental schema that functions to preserve and organize information about events that occur in a learning situation and a systematic way. (Tolman, 1932)

- Coherence—The extent to which the sequencing of ideas in a text makes sense and the extent to which the language used to present those ideas makes the nature of the ideas and their relationship apparent.
- Cohesiveness in Text—The links or ties that connect text elements to provide unity and clarity.
- Collaboration (D,A)--Learning by working together in small groups, as to understand new information or to create a common product. In collaborative reading, group interaction may promote sharing ideas that lead to better understanding of the text. (Johnson, Johnson, )
- Comprehension—The ability to understand and gain meaning from what has been read.
- Comprehensibility—The quality of written or oral language that makes it easy to understand.
- Computer Assisted Instruction (CAI)—An automated program presented step-by-step by a computer with responses from the learner indicated as correct or not and with options for the learner to follow.
- Concept Load or Density—The proportion of different ideas in relation to text length.
- Conceptual Learning—The acquisition of new concepts or the alteration of old concepts.
- Context—The linguistic environment that surrounds a spoken or written language unit, often influencing its meaning.
- Context Clues (D)--Information from the immediate text setting that helps identify a word or word group as by words, phrases, sentences, illustration, syntax, or typography.
- Core Vocabulary—The words and meanings needed to understand a special field, textbook, or topic.
- Cue—Any part of a pattern, which helps one to discriminate or recognize that pattern.
- Culturally appropriate reading lessons—Lessons that are comfortable for both teacher and students and help student acquire basic academic skills
- Dale-Chall Readability Formula—A method of estimating the difficulty level of reading material developed by E. Dale and J. Chall that is based upon the percentage of words not on the *Dale List of 3,000 Familiar Words* and upon the average number of words in 100-word samples of the material.
- Directed Reading/ Thinking Activity (B,D,A)--A framework containing the following steps: preparation, guided reading, skill development and practice, and enrichment. (Stauffer, 1969)
- Effects of Reading—What motivations and to what extent the motivations of the reader are satisfied by what is read.
- Educational Resources Information Center (ERIC)—Any one of several federally supported agencies which examines, evaluates, collects, and distributes information related to research and instruction.

- Expository Text—texts that present information which explains principles and general behavioral patterns (e.g. newspapers, encyclopedias, and textbooks)
- Flesch Readability Formula—A method of estimating the difficulty level of adult reading material developed by R. Flesch and published in 1943, originally based upon sentence length in words, the number of affixes, and the number of personal references in 100-word samples of material
- Fluency—The capacity to read text accurately and quickly.
- Frame of reference—A cognitive structure or scheme to which ideas, information, etc., may be related.
- Frustration Reading Level—The readability or grade level of material that is too difficult to read successfully by a student, even with normal classroom instruction and support.
- Fry Readability Graph—A method of estimating the difficulty level of reading material developed by E. Fry and based upon the number of syllables and the number of sentences in 100-word samples, with grade level values read from a graph or sliding scale.
- Gazetteer—A geographical dictionary.
- Graded Word List—Any of many lists constructed with the words usually ranked by grade level or reader level.
- Guided Imagery (B,D)--A reading technique advocated by Herr (1981) that encourages students to daydream about a concept or activity as a means of motivation, organizing prior knowledge, or stimulating discussion.
- Guided Reading (D,A)--Reading instruction in which the teacher provides the structure, including the purpose, for reading and responding to the material read (Manzo, 1975).
- Independent Reading Level—The readability or grade level of material that is easy to read fluently with few word attack problems and high comprehension: students is on their own.
- Individualized Reading—An approach to reading instruction, originated in the 1950s as an alternative to basal reading programs, which emphasized student self-selection or reading materials, largely from trade books, and self-pacing in reading, with the teacher adjusting instruction to students needs in small group work and in individual conferences.
- Informal Reading Inventory (IRI)-- The use of a graded series of passages of increasing difficulty, usually taken from basal readers, to make an informal diagnosis of one or more levels of reading performance.
- Information Density—The amount of information content in a given communication.

- Instruction—A systematic, guided series of steps, procedures, or actions intended to result in learning or in the reaching of a desired goal by students.
- Instructional Reading Level—The readability or grade level of material that is challenging, but not frustrating for the student to read successfully with normal classroom instruction and support.
- Jigsaw—A method framework developed to encourage active participation in cooperative group learning situations. (Aaranson et al, 1975, 1978).
- Knowledge—A state of general familiarity with facts, principles, and ideas about a topic.
- K-W-L—A method framework with three steps: know, want to know, and learn (Ogle, 1989)
- Literal Comprehension—Understanding the sense meaning of what is heard or read.
- Main Idea-- The central thought, meaning, or gist of a passage.
- Map—A representation of geographic regions, usually on a two-dimensional surface.
- Mapping (B)—To survey materials before careful reading to get an overview of its nature and organization.
- Marginal Glosses—Teacher-constructed margin notes that aid students' comprehension by emphasizing and clarifying concepts, noting relationships, and modeling questions.
- Meaning Vocabulary—The number of meanings a person knows for words.
- Morphological Analysis—Breaking unfamiliar words into parts.
- Mimetic Document— A document using imitative means of representing some thing, such as a picture, diagram, or schematic.
- Narrative Text—Texts that are expressions of actual or fictitious experiences (myths or novels).
- Nonbook Materials (Non-print Material)—Materials such as films, tapes, recordings other than conventional printed books.
- Notemaking (D)—The act of writing down reactions, queries, references, etc., in the course of one's reading or listening.
- Notetaking (D,A)—The study skill of outlining and / or summarizing the important ideas of a lecture, book, or other source of information to aid in the organization and retention of ideas.
- Passive Vocabulary—The number of different words understood in listening and reading.
- Phonemic Awareness --The ability to hear and identify sounds in spoken words.
- Phonics --The relationship between the letters of written language and the sounds of spoken language.
- Précis—A concise written summary of the essential ideas in something read.

- Pre-Reading Activities (B)--Activities designed to develop needed attitudes and skills before formal instruction in reading. In addition, activities engaged in immediately before the reading act such as giving the background of the story or having a students them up by purposes for reading.
- Questioning the Author—A procedure designed to facilitate student’s comprehension and engagement with content-area materials.
- Rauding—A term introduced by R. Carver (1977-78) to refer to the receptive communication skills of reading with comprehension. As compared to listening with comprehension (auding).
- Readability—The ease of understanding or comprehension because of style of writing.
- Reading Program --any series of instructional practices, techniques, or grouping of students to receive instruction in reading skills development.
- Reciprocal Teaching (D)--A teaching strategy in which students are involved in summarizing, question generating, clarifying, and predicting as they read text and observe phenomena. Both teacher and student share responsibility for the conduct of the discussion. (Palincsar and Brown, 1984).
- Recreational Reading--Reading for one’s own pleasure.
- Scaffolding (B,D)--the gradual withdrawal of teacher supported instruction. modeling questioning feedback for a child’s performance across successive engagements, leading to more autonomy.
- Scanning (B,D,A)--To examine a read something quickly but selectively for a particular purpose such as locating a key date, or answer to a specific question.
- Schema (D)--A system of cognitive structures stored in memory that are abstract representations of events, objects, and relationships in the world.
- Semantic Cue (D)—Evidence from the general sense or meaning of a written or spoken communication that aids in identification of an unknown word.
- Skimming (B,D,A)--The process of reading something quickly or rapidly glancing through, looking for the general meaning of the text.
- Spache Readability Formula—A method developed by G. Spache and originally published in 1953 for estimating the difficulty of primary reading level reading materials, based upon average sentence length in words and number of words (in a sample of 100) not on the Stone revision of an earlier list of easy words by Dale.
- SQ3R (B,D,A)--A series of steps to be used in reading a textbook for study purposes: survey the

assignment to note the points emphasized, pose a question initially on the first section, later on successive sections; read to answer the question; recite the answer to the question and after several questions and answers, review the material read. (F. Robinson, 1961).

- Structured Overview (B)—A form of cognitive organizer in which important concepts on a topic or unit of study, as reflected in its vocabulary, are identified and made into a visual pattern that may be used to anticipate, revise, and confirm relationships among the concepts.

- Study Guides (B,D,A)--Any one of several specific sets of suggestions to help students in the effective examination comprehension of subject matter content.

- Study Skills (D,A)--A general term for those techniques and strategies which help a person read or listen for specific purposes with the intent to remember. Common study skills include following directions; locating selecting organizing and retaining information; interpreting typographic and graphic aids; and reading flexibility.

- Subject Area Instruction —Teaching in areas such as art, business, computers, English, health, mathematics, physical education, science, social studies. (As opposed to reading, which has no true content but is a skill used to unlock the meaning of content writing?)

- Subordinate Concept—A subunit of expository text that supports a larger unit.

- Superordinate Concept—A major unit of expository text supported by subunits.

- Technical Vocabulary (B, D, A)--A word with the specialized meaning in one or more content fields disciplines or professions. The meaning of a common word form specific to a content field.

- Text Signals (D)--Any typographic devices as italics, boldface, special symbols or headings, or special format arrangements used to call reader's attention to the desired aspects of written material.

- Think-Aloud (D,A)--A technique or strategy in which the teacher verbalizes aloud while reading a selection orally thus modeling the process of comprehension.

- Vocabulary—The words students must know to communicate effectively.

- Vocabulary Self- Selection Strategy—An instructional procedure that uses words selected by students as its base.

### **Methodological Procedures**

The body of research for the study will be a review of literature.

This study was conducted in two phases.

Phase I was a study of studies to identify major methodologies discussed in research related articles, in leading reading and reading related journals and reports during the period from 1970 to 2000.

The essence of important research in content area reading should be identified and reported in the research journal publications of:

- The American Education Research Association
- The National Council for the Social Studies
- The International Reading Association
- The National Council of Teachers of English
- The Association for Supervision and Curriculum Development and
- Phi Delta Kappa.
- Private foundations and the U. S. Department of Education

These are major educational organizations and reading research should filter down through the journals associated with them.

The ERIC and JSTOR databases were searched for articles pertaining to content-area reading under the following major subject heading:

- Content-Area Reading
- Content Reading Methodology
- Content Literacy
- Reading in the Content Area.

The researcher identified studies that addressed two issues:

- 1) Skills that needed to be taught and mastered such as study skills, locating information, and use of graphic aids to text.
- 2) Reading strategies, activities, and techniques (before, during, and after reading strategies).

Identified articles appearing in the journals listed above were read to establish their relevancy to the teaching of reading skills in the content areas. Articles were grouped by topic and were compiled by decade.

Phase II consisted of identifying and examining twenty-four textbook editions of the 5 most widely used content area reading textbooks (Appendix B) published during the periods from 1975 to 2005, to determine if the research on what constitutes best practice was being included.

**Table 2 Content Reading textbooks used in this study**

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Alexander							
Teaching Reading	1978	1983	1988				
Richardson, Morgan, & Fleener							
Reading to Learn in Content Areas	1990	1994	1997	2000	2005		
Robinson							
Teaching Reading & Study Strategies	1975	1978	1983				
Roe, Stoodt, & Burns							
Secondary Reading Instruction	1978	1983	1987	1991	1995	2001	
Vacca & Vacca							
Content Area Reading	1981	1987	1989	1994	1999	2003	2005

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A list of prominent authors in the field of content-area reading was compiled (Table 2). These authors were from those referenced in articles of the listed professional journals. A discussion was held with three experts in the field of content-area reading concerning their perceptions on the growth of the field and which authors had the largest impact on current textbook content. The textbook authors identified were people of prominence in the field of content reading. Some of the textbooks spanned one or more decades, while others covered only a specific period. Their distinguished record of accomplishments and, in some cases, the many editions of textbooks attest to the fact that their colleagues hold them as being leaders in the field.

Journal articles identified in Phase I of this study were checked against bibliographic entries in the selected textbooks to determine if relevant research was being included in textbook used to train educators. Findings focused on answering the following questions:

- Did the body of existing research in content reading identify critical skills that need to be taught in the social studies classroom in order for students to be successful?
- What were the skills that were the subjects of articles written during a particular period?
- What research findings have been generated concerning the teaching of reading skills in the content area over the past 30 years and to what extent were these findings reflected in college methods textbooks?
- What themes have emerged in the most recent research literature concerning the teaching of reading skills in content area?

-What appeared and how recent was it compared to available research in journals?

### **Data Analysis**

Articles were grouped by topic according to the decade they were written. Each content area methodology textbooks were searched for what research articles were utilized in the writing each chapter and a comparison was made. This study was not intended to be a comprehensive evaluation of all the published research, nor an attempt to quantify the “number” of references used in various textbooks, but rather to evaluate the sufficiency of research studies incorporated into textbooks being used to instruct current and perspective teachers in reading in the content areas. References that were cited in more than one text were identified to establish a baseline for those studies that are considered most significant by textbook authors.

### **Organization of the Study**

The study has been presented in six chapters and two appendices. The chapters were organized as follows:

Chapter 1 includes the introduction, provides a statement of the problem, the purpose of the study, need for the study, basic assumptions, delimitations and limitations, definition of terms, procedures, and a statement of the organization of the study. for the study.

Chapter 2 deals with a historical overview of major influences in reading instruction, and a review of the early history of content area reading leading up to the increase of interest in content area reading in the 1970s. This will help to establish the increasing importance of reading for the social studies teacher.

Chapters 3 through 5 are a review of the literature relevant to teaching reading in the content areas by decades (the 1970s, the 1980s, the 1990s).

Chapter 3 presents finds from the research literature in the 1970s and relevant methods textbooks from this period.

Chapter 4 presents findings from the research literature in the 1980s and relevant methods textbooks.

Chapter 5 presents findings from the research literature of the 1990s and relevant methods textbooks.

Chapter 6 provides conclusions of the study, related discussion implications for the preparation of social studies teachers, and recommendations for a) future research and b) social studies practice.

The process of assessing the impact of research on practice entails attempting to breaking down cited journal articles and studies into identifiable categories for ease of looking at areas of interest. Each of the decades contains some common categories of research while other categories emphasize change in focus over time. An attempt has been made to group the research found into three broad, general categories in order to have continuity across the 30-year period of this research study. In each of the data chapter (Chapters 3, 4 and 5) are journal articles and studies have been grouped under the headings of Curriculum, Learning, and Reading.

## Chapter 2— Historical Background of Content Area Reading

The purpose of this study was to identify the research related to methodologies of teaching content area reading reported in major research journals and research reports during the period between 1970 and 2000.

Chapter 1 presented the introduction, provided a statement of the problem, the purpose of the study, need for the study, basic assumptions, delimitations and limitations, definition of terms, procedures, and a statement of the organization of the study.

This chapter deals with a historical overview of major influences in reading instruction, and a review of the early educational history that focuses on reading education leading up to the increase of interest in content area reading in the 1970s.

The teaching of reading is an area of concern related to secondary content area education and content reading instruction concentrates on improving students' comprehension of content (subject) material. The social studies teacher must be a person proficient in teaching those reading skills, vocabulary skills, and study techniques that their students need to master the content of the subject, as well as a content specialist (Strang, 1966); (Pappas, Kiefer, & Levstik, 1999). A review of the development of reading education in the content classroom will help establish a foundation from which to evaluate the research literature of this study.

### **Early History**

American education in the 20<sup>th</sup> century had a long historical foundation. Educational ideas, at any given time, are collected from various cultures around the world. The ancient Eastern influences of Israel, India, and China are seen in educational practices and subject matter such as law, mathematics and philosophy taught in the past and today. Although the history of reading instruction goes back as far as written language itself, the history of reading instruction in the secondary school is relatively short.

A history of educational practices in the American colonies and early American educational practices can be found in any good foundations textbook. Early periods in the colonies focused on the need to teach fundamental reading skills so that people could read the Bible. Later, text such as *The New England Primer* and *McGuffey Readers* (1836), a graded set of textbooks, emphasizing human traits that good citizens

should possess: truth, honesty, initiative and self-reliance. McGuffey recognized the need to limit the number of new words introduced and the importance of repetition in order to cement learning (N. Smith, 1965, p. 107).

The first compulsory school attendance law required teacher to do more than just monitor a student's progress to see if they were learning. Compulsory attendance meant that children were required to remain in school, regardless of their success, and teachers had to determine how to teach those students who could not learn on their own. Gradually, compulsory education began to bring about some large positive changes in the makeup of America. Illiteracy began to decline, as more children were force to attend school regularly. Children of immigrants acquired a working knowledge of English, which helped them integrate into mainstream America. In addition, a sense of national unity developed as students from different cultures shared 10 or 12 years of schooling together, learning a common heritage, and developing similar attitudes (Brodinsky, 1976, p. 71). Government support for public education grew out of a desire to foster this sense of national unity.

By the late 1800s, leaders in education were looking for better texts to teach reading skills in secondary grades. Silent reading began to replace oral reading in elementary schools and stories incorporating adventure themes that appealed to a child's imagination, such as Mark Twain's *Huckleberry Finn* (1894), became more available to the reading public. The increases in reading abilities of schoolchildren produced adults who were more proficient in reading, and this spurred a demand for reading materials. Books and magazines became popular. Libraries and mass circulation newspapers met the increased reading needs of the public and expanded with improvements in technology such as cheaper printing methods that led to more widespread and faster distribution methods.

### **The 1900s**

The roots of content area reading go back to the early 1900s (Moore, Readence, and Rickelmann, 1983). The educational tradition of early American schools consisted of mental disciplines that emphasized imitation, and rote learning, mainly memorization. Students at all grade levels were drilled so that they could "disclaim" a text with the proper articulation, inflection, accent, emphasis, and gesture. Around the turn of the 20th century, new goals began to come in the place for American education, influenced primarily by three distinct groups- humanists, developmentalists, and scientific determinants. Humanists believed that the central function of the schools was to develop students' abilities to learn information

meaningfully and independently. This thought set the stage for current beliefs about reading to learn. The

Humanists trace their origins back to the Greeks of earliest times and a number of educators including Erasmus, Comenius, and Pestalozzi. Humanists were concerned with helping students learn to think and to make inferences of their own. This emphasis on meaningful learning, and independent thinking, carries clear implications for reading instruction.

Developmentalists became an influence in education after the turn-of-the-century. Psychologist such as G. Stanley Hall and Arnold Gesell studied the patterns of growth among children. These studies aided the emergence of content area reading instruction mostly by pointing out that children exhibit varying degrees of development as they grow and that differences exist between children as they develop. The developmentalists believed that what educators needed to do was to tailor reading instruction to individual requirements and all grade levels with a variety of texts and tasks (Gray, 1925). The developmentalists' influence on reading education is exemplified by the call in the late 1930s and 1940s for an extension of developmental reading programs to the high school (Bond & Bond, 1941; Strang, 1938). Developmentalists also helped direct attention on children as individuals in their own rights. Consequently, educators began calling for differentiated instruction and readiness activity to stimulate content area reading instruction by concentrating on what students needed in order to cope effectively with subject matter reading assignments.

Scientific determinants believed that decisions about school affairs could be made to impact learning outcomes. Social efficiency sought to identify and implement the most productive approaches to education. In order to identify what worked best, educators need trustworthy scientific methods of comparison. The result was standardized tests, which provided a needed comparable measure of student's academic abilities. Reading comprehension was one of the abilities that could be measured in order to assess the outcome of the school. The reading comprehension test required students to demonstrate their understandings of never before seen passages. This test format required students to comprehend passages without the benefit of prior, direct instruction about the content. At the same time, reading research was looking at various different aspects of the reading process. Early studies that gave rise to content area reading-to-learn instruction, including those that reported the superiority of silent reading over were reading (Mead, 1915, 1917) and E. L. Thorndike's famous "reading as reasoning: a study of the stakes in paragraph reading" (1917). Thorndike said. "Reading was a very elaborate procedure, involving the weighing of many

elements of the sentence, their organization and proper relation to one another, the selection of certain of their connotations and the rejections of others, and the cooperation of many forces to determine final response” (p. 323). Thorndike was saying that readers needed to predetermine purposes for reading and constructing mindset for subsequent reading. To accomplish this, he called on educators to replace oral reading with exercises of silent reading, and to have students answer questions, ask questions about what they read, and summarize material. Other research studies looked at the correlation between reading achievement and overall achievement in school subjects. Researchers investigating this topic compared reading achievement with subject matter achievement as measured by either course grades or standardized tests.

In the first half of the 1900s, a number of advances took place that helped emphasize teaching children how to read better. In 1917, Congress enacted the Smith-Hughes bill to promote education in home economics, agricultural education and training for trades and industries. In 1918, The NEA Committee of Ten published their report calling for the reorganization of secondary schools education methods to meet the demands of the Twentieth Century. With the increasing popularity of silent reading over oral reading during the early 1900s, more and more studies were completed to prove the significance of silent reading.

While trying to show the value of silent reading, researchers discovered the numerous factors involved in the active comprehension. Reading was no longer simply pronouncing words correctly. Reading became a process built on getting meaning through the understanding of words, phrases, sentences. The arrangement of words, chunking together thoughts, and even prior knowledge played a role in this process (Stevens, 1981).

### **The 1920s**

By the 1920s, research efforts were focusing on topics such as silent reading, individual reading differences, and remedial reading. William S. Gray conducted long-term studies to identify reading study skills by content area. The survey involved 250 teachers in grades 4, 5 and 6 to determine the uses of reading that occurred in different content areas. The researchers concluded that students read to get the central point, to determine the sequence of events, to remember and reproduce the plot of the story, and to secure pictures from descriptions (Gray, 1925).

Attention and emphasis on reading instruction beyond the early grades did not begin until the late 1920s. This change in reading instruction arose because Gray's earlier research had identified differences in technical reading and literacy. Olive Gray (1926) believed each subject had its own vocabulary and use of expressions or phrases, which need to be understood in order to fully comprehend a specific subject area. Any the content areas make use of visuals, involving symbols, charts, and graphs, require special reading skills. Olive Gray appreciated reading instruction, but she believed it should be combined the subject matter to ensure student success and achievement.

The practice of organized reading instruction beyond elementary grades resulted from early reading tests that showed many adults and adolescents could not perform well on these tests. Phonics, which had been the predominant reading method, was not producing adequate results and the emphasis was shifted to Story Reading. In this method, the teacher first read an entire selection to the students, and later, the students would read the story themselves. The emphasis was on the students getting the whole meaning by hearing the complete story. Through this teaching method, students were to learn to anticipate up coming events by following sequential ideas in the story.

A second concern was the result of induction testing of reading skills conducted on soldiers in World War I. The results indicated low proficiency in reading skills, which hampered service men from effectively performing their assigned jobs. The American public's awareness of this illiteracy led directly to the development of remedial reading programs in elementary schools after World War I (Cowan, 1977). Results of these findings also led to the implementation of remedial reading programs in secondary schools during the early years of the 1930s. Other testing results indicated that silent reading was producing superior results to oral reading. Perhaps the most influential research was the publication of the Twentieth Yearbook of the National Society for the Study of Education (1924), which emphasized the advantages of silent reading, almost exclusively, and analyzed reading difficulties in content-area materials and made suggestions for teaching content--area-reading skills. "...there is little evidence that these suggestions ever received more than casual recognition in reading programs" (Venezky, 1986, p. 145). In the 1920s, researchers realized that different types of subject matter presented unique problems for comprehension for some students. Thus, content area reading emerged and concern for integrating reading instruction successfully and appropriately with subject matter began the debate still very much an issue today.

### **The 1930s**

During the 1930s concerns arose over the issues of what means should be used for conducting remedial reading instruction identified as being needed in the late 1920s. This research tried to identify what was the nature of reading problems experienced by adolescents and adults. Though there were few new programs initiated during this period, the interest in improving reading performance set the stage for further research and later program development. Early on, scholars emphasized the importance of the demands of various subject areas and on improving the reading abilities of junior high and high school students (Strang, 1966). While many of the nation's schools were initiating remedial reading programs, educational researchers were busy in what Smith (1965, p. 256) called "the first period of intensive research and application," which lasted from 1925 to 1935. McCallister (1936) devoted about one-third of his book to the instruction of reading in the content areas of English, history, mathematics, and science, calling for the integration of reading instruction within the content areas.

It is only in the 1920s and 30s then, that educators began to acknowledge that there was a difference between technical reading and literacy (Moore, Readence, & Rickelmann, 1992). In the 1930s, professional interest and concern for reading problems led to research into the nature and extent of adolescent reading problems. This interest in the problem laid the foundation for many of the studies and eventually for programs that developed later.

### **The 1940s**

With the onset of World War II, it was again discovered that thousands of American servicemen were still functionally illiterate. It was also found, however, that reading could be taught to these men in a remarkably short span of time, approximately 8 weeks (Cowan, 1977; Smith, 1965, p. 269). A secondary impact of World War II was that during the war years, there was a decrease in research concerning educational matters, because of lower attendance in graduate schools and declines in college faculties in response to the demands of war.

After the war, the surge of GI's returning to school took advantage of opportunities to further their college educations studying issues related to reading methods both from a psychological and professional education point of view. Concerns about poor reading ability of many younger G.I.'s led to increased efforts at addressing deficient reading skills in schools. This concern also served as a catalyst for expanding remedial reading programs in junior and senior high school. During this time, a new term, developmental

reading, came to be used more widely. Smith (1965, p. 273) credits the first use of the term to Guy and Eva Bond in their 1941 work, *Developmental Reading in High School*. They proposed a program of reading instruction to refine and develop the reading abilities of all high school students in addition to and separate from a program for remedial instruction to meet the needs of those whose reading progress had been inadequate. In the early programs of content area reading, researchers and administrators were extremely enthusiastic about this new approach. During the late 1940s, changes were made in the philosophy of reading and reading practices incorporated in schools. This change was much needed, but proved difficult to measure as to how effective reading instruction in the content area had been on improved student achievement.

A. S. Artley (1944) published an article in the *Journal of Educational Research* in which he described the debate between the two extreme points of view: who should teach content area reading—the English/reading teacher or the content teacher? Artley pointed out the middle ground between these two extreme viewpoints. He believed “the reading teacher furnishes the nucleus around which basic training is given, while other (content) teachers apply these basic learnings to their particular structural area, as well as develop those other skills and abilities that appear uniquely related to their own content fields” (p. 465). In his study of social studies students in grades five through eleven, Artley measured their achievement on IQ tests, general reading comprehension tests, and social studies tests reflecting the type of reading skills necessary for comprehending the material. Artley felt his results supported five educational implications. First, the English/reading teacher in secondary schools can have an impact on the student’s degree of success in social studies by teaching general reading comprehension strategies. Second, if the social studies teacher is willing to teach the skills necessary for the social studies content area, there will probably be a transfer of these skills to other content areas. Third, each teacher has a responsibility to provide skill instruction necessary for the content area as well as demonstrating how they may be used in other content areas. Likewise, it is equally important to make use of skills taught in other content areas, and emphasize them in ones own classroom. Fourth, a general reading test will be sufficient to show strengths and weaknesses of reading abilities in the students and use of reading skills, rather than a specific test for each content area. Fifth, general and specialized vocabulary should be introduced to students. Artley suggested the specialized vocabulary be presented in context rather than isolation. He warned, “teachers must be careful to maintain the proper balance between facts, on one hand, and language, on the other.” (p. 472). The annual conference of the International Reading Association held at the University of Chicago in 1946

focused entirely on improving reading in content areas. The proceedings, which were published in January 1947 (Strang, 1966), addressed the following topics: 1) Specific problems in individual content areas. 2) The role of reading in the content area. 3) The nature and extent of reading in the primary grades, intermediate and upper grades, as well as problems in secondary education. Additional foci of the conference included: 1) Reading attitudes and skills needed. 2) Types of development in reading needed in content fields in secondary schools. 3) Impact of vocabulary development. 4) Steps in understanding and interpreting content material. 5) The influence of purpose on reading. 6) The nature and role of wide reading in the content fields. and 7) The need for improvement of textbooks in content fields. These were an attempt to provide systematic reading instruction and led to recommendations by leaders in the field that—systematic reading instruction for all students continue into middle and secondary schools (Bond & Bond, 1941; Gray, 1948).

Two other sources in the latter part of the 1940s carried at least symbolic significance for secondary reading: Reading in the High School and College, the Forty-Seventh Yearbook, Part II, of the NSSE, and “Improving Reading Instruction in the Secondary School,” which comprised the entire February, 1950 issue of The Bulletin of the NSSAP. These publications concentrated on the growing awareness that reading abilities of students were beginning to slump and there was an increasing need for more proficient readers to meet the demands of a technologically advancing world. As a result, these lead to an increased emphasis on improving reading skills in schools during the next few decades.

### **The 1950s**

During the 1950s, there was an expansion of secondary level reading programs and both reading instruction and reading disabilities received increased attention and public scrutiny. After the invasion of South Korea in 1952, President Truman called for a strengthening of emphasis on national character. This resulted in changes to materials read by students in the social studies and teaching reading in the content areas became much more important.

When Rudolph Fleischer published *Why Johnny Can't Read*, in 1955, it raised questions about the quality of American education, with specific attention directed towards reading instruction. The result was the further development of content area reading research and instruction. The launching of Sputnik in 1957 by the Russians, put technological achievement in jeopardy and government grants were infused into the

educational system to improve reading at all levels (Cowan, 1977 p. 79). The National Defense Education Act (NDEA), passed in 1958, provided large amounts of federal funding for research, teacher education, school programs, and curriculum projects.

### **The 1960s**

In the 1960s, the federal government began to assume a more prominent role in public education. The Congress funded several categorical aid programs that gave education a strong monetary push. Perhaps one of the largest influences on content reading education in the 1960s came from increased involvement of the federal government in development and reform of educational practices. The early 1960s were exemplified by an interest in improving education in the sciences, in reforms for students with special needs, and preparation of a challenging curriculum for the academically gifted. Much of this initial education thrust was toward building new schools, improving teacher's salaries, and providing scholarships for academically gifted students who had financial needs. Because general public sentiment was opposed to private and parochial schools receiving financial assistance from the government, most of the legislation died in committee in 1961, 1962, and 1963. Following the death of President Kennedy in 1963, President Lyndon Johnson began to modify the emphasis on the need to improve education. He proposed that education was a part of the comprehensive federal effort to eliminate poverty, promote social welfare and stimulate economic growth. The Elementary and Secondary Education Act (ESEA) of 1965 tied into its funding provisions the 1964 Civil Rights Act regarding integration. Qualification for federal funds required school districts to file assurance of desegregation in their schools along with a plan for fully desegregated classes by 1967. The ESEA also encompassed programs like Project Headstart, which was designed to intervene early in the lives of children from poverty areas, and was presented as the cure for underachieving black students and poor students (Elam, 1970). The intent was to create a readiness to learn that would counter any cultural deficits. Many of these legislative acts targeted poverty, vocational education, school lunches, migrant education, and various higher education and adult education programs. This period was one of renewed opposition between traditional educators who believed that the primary purpose of education was to teach basic academic skills and subject matter in a teacher-directed manner, and progressives who saw education as a process in which pupils address situations through direct experiences and problem solving (Gutak, 2000). Interest was also seen during the latter part of the decade in exploring other teaching options such as Computer Assisted Instruction (CAI) and the extended school year, with periodically spaced "vacation" periods between terms. Although Title III of the National Defense Education

Act initially looked at strengthening science, mathematics and modern language instruction, in 1963 it was expanded to include funding for history, civic, geography, English and reading both at the elementary and secondary level (Crary & Petrone, 1971).

In an attempt to remedy declining reading scores and to address the reading problem occurring, funding for remedial reading in both elementary and secondary schools came under Title I of the Elementary and Secondary Act (ESEA) of 1965 which aimed to provide financial aid to local area with high concentrations of low-income families. This legislation dictated strict adherence to issues of teacher certification, testing standards, and selection of students for special programs.

Gradually, other reading programs began to emerge and it was hoped that the national push for excellence would lead to instruction in the content areas as a viable means of improving reading skills of secondary students. Reading deficiencies, identified as a major problem for students beyond elementary school age, caused many school systems to scramble to institute remedial reading programs for students in junior high grades.

Because reading instruction had been an area of primary emphasis in the elementary grades prior to Title I, this necessitated a relocation of some certified elementary reading teachers to middle schools. Funding under Title III was available for local educational agencies to create innovative programs to meet local needs in elementary and secondary schools, and some districts tried implementation of newly organized classes in middle and secondary schools that taught developmental reading. These classes, frequently labeled Basic or Remedial English, were created to reach students who were not eligible for Title I educational initiatives and those with mild forms of reading dysfunction. These reading teachers were also asked to work with content area teachers to design in-service programs aimed at content area reading instruction.

Title IV of ESEA provided funds for educational research and training and led to increased interest in areas such as content area reading studies. It was during this period, that content-area reading began to receive greater attention.

In the past, many content area teachers have fought the idea of having to teach reading skills in the classrooms, because they felt that they lacked adequate training. In addition, many teachers also argued that state or district mandated requirements for teaching content area materials did not allow latitude to spend time teaching reading skills. Marksheffel (1966) refuted this, stressing that every social studies teacher must

accept the responsibility of aiding students with problems they encounter in textbook reading, because comprehension in the social studies is so dependent on a unique set of vocabulary words with specific definitions and connotations.

Stang (1966) believed that proficiency in general reading skills is not enough for success in social studies classes. In many cases, students need a technical vocabulary and special skills in each content area. Stang felt that the teachers' best prepared to teach students specialized skills that they needed to learn were the subject area teacher. The extensive use of map, graphs, and charts to convey information in the social studies means that teachers must ensure that their students are taught to utilize resources and given specific practice of effective interpretation so they can become more proficient. Artley (1968) in a review of over 180 studies and reports summarized the practices of secondary reading from the mid-1950s through the mid-1960s and noted that numerous studies had shown a decline in reading growth beginning at the secondary level.

*“The literature seems to indicate clearly that the handicapped reader has received a major share of attention over the last decade, as is indicated by the number of remedial and corrective reading programs in relation to developmental programs as well as the number of studies and reports of the use of corrective and remedial techniques and materials.” (p. 111)*

Artley also noted that several of the research studies described programs that included students besides those with special needs or reading handicaps.

*“The approach with recognized promises is one providing for the close integration of reading and study with the teaching of the various content areas. Since the teaching of content assumes that the learner will need to purposely select, comprehend, organize, evaluate, and apply ideas, generalizations, and principles—all of these being reading competencies—the close*

*alliance of subject matter and reading is a natural and obvious one.” (p. 108)*

His conclusion was that the most apparent reason was the general absence of systematic reading instruction beyond that provided by the elementary school.

Beginning in 1969 the federal government began publishing reports under the title of National Assessment of Educational Progress (NAEP). The NAEP was the first major effort of the federal government to standardize schools by establishing a "measuring stick" against which state education programs could be assessed for determining eligibility to receive federal money for education. U.S. Commissioner of Education, James E. Allen Jr., called upon the nation's schools to give high priority to the improvement of reading instruction. The NAEP reports laid the foundations for both the GOALS 2000 education program of the Clinton presidency and The No Child Left Behind Act of 2001 of the George W. Bush presidency.

Thus, one may view the history of content reading instruction as going from little reading instruction before World War I to some remedial instruction after World War I and further increases in remedial instruction following World War II. In the 1950s and 60s came the addition of developmental reading classes and increased federal government intervention in education connected to federal aid to education in the Kennedy-Johnson years, and finally as we enter the 70s, a rediscovery of the foundations of the need for reading instruction to be a part of content area instruction.

In early elementary grades, pupils historically spend a large portion of their school day either learning to read or broadening and improving their reading skills as their teachers try to integrate reading skills into the teaching of content areas. This is not the case in either middle or high school where the textbook is the predominant material used for instruction (Armbruster, 1981; Ciborowski, 1992; Roe, Stoodt & Burns, 2001; Topping & McManus, 2002; Richardson, Morgan, & Fleener, 2005; Vacca & Vacca, 2005). There was also a tendency, especially in the early elementary grades, to have a group of students with a single teacher who provided instruction in all subject areas. In middle and high school the ability to understand text becomes more critical because of the larger amounts of text that students are expected to read on their own (Rivera & Smith, 1997), the specialized and technical vocabulary that they need to learn (West, 1974), and the various cueing systems that are used to organize text material (Meyer & Rice, 1984). Additionally, students usually have different teachers for each subject throughout the day. Artley (1968) emphasized, "effective reading and study in each subject area required the use of certain

abilities related in varying degrees to that particular area” (pp. 110-111). The expectation is that students will obtain the majority of information they need from reading some type of text. At the middle school level teachers need to be concerned about teaching not only their subject but also elaborating on those skills and strategies that will help their students to become more confident as well as proficient in learning material they are exposed to. Any one who is familiar with middle school aged students, as either a parent or teacher, realizes the types of transition that students encounter between leaving elementary school and starting high school.

## Chapter 3—The 1970s

The purpose of this study was to identify the research related to methodologies of teaching content area reading reported in major research journals and research reports during the period between 1970 and 1999.

Chapter 1 presented the introduction, provided a statement of the problem, the purpose of the study, need for the study, basic assumptions, delimitations and limitations, definition of terms, procedures, and a statement of the organization of the study.

Chapter 2 dealt with a historical overview of major influences in reading instruction, and a review of the early history of content area reading leading up to the increase of interest in content area reading in the 1970s.

This chapter deals with the relevant research reported in content area textbooks that were published in professional journals during the 1970s. Relevant research findings from the 1970s included research into: attitudes towards reading, assessing reading ability, background knowledge, comprehension, content area reading programs, cooperative learning, curriculum, prior knowledge, purposes for reading/writing, questioning, readability, reading skills, schema, strategies for learning, study skills, summarizing, testing, and vocabulary.

The decade of the 70s, saw a marked interest and focus on teaching reading skills within content areas (Herber, and Sanders, 1969). A major area in the field of teaching addressed in the 1970s was the emphasis on teaching reading skills as part of social studies and other content area instruction. Some researchers and social studies teachers found that their students lacked the “tool skills” necessary to learn effectively. Another issue of concern was reading fluency. If a student has to struggle over decoding words they encounter, or read “run-on” over punctuation marks, overall comprehension of a passage will suffer (LeBerge and Samuels, 1974).

Once the issue of the need for teaching reading skills during content area instruction was recognized, it began to meet with resistance. Studies examining teacher education programs during the 1960s and 1970s found part of the problem was that in preparation of preservice teachers, most colleges and universities did not require a course in reading methods for secondary education majors. Where these students were required to take a reading methods course, researchers found that courses concentrated

mostly on reading skills necessary for grades one through three, rather than needs of teachers at the intermediate, junior high level, and secondary level. These reading courses usually had a narrow focus and lacked emphasis in teaching study skills, critical thinking, and grouping of students—all commonly integrated in content area reading instruction. A contributing problem was the general reading ability of teachers across the nation. There were indications suggesting that some teachers lacked adequate reading skills themselves and therefore were ill prepared to help students who experienced reading difficulties. In 1970, the first modern textbook exclusively devoted to the subject of content area reading instruction *Teaching Reading in Content Areas* was published (Herber, 1970). Herber believed that skills taught in reading classes were applicable to content material and that students must adapt the skills to meet the differences in the subjects they study. Over the next few years, Herber and his associates engaged in several research studies designed to refine instructional strategies and to establish further support for functional the concepts of content area reading instruction. (Herber and Barron, 1973; Herber and Vacca 1977; Herber and Riley, 1979). These studies focused on the use of strategies such as graphic organizers (Earle, 1969; Barron, 1972) anticipation guides (Shablak, 1972) question generation strategies (Smith, 1977), guide materials related to text structure (Vacca, 1973), and reader response (Sanders, 1970). Many content teachers misunderstood what Herber was saying about the statement “every teacher a teacher of reading.” In spite of the notion that prevailed at the time, Herber was not advocating that content area teachers needed to take time away from content to teacher reading skills apart from content instruction.

*... There is no place for reading instruction as reading teachers generally employ it in content areas. There is a need for a whole new strategy in teaching reading through content areas, a strategy that draws from what we know about the direct teaching of reading but adapts that knowledge to fit the structure of and responsibilities for total curriculum in each content area. (Herber, 1978, p. 8)*

This interpretation says that every good teacher helps their students to develop ways that enhance reading ability by building reading skills. Allington (1975) pointed out “The primary task facing the middle school teacher was aiding student transition from the skills oriented primary curriculum to the content oriented secondary curriculum.” At the secondary level, teachers need to continue to reinforce the use of effective strategies and further develop vocabulary, thinking skills, and understanding. This entails more than

making reading assignments, assigning questions to answer, or lectures about what students should have read. Roe, Stoodt, and Burns (1983) stated, “It is especially important for social studies teachers to reinforce critical reading skills so that students can learn to evaluate not only *what* has happened but also *why* events have occurred.” This goes along with what Palmer (1974) said:

“The role of the reading specialist is to teach skills that are fundamental to all reading of whatever kind... the teacher of content area should guide students in the application of basic skills and study methods to the material used.” “The content classroom provides a place where reading abilities may be developed functionally”.

This continues to be relevant for today’s teacher as well: “It is our responsibility as teachers to make sure that all our students become as literate as their innate talents and abilities permit them” (Reutzel, Cooter, & Robert; 2004). This position emphasizes that a reading teacher alone cannot teach reading skills, it falls to content area teachers to help their students to learn and incorporate reading and learning strategies that are most effective for their respective subjects.

## **CURRICULUM**

### **Curriculum Issues**

McDonald (1971) stated, to be effective, reading programs must be an integral part of the total curriculum and, that content teachers must be responsible for fusing reading into content subjects.

Shane (1976) proposed some changes for the next 25 years of education in America based upon growing evidence that our nation is driving itself towards destruction as a result of our ignoring pollution, changing gender issues, our place in the world community, and educational/ motivational needs of students. A few of the changes are:

- developing “problem-preclusive” curriculum that eliminates the need for competency education because we do it right the first time.
- teaching gender issues as they relate to contributions that can be made to society.
- dwindling educational funds and declining school population.
- developing more future focused teacher education programs
- the need to develop multicultural education programs that emphasize the contributions of minority cultures.

Stallard (1977) compared the differences and similarities among fifteen commercially available objective based reading programs. Characteristics such as grade appropriate level, category of skills included, availability of consultative and in-service training, average number or specific activities, and percent of test items needed to demonstrate skill mastery are summarized. Stallard believed that objective based reading programs are a necessary part of the total reading program since they provide a means of identifying and developing skills in areas of specific skill deficiency.

Palmer (1978) talked about a rationale for continuing to teach reading in secondary schools. He presented eight arguments often used for why reading should be taught in secondary schools:

- 1) Skill in reading is necessary for success in employment.
- 2) Skill in reading is important for personal improvement and growth.
- 3) Skill in reading leads to a greater understanding of society.
- 4) Skill in reading results in a lifetime reading habit.
- 5) Skill in reading brings pleasure.
- 6) Skill in reading supplies a rich source of aesthetic experience.
- 7) Skill in reading is a prerequisite to independent learning.
- 8) Skill in reading helps to develop personal values.

He gave four realistic reasons we should consider continuing to teach reading at the secondary level: 1) Print is dominant in the secondary school curriculum. 2) Textbooks, which are often too difficult for many students to comprehend, are the principal source of learning at the secondary level. 3) Reading facilitates and reinforces other factors involved in learning. 4) Reading is a unique mode of leaning. Palmer concluded that these four reasons are solid justifications for continuing to provide reading instruction and are positive uses of print.

Emans (1979) examined the apparent polarization between two models in reading theory: “skills model” (Frank Smith, Kenneth S. Goodman, and Robert E. Shafer) and “psycholinguistic model.”(William S. Gray). After presenting examples from each theory, he concluded that there are great similarities among the various views. Shafer, Smith, and Goodman, along with Gray, all emphasize the importance of meaning and that language is an integral part of reading. They all view reading as a unitary process and that readers make use of what they know while reading and make predictions to assist them in developing understanding. They all emphasize the importance of meaning in decoding and they oppose the practice of teaching decoding skills in isolation. Emans stated that the answers to questions such as “How well should

children know?” “In what way should they know?” and “When should they know?” need to be further addressed.

### **Content Area Reading Programs**

The 1970s saw a marked interest on teaching reading skills within content areas (Herber, and Sanders, 1969). One of the first research studies done was Estes (1970), who’s study concentrated on three questions: 1) What reading skills are important to social studies achievement? 2) How can skills be operationally defined for research and practice question? 3) How can the application of such research findings be effected? His finding indicated that required reading skills for successful learning fell into three areas: comprehension, vocabulary, and study skills.

Estes and Staiger (1973) described the IRA’s Project COMPASS (Consortium of Professional Associations for the Study of Special Teacher Improvement Programs) which identified reading as a common concern at both the secondary and university level. The consensus of the group participants was that concern for reading in subject areas was effectively being met when reading instruction is an integral part of each discipline. They suggested that classroom instruction should emphasize not only the content of the discipline but also the reading and study process by which content is learned. They established six specific objectives:

1. To disseminate knowledge about methods and materials for teaching reading within various disciplines in secondary schools.
2. To improve students’ achievement in English, social studies, math, and science.
3. To demonstrate teaching methods and materials appropriately to increase students’ achievement in these disciplines.
4. To change teaching strategies in college methods courses such that they serve as models for appropriate instruction at the secondary level.
5. To apply in liberal arts courses the same methods and similar materials deemed appropriate and useful in like disciplines in secondary schools.
6. To bring about greater cooperation among personnel in liberal arts, colleges of education, and public schools.

Four teams were formed (one in each in English, Math, Science, and Social Studies) who worked with both local university and public school faculties over the next year conducting workshops covering training in lesson preparation, classroom utilization of guide materials, classroom reinforcement and activities, and

evaluation. Over the following two years, the project helped redefine the interrelationship between teaching content and teaching reading skills in the classroom.

Criscuolo (1974) described eight inexpensive reading programs developed in the New Haven, Connecticut school system, that can be adapted anywhere to provide materials and increase available personnel. These were:

- 1) Book Bank of donated books.
- 2) Reading Inducement Plan – Classroom teachers released to work with remedial reading students.
- 3) Reading Share-In- Teachers share their experiences using various materials in the classroom.
- 4) Reading Exhibit- Publishing company sales reps invited to symposium to display their company's latest items.
- 5) Make-It-And-Take-It Workshop- Workshop for teachers where reading games and devices are displayed, materials are provided, and teachers are given an opportunity to make copies for themselves.
- 6) Volunteer Programs- tutors for student in need of extra help.
- 7) Preservice Programs- Preservice teachers given an opportunity to work in the classroom under the supervision of a teacher mentor.
- 8) Parent Involvement- either as tutor or as students in an adult education setting to acquaint them with the reading process and methods used to teach reading.

Cunningham and Shablak (1975) described the Selective Reading Guide-O-Rama, which is designed to help students in reading selectively and in distinguishing key ideas from supportive evidence, and major points from minor ones. It provides a model for purposeful ongoing reading, at first with guidance, and later without, and helps students with reading difficulties to be more successful in reading content materials.

Means (1976) described a longitudinal study of the benefits of individualized reading program and presented research evidence that when students self-select reading materials, both the interest in reading and the amount of voluntary reading increased. A list of popular titles for the periods 1963-1969 and 1969-1972 are presented. Means concluded, after analyzing the data, that: 1) many different titles were chosen by students who participated, 2) a few popular titles and authors were read by many of the students, and 3) that differences between the lists can be expected and the absence of some titles reported may reflect restraints such as “social” and “teacher” approved materials.

Shepherd (1978) pointed out that one of the necessities of basic literacy (basic knowledge) is

divided into specific content area disciplines for instructional purposes; however, the other need (competency in language skills) can and should be taught by teachers in all disciplines. Three specific techniques that teachers can use are: 1) having student share experiences and study together in small groups, 2) rewrite material in their own words, 3) do as much supplementary reading in the subject area as possible. Nine strategies that seem to work well included:

- 1) Teachers using "job contracts" when making assignments.
- 2) Establishing lesson procedures that prepare students for learning the materials.
- 3) Noting appropriate study procedures.
- 4) Pointing out patterns of informational organization.
- 5) Explaining the use of graphic aids.
- 6) Reinforcing printed material with audiovisual materials.
- 7) Foster student vocabulary development and word recognition skills.
- 8) Structure assignments to ensure their successful completion.
- 9) Use open-ended questions that apply the information and skills to lifelike situations.

Sheperd stated that high school content teachers should emphasize effective use of skills by teaching students how to read and study independently, and by teaching language skills that are relevant and pertinent to their particular academic disciplines.

### **Testing**

Research on testing in the 1970 focused on how well formulated reading tests were, and how well minimum competency tests were at assessing critical skills.

Tuinman (1974) stated tests of reading comprehension currently being used, lack one item of technical data: the extent to which questions used could be answered without reading the passages upon which they were based. To determine the passage dependency of comprehension questions, 5 major tests (Nelson Reading Test, Form A; California Achievement Tests, Level 3, Form A; SRA- Achievement Series, Reading, Form E, Blue Level; Metropolitan Achievement Tests, Reading- Elementary Battery, Form F or Metropolitan Achievement Tests, Reading- Intermediate Battery, Form F; Iowa Test of Basic Skills- Reading, Multilevel, Form 5) were administered to 1,200 students. Each test was administered with instruction that questions could be answered without reading the passages. In addition, each test was administered in its normal format to 600 students to establish a control group. Students were equally divided over grades 4, 5, and 6. Results indicated that none of the tests provided sufficient guarantees

against answering items based on information other than that presented in the passage. Average probabilities of correct response without reading the passage ranged from .32 to .50, which is above an expected chance score of .25.

Glass (1978) investigated what was wrong with Florida's 1976 state mandated minimum competency testing system for high school graduation. When the author attempted to find out from state education officials, what definitions were being applied to the terms "basic skills" and "functional literacy," he received a run-around. He checked with the Educational Testing Service, who help construct the high school competency test, and they provided a summary of the "content" of the material covered by the test and statistical data concerning the trial test items. From this, the author concluded that it appeared the items on the Florida Minimal Competency Test had never been validated as measures of "survival skills," and the pass/fail standards were set mindlessly and capriciously.

Chall (1979) looked at the issue of minimum competency testing in reading, which was prevalent at this time, as it relates to determining qualification for graduation from high school. After conducting an informal survey of states, she stated that there is great variation in the definition of what competency is. Most competency tests being considered or in use were either developmental reading tests designed to measure a student's ability to read increasingly difficult material or real-life criterion-referenced reading tests, designed to measure those reading tasks presumed to be essential for adult participation in modern society. Chall questions whether these tests can accomplish what years of standardized achievement tests have failed to do. She questions the soundness of giving these tests to students at the end of high school, when giving them earlier might provide an opportunity to remediate students who display deficiencies. Thirdly, she questions the variety of definitions of competency that are being used. She made recommendations that testing be done early enough for schools to allow sufficient time to correct any educational shortfalls and that the tests need to be challenging enough to show mastery of skills that are relevant; and results need to be used to guide future instruction.

## **LEARNING**

### **Cooperative Learning**

Hoffman (1979) presented an exercise called the Intra-Act Procedure, designed to stimulate spontaneous verbal interaction among participants by means of a small-group problem-solving task. The

goal is to develop a student's skills in critical and evaluative reading and the small group activity forces students to justify their position on issues and to evaluate the decisions of other members of their group.

### **Schema**

Steffensen, Joag-Dev and Anderson (1979) in their research identified that readers' who encounter material that is unfamiliar to their cultural schemata had a greater chance of distorting or misinterpreting what they had read. They asked natives of India and Americans to read two letters, one about a wedding in India and the other an American wedding. Both groups remembered more information and needed less time to read about the culturally familiar ceremony than the unfamiliar one. The interpretation of the material for each group differed based upon familiar cultural viewpoints. This supports the idea that differences in background knowledge about the content of text materials may act as an important source of individual differences in reading comprehension. This may have implications for some of the potential difficulties that minority children experience in school as attributable to mismatch between subculture and majority culture viewpoints that predominate the material children are given to read.

### **Learning Strategies**

Learning strategies research in the 1970s looked at how study skills like note taking and using structured overviews help students' master content material.

Baker (1977) described a two-part study that looked at subject matter being structured and presented to learners in terms of its most inclusive concepts, less inclusive concepts, and informational data. A two-part study was conducted: Part I was to determine the effects of treatment on the learning and retention of information contained in a single social studies lesson of approximately 2,500 words. Part II was to determine the affects of treatment on two learning outcomes- content knowledge and knowledge of term relationships- following a six-week social studies unit. Baker related three findings relative to the total study: 1) For high verbal learners, the study indicated that informational organizers consistently enhanced their learning and retention, content knowledge, and knowledge of term relationships. 2) For low verbal learners, the experimental treatment failed to produce consistent affects, although informational organizers significantly enhanced subjects' learning and retention in Phase I. 3) With respect to generalization of basic research results to the classroom, the inconsistent results noted for low verbal learners suggests that generalization of results from basic research or laboratory studies to the classroom is tenuous.

Pachtman and Riley (1978) related nine steps in developing a structured overview for teaching the mathematical vocabulary necessary to understand and work specific word problems:

- 1) Select problems to be taught.
- 2) Identify and list the vocabulary contained in the word problem.
- 3) List mathematical concepts implicit in the problem but not directly represented by vocabulary terms.
- 4) Arrange the words in a “diagram” or “structured overview” which depicts the relationship among terms.
- 5) Place the words on cards or pieces of paper and make several sets for students to use.
- 6) Place students in small groups and distribute packets to each group.
- 7) Monitor and assist the groups.
- 8) Terminate the activity and provide feedback.
- 9) Provide reinforcement.

The inclusion of small group discussion affords an opportunity to discuss and think about concepts, and provides multiple exposures necessary to internalizing learning which may greatly enhance for those students who have difficulty with teacher “talk-through” in certain types of word problems.

Thomas and Cummings (1978) described how taking notes on a teacher-prepared topical outline listening guide helped high school students improve their performance in essay tests. Although no statistical analysis was performed on the study results, based upon observations made during the lessons, it appeared that the subjects sustained attention for longer periods during the experimental lectures than they had during previous oral presentations. There were fewer incidents of class disruptions and nonproductive learning behaviors and students appeared to be more actively engaged in notetaking than in the past. The types of questions asked by students was more indicative of interpretive and critical thinking, increased peer assistance in clarifying was more evident, there was also less evidence of verbatim transcription of the lecture and more specific details and supportive examples written down.

Karahalios, Tonjes, and Towner (1979) described a study in which seventh graders who read a chapter in a science textbook, along with a written handout explaining the major concepts (in simplified vocabulary), performed better on a post-test than the group that simply read the text. The grouping consisted of (Group 1) Read the Text; (Group 2) Skimmed the Text, then read it; and (Group 3) Read a simplified handout on concepts, and then read the text. They predicted that there would be a significant difference among groups resulting from the use of advanced organizers as part of rereading activities. Their results do indeed show a significant difference Groups 1 and 3. Although there is not a statistical significant difference between results for Groups 1 and 2 or between Groups 2 and 3 there is a trend in the proper direction as you go from Group 1 to Group 3.

## Questioning Strategies

The use of various types of questioning strategies was also an area of interest in the 1970s including hierarchically ordered questions and the use of adjunct questions to learning.

Herber and Nelson (1975) stated that reader who can apply interrogative (who, what, when, why and how) independently have the necessary skills for selecting pertinent information, developing concepts by perceiving relationships, and synthesizing current concepts with others encountered previously. They suggest that teachers should also use this format while asking questions in class in order to aid their students in comprehension of content material.

Lucking (1976) reported on the study of the effects of a hierarchically ordered questioning technique on adolescents' responses to short stories they had read. The result of the study suggests that the type of questions asked had an impact on the manner in which students responded to literature. Questions that were hierarchically ordered led to significantly broader, more interpretational responses among students. Students of both high and low reading ability and favorable and unfavorable attitudes towards reading were affected equally. Recommendations were made that all teachers need to recognize the impact of this study's findings and develop their class questions accordingly with purpose and direction.

Vacca (1978) highlighted the theory and research on adjunct questioning and advanced organizers, to show how basic research had affected applied research in reading in content areas and to link the implications of prose learning research to classroom practices in secondary schools. Adjunct questions are questions placed before (pre-questions) or after (post-questions) a body of text designed to test the readers' comprehension of the material read. The use of adjunct questions focuses attention on relevant aspects of text material and arouses active responses by the reader, leading to increase understanding. The results of this study indicated that neither pre or post questions are superior to the other in the amount of material directly questioned, but both types are superior to a reading-only approach. When an advanced organizer was also used, results indicated that the structured overview facilitated learning by providing a visual diagram of the key vocabulary of the learning task.

Rickard and Hatcher (1978) reported on the effects of interspersed adjunct questions on recall of fifth grade children classified as good or poor comprehenders. Subjects read an 800-word paragraph and after every two paragraphs received either a meaningful learning question requiring organization of facts under given concepts, a rote learning question requiring literal or passage information, or no adjunct question of any kind. Results indicated that for most measures of text recall, good comprehenders recalled

more than poor comprehenders did, and the type of treatment did not have a significant effect. Specific results and differences for and between good and poor comprehenders are described.

### **Study Skills**

The emphasis on teaching students how to study in the 1970s focused on techniques like PANORAMA, SQ3R, and Guided Lecture Procedure (GLP).

PANORAMA (Edwards, 1973) is a study strategy that involves three stages: Preparatory stage- student predetermines study objectives and develops a mental “set” of the task. (**P**urpose for reading, **A**dapt reading rate to difficulty of material, **N**eed to pose questions). Intermediate Stage- where reading takes place and materials are collected (**O**verview of material, **R**ead and relate, **A**nnotate- mark important information). Concluding stage- where the study materials are collated and organized for use (**M**emorize main concepts and facts, **A**ssess your work).

Aaronson, (1975) described a technique for helping students develop the art of listening and understanding ideas. Four methods are studied (formal outline, two-column, Cornell University three column, and no special; method. The two-column method appeared to be easier for students to learn, and is described along with feedback comments that the author had received from students in classes after he had taught them to use this notetaking method for studying.

Tadlock (1978) explained why the frequently taught study skill method, SQ3R, works so well. SQ3R is based on an information processing theory of learning, which suggests that people strive to make sense out of what they encounter. Students in content classes often find they are facing learning tasks that require integration of reading and/or study skills processes. Students takes in information through their sense organs, processes the information using memory, structure and categorizes the information in meaningful ways and stores information so that it can be recalled in the future. SQ3R compensates for deficiencies in the readers information processing system and forces the reader to process information in a productive fashion. Tadlock concluded that if students understand why SQ3R works they would be more likely to believe that it will work, and more likely to use it in independent reading

Andre and Anderson (1979) described two studies, which attempted to determine whether or not generating good comprehension questions while studying prose material was an effective study technique. In part I of the study, high school seniors were randomly assigned to one of two groups: a question-with-training or a read-reread control group. In part II of the study, high school juniors and seniors were randomly assigned to one of three treatment groups: a questioning-with-training group, an untrained

questioning group, or a read-reread control group. Two sessions of approximately 50 minutes each were used to train and test the subjects. Students studied two 450-word passages and were tested over their content. Students taught to ask main-idea questions generated better questions and self-questions during studying appeared to make more effective for lower than for higher verbal ability students.

Larsen and Guttinger (1979) discussed a secondary reading program aimed at preventing reading problems in students who go to college. The program was based on research conducted with college students who had identified reading problems and could be used at the high school level. The study related how a group of high school students met 3 times a week for nine weeks. The first week was devoted to testing, during the second week individual conferences were held to discuss reading scores and to develop a planned course of action. The next 6-weeks were devoted to developing specific reading skills, and the last week consisted of post-testing and evaluation. Results from several groups who participated indicated that a one-year gain in reading rate was achieved regardless of reading ability, and improvement was evident in comprehension and vocabulary. These findings lend support for continuation of skill building in reading throughout the period of secondary education.

Kelly and Holmes (1979) described a notetaking and teaching strategy designed to help students think during lectures and assimilate material in a synthesized form via small groups and written rehearsal. The Guided Lecture Procedure (GLP) is based on Manzo's Guided Reading Procedure and designed to focus on the problem that some students have of not being able to listen, think, synthesize, and record accurately condensed notes from a lecture. Students begin by copying lecture objectives from an overhead, and are introduced to new terminology. They then listen to the lecture without taking notes and after about 30 minutes are instructed to quickly write down all the recalled lecture information in shortened form. Then they are encouraged to work together in small groups to review their notes and discuss major concepts and pertinent details. After class, students are encouraged to reflect on both their notes and the GLP activities for the purpose of organizing new knowledge.

Dunkeld (1978) talked about a study with junior high students that indicated notetaking was an extremely difficult skill to master. Teachers in this study constructed notetaking guides for use with the experimental group and these guides were graded based upon main ideas and supporting statements that students wrote down following classroom instruction. Even though post-test scores were higher for students in the experimental group than the control group, content area teachers involved in the study reported changed expectations for their students. They indicated that they would change their teaching

techniques because of indications that notetaking is too difficult and complex a skill to learn. This was based on their opinion that either it was a more advanced skill or it required more time, more skillful teaching, or more sustained effort than was possible during the period of this study (eight weeks).

## **READING**

### **Attitudes Towards Reading**

In the 1970s, studies about attitudes towards reading can be categorized as 1) those studies that reflect student attitudes towards having to read and 2) the attitudes that teachers display over having to teach reading skills. Studies that address student attitudes towards reading included the following.

Estes (1971) provided a five-point Likert Scale that would allow teachers to measure objectively how pupils felt about reading, the sampling population used to test it, and how data was collected and analyzed. From the wide range of interests indicated, Estes concluded that younger pupils had a more positive attitude towards reading than older pupils did and that the scale had a high discriminatory power to identify a variety of attitude types. Estes believed this scale would allow teachers to measure objectively how pupils felt about reading, something that other types of reading tests do not indicate.

Piercey and Obrenovich (1973) demonstrated eight ways to turn students off to reading:

- 1) ask literal level questions requiring rote recall, closed book,
- 2) Best sellers are “No, No’s” – students have plenty to read to keep up with their school work,
- 3) Have the whole class read aloud, student by student,
- 4) Don’t ever tell them a word they don’t know, but insist they look it up in the dictionary.
- 5) Put reading on a competitive basis,
- 6) Don’t give students a chance to tell you what they really think about a book- carefully design questions to control their thinking,
- 7) House detention classes in the library,
- 8) When you catch a student hiding his own book in the textbook, make sure you ridicule him in front of his peers.

Ransbury (1973) presented research on reading attitudes in children, and a readiness checklist to guide teachers in assessing and improving students’ attitudes toward reading. The checklist asked:

- 1) Does the teacher believe that classroom performance is equivalent to reading attitude,
- 2) How interested is the child in the material that comprises the classroom-reading program,

- 3) What provisions have been made for the child to pursue his own personal interests,
- 4) Do parents understand the classroom-reading program and have they been approached about supplementing the school reading program with a similar program at home,
- 5) Are children aware of the variety of sources of information available concerning any one topic,
- 6) What time has been set aside for children to learn to use the library as a tool,
- 7) Is the child afforded the opportunity of honestly evaluating and restructuring his classroom reading experiences to meet his personal interests and needs,
- 8) Does the child understand that his attitude towards reading is not necessarily a result of personal intellectual inadequacy,
- 9) Does the child realize that it is his prerogative to develop his own expectations about a suitable reading program for him,
- 10) Does the teacher know that the child might well be seeking guidance in terms of developing a meaningful link between reading in school and reading in the real-world.

Children associated attitude with verbal statements about the merits of reading. Parents indicated that the frequency and diversity of reading was indicative of positive reading attitudes. Classroom teachers associated a child's reading attitude with intelligence.

Mathewson (1976) talked about the function that attitude plays in the reading process. He presented background information on the Acceptance Model, which involves the interrelationship of motivation, attention, relevant attitudes, comprehension, and acceptance. The basic thesis of the Acceptance Model is that attitude determines level of attention and comprehension.

Gentile and McMillan (1977) listed ten reasons for teenagers' rejection of reading:

- 1) Many high school students have never experienced the joy of reading,
- 2) Many students are driven to experience life directly rather than through reading,
- 3) A great number of adolescents do not want or cannot sit for prolonged periods of time,
- 4) Adolescence is a period of intense egocentrism- they need reading materials that address their needs,
- 5) Many adolescents demand to be entertained and have not developed an understanding or appreciation of the intrinsic rewards of learning,
- 6) Persistent stress from home and school to read is counter productive,
- 7) Reading is a value that is handed down; many students grow up in an atmosphere void of reading materials,

- 8) Reading may be considered and “antisocial” activity,
- 9) Many classroom texts and supplementary reading materials are dull,
- 10) Some adolescents view reading as a part of the adult world and automatically reject it.

They suggested materials and instructional alternatives to aid in overcoming teenagers’ reluctance, and stated that teachers must work to find ways to make reading more appealing in order to get reluctant students to try it (again).

Morgan and Culver (1978) discussed locus of control, the degree of control that an individual feels he has over reinforcements received in the classroom. They identified one key factor, acceptance of individual responsibility, as crucial in whether a reader perceived him or herself as in control or being controlled by some outside force. Morgan and Culver presented several strategies that are viewed as providing the reader with opportunities for increasing success and recommend that teachers employ these strategies.

Isaacs (1979) talked about the amount and variety of adolescent literature available for use in the classroom with emphasis placed on the values of teaching literature geared to the response level and interests of adolescents. They are not designed to comprise the entire literature curriculum but they do meet the needs of students for achievement and recognition, and can provide needed motivation for reading. Isaacs provided several suggestions for resources and a list of books.

Newsom (1979) described how teachers could use music, which appeals to all students’ interests, to help overcome reading apathy by connecting lyrics and reading. She described a program that she conducted in her classroom and presented the results of several studies on the effectiveness of connecting music to learning.

Smith (1979) described a technique to get reluctant readers to read, designed to not only motivate, but also can be adapted to a variety of teaching techniques. It entailed dividing a paperback book and giving each student a different chapter to read silently based upon the student’s reading ability. After reading, the student should be able to recount the significant events, and the teacher guides the retelling, a form of structured discussion, supplying the missing information only as a last resort. Smith advocates that teachers need to do some instruction in patterns of writing (Cause and effect, comparison and contrast, time order, and simple listing) in order to enhance comprehension.

Research about teacher attitudes towards reading and how this can influence student attitudes

included Rieck (1977) who found that teacher's verbal and nonverbal attitudes were contradictory in most cases. She presented 12-questions for teachers to help them evaluate their own attitudes towards reading in the classroom:

- 1) Do you encourage your students to read?
- 2) Do you read widely in your field to keep well informed?
- 3) Do your students ever see you reading?
- 4) Do you bring books, articles, pamphlets, newspaper articles to class to share with your students?
- 5) Do you recommend books or make bulletin board displays about new library books pertaining to your subject?
- 6) Do you always follow up silent reading assignments with some kind of activity (test, discussion, question and answer)?
- 7) Are you aware of the new books and periodicals in your field?
- 8) Are you aware of your students' reading interests?
- 9) Do you know individual students' reading strengths and weaknesses?
- 10) Can you recommend materials on different levels for your students to read?
- 11) Do you believe that each can achieve some success with reading in your subject?
- 12) Are you aware of the verbal and nonverbal attitudes that you communicate to your students?

### **Assessing Reading Ability**

Vaughan and Gaus (1978) looked at informal reading inventories (IRI) and discussed why, in a traditional format, they do not provide pertinent information to bridge between diagnosis and application in the secondary classroom. They proposed a workable alternative to the traditional IRI called SRI (Secondary Reading Inventory). SRI consists of four reading levels (upper elementary, intermediate, secondary, and advanced secondary) and covers five areas: fiction, factual narrative, social studies exposition, scientific description and exposition, and problematic or directional exposition,

### **Background Knowledge**

Ahrendt and Haselton (1973) presented a model inventory, adaptable to other content subjects, that identified student weaknesses and strengths in bookkeeping and the amount of background material students possess. The authors said that by answering the following four questions teachers could reflect on what teachers value, and how they evaluate their students: 1) What skills and knowledge are important, 2) What am I going to teach, 3) How am I going to teach, 4) What prior knowledge or skills must my students

have. This analysis should allow the teacher to determine what type of instruction would be most appropriate (large group, small group, or individualized).

Guthrie (1978) talked about the apparent lack of inclusion in content area reading textbooks of any information on reading to remember. He recommended that teachers need to teach students to associate new material they are trying to learn with schema they already possess about that topic. Not only should the new material be shown in relation to similar thoughts, but its uniqueness should also be pointed out.

Macklin (1978) showed how a content area teacher can help students relate prior knowledge and personal experiences to new information to be gained through a reading assignment. Meaning can be gained by satisfying two conditions: 1) tapping the reader's prior experiences, and 2) structuring those prior experiences into the context of the material being read. Macklin concluded by describing how to prepare materials for presentation, how to provide guidance during the reading process, and how to help students synthesize what they have read.

### **Comprehension**

Brown (1978) focused on the relative lack of studies concentrating on general metacognitive skills outside of the area of traditional memory tasks, emphasizing the processes that underlie the cognitive products of children (predicting, planning, checking, and monitoring).

Kratzner and Mannies (1979) found that a social studies program in which generalized assignments were given for the development of comprehension and study skills, and which emphasized student responsibility for learning resulted in an increase in student comprehension and study skills scores on the Iowa Test of Basic Skills as well as knowledge of specific social studies content information.

Durkin (1979) did classroom observations in grades 3 through 6 and found that almost no comprehension instruction was taking place because teachers were concentrating on doing assessment of learning through the types of questions they were asking. She also noticed that during periods when social studies was being taught, none of observed teachers used that time to address reading comprehension problems that might arise. Instead, teachers were portrayed as "mentioners, assignment givers and checkers, and interrogators" (p. 523). Finally, although teachers in grades one and two continually referred to teachers' manuals and used them as scripts for teaching, teachers in grades 3 through 6 did not. Durkin stated that the only time upper elementary grade teachers referred to them was when they wanted to learn the new vocabulary words students should encounter in a story and what questions needed to be asked after the story had been read.

Bransford and Johnson (1973) presented a number of studies that illustrated the interplay between linguistic inputs and extra-linguistic knowledge (prior knowledge of a topic). The results of these studies indicated the following: Context had a marked effect on memory. The absence of an appropriate semantic context can, under some conditions, seriously affect the acquisition process. Having relevant prior knowledge is not sufficient to insure comprehension, but that prior knowledge must be activated during comprehension in order for it to be used. Context cues affect the degree to which hard sentences are comprehended and comprehension affects the degree to which individual sentences are learned and recalled.

### **Reading Comprehension**

Reading comprehension studies in the 1970s looked at models of comprehension, sub-skills students need to have to improve their comprehension, linguistics, the use of processes such as CLOZE, the role connective play in enhancing reading comprehension, and the effects of reading speed on comprehension.

Davis (1972) discussed the best-known models of reading comprehension with special attention given to models or partial models of comprehension proposed by E. L. Thorndike, J.A. Holmes, and F.B. Davis. These models were emphasized because they had been experimentally tested. Thorndike and Davis found that knowledge of word meanings and reasoning with verbal concepts are of paramount importance in combination. Davis reported three or four other skills that appear to have an appreciable core of unique nonchance variance as elements of comprehension: word knowledge, determining the meaning of words from contextual clues, organizing meanings, construing the writer's meaning, and drawing conclusions from the content. Holmes' substrata-factor theory of reading led him to select many variables for predicting level of comprehension in reading that proved ineffective for the purpose, and the statistical procedures used by Holmes had been questioned by a number of critics, especially Carroll and Davis. According to Davis, while these procedures may be legitimately used for certain purposes, they do not permit the sort of identification of substrate factors in reading that Holmes envisioned. Davis pointed out some of most obvious errors with the research included small sample sizes, flawed definitions and faulty conclusions. This article is a good example of how well intentioned, but ill-planned studies can yield research data that is of questionable value.

Spearritt (1972) reported on the identification of subskills of reading comprehension data. Differing interpretations have been made of the results obtained by Davis in a large-scale study of the

mental skills involved in reading comprehension amongst twelfth grade students. A refactorization of Davis' data by R.L. Thorndike's research suggested that except for word knowledge, the reading skills were not separately distinguishable. The study consisted of a further analysis of the data, employing the more comprehensive procedures of maximum likelihood factor analysis. Results of this analysis indicated that recalling word meaning and three other skills: drawing inferences from the content; recognizing the writer's purpose, attitude, tone, and mood; and following the structure of the paragraph, were shown to be separately distinguishable, but the latter three skills were highly correlated and thus could be predominately measuring a single basic ability (See Davis, 1972).

Rodgers (1974) reported on a random sampling of the frequency and types of connectives (words that signal a relationship between ideas) used in content area textbooks. The study was an attempt to identify the most frequently occurring connectives characteristics of the print language in various subject areas, based on a random sampling of current textbooks for grades six and twelve. The results suggested that a knowledge and awareness of connectives fostered comprehension in reading and speaking.

Pearson (1975) provided an assessment of the linguistic variables that affect the way in which children comprehend verbal data when they read. A repeated measurement design for high and average achieving third and fourth graders yielded data that indicated that grammatical complexity is often an aid to comprehension and recall rather than a hindrance.

Golinkoff (1976) reviewed selected studies in the area of reading comprehension in order to characterize the differential strategies that skilled and less skilled comprehenders employ. Reviewed research fell into three broad categories: 1) decoding, 2) assessing the meaning of single printed words, and 3) text organization processes or acquiring meaning from larger groups of text. Emphasis was on differences in cognitive processes used; reading processes used, and research finding related to successful comprehension skills. Results from the various studies suggest that: 1) Good readers comprehend large units of texts, and better utilize information between and within words, 2) Good readers scan for meaning and apply it flexibly to suit varied purposes, 3) They also treat reading as a process through which to gain information about events and relations in the world.

Goodman (1976) described the reading process from a psycholinguistic viewpoint. This entails more than teaching children to associate sounds with letters, or recognizing sight words. It entails teaching children how to interpret coded signals with words, in the flow of language, and within the reader. Cue systems within words included things like letter-sound relationships, affixes, recurrent spelling patterns,

and little words within bigger words. Cue systems in language flow included inflections, function words, context meanings, and redundancy in language cues. Cues within the reader included skills in perception, learned responses and strategies, experimental background, and level of conceptual development.

Lunstrum (1976) described various strategies for improving students' reading abilities in the social studies. He addresses a variety of concerns such as the range of materials within social studies textbooks tends to be "greater than the range of difficulty between texts intended for different grade levels", vocabulary loading as a factor in readability and concept load or density of material. Lunstrum also noted that use of the cloze procedure in assessment of readability had been shown in several studies to be influenced by the attitude and personality of the subjects. He recommended that more extensive, carefully designed surveys of reading performance in the social studies be done. Lunstrum stated that since social studies practitioners appear to be uninformed about the reading process and content area reading related problems, that more attention needed to be directed to providing formal study and practice experience in informal assessment and remediation at the pre and inservice levels

Beil (1977) described six advantageous uses of the cloze procedure in the classroom: 1) determine individuals' reading levels, 2) Completed cloze can be used to develop intervention activities through miscue diagnosis, 3) implementation of developmental, corrective, or remedial strategies using a new cloze that focuses on plurals, tenses, and similar problem areas, 4) to develop creative response and problem-solving through contextual awareness, 5) closed popular song lyrics, 6) expressive language development through closed poetry, sonnets, or limericks.

Hansell (1978) suggested how to teach students to use array tasks in developing free form outlines to aid in comprehension of textual material. A major problem, according to Hansell, that teachers face with students who cannot outline is teaching them to understand the material they have read. A study done on seventh graders indicated that after being taught and practicing arrays and free form outlines, students greatly improved accurate recording of material they had read.

Hash and Bailey (1978) demonstrated practical classroom techniques for improving comprehension of social studies materials, based upon the Three Levels Construct developed by Harold Herber. They presented examples of exercises related to reading selections appropriated to each level of reading comprehension (literal, interpretive, and applied).

Marshall and Glock (1978) described a study designed to discover certain aspects of text affected comprehension. Four aspects of text structure were manipulated: 1) If-then relationships, 2) adjective in

either simple or comparative/superlative form, 3) presentation of main idea at either the beginning or end of text sentence, 4) a designated clause placed at either the beginning or end of a designated sentence. Results indicated that these manipulations affected recall of community college students but not those of ivy-league college students, which supports findings of a previously done study.

Steiner (1978) revisited the issue of speed-reading as a strategy to increase comprehension through more rapid exposure to text. She concluded that speed-reading is one of several specialized reading skills along with prereading or surveying, skimming, scanning, and intensive study-type reading. In and of itself, speed-reading techniques can be used to digest large quantities of “informational” material such as newspapers, but is hardly appropriate for poems, longer works of literature that require attention to language or most subject texts (math, science, or social studies).

Sullivan (1978) compared comprehension strategies used by good and poor readers and stated that other investigators had consistently found that: 1) good comprehenders are more flexible in interpreting and transposing information than poor comprehenders are. 2) good readers had less difficulty in relating past knowledge to reading material. 3) good readers, when making judgments, show little difficulty in identifying supporting examples. Recommended further research might focus on comprehension strategies that might be tied to certain text structure.

Fleisher, Jenkins, and Pany (1979) reported on two experiments designed to examine the effects on comprehension of increasing the decoding speed of poor readers. In the first experiment, poor readers were trained to read a list of words as rapidly as good readers did and then asked to read a passage comprised of the practice words. The performance of the trained poor readers was compared to their performance on an equivalent untrained passage and to the performance of good readers. The second experiment was essentially a replication of the first, with the addition of a training condition that emphasized rapid phrase reading. The results of both experiments indicated that decoding training, whether directed on isolated words or on phrases, significantly increased the decoding speed of single words. However, it did not improve comprehension performance. The implications of these findings challenge the hypothesis of the decoding-sufficiency model that slow decoding detracts from comprehension and that increased decoding speed will pay dividends in comprehension. The finding of this study showed that increased decoding speed did not result in increased comprehension. Poor readers still appeared to have difficulty in transferring single word skills to context.

Moe (1979) described the concept of cohesion in text as the establishment of semantic relationships where the interpretation of some element in the text depends on that of another. He described the five distinct types of cohesion (reference, substitution, ellipsis, conjunction, and lexical) and gave the characteristics of each. Coherence occurs when sentences in a paragraph relate to one another and when the paragraphs in a passage are presented in a reasonable sequence. Coherence exists when text has cohesion and organization (the orderly, systematic presentation of information). He closes by relating how cohesion and coherence work together to aid the reader in comprehension.

Schallert and Kleiman (1979) conducted a study to determine why some children find textbooks to be much more difficult to understand than teacher's presentations. Four reading selections for middle grade readers were analyzed, as were tape-recorded lessons prepared by ten teachers based on the same selections. Excerpts from one of the written passages and excerpts and analysis of one teacher's presentation were also done. Results of the study point to four general advantages that teachers had over textbooks in getting children to understand and remember the material presented. These are: 1) They can tailor their messages to the background and level of understanding of their children and their class, 2) They can remind students of relevant information they already know and help them to see how new information is related to prior knowledge, 3) They can focus students' attention on a passage as a whole or on selected parts of the passage, 4) They can monitor comprehension. Schallert and Kleiman stated that this study presented ways that textbook authors may modify written passages to minimize their limitations, as well as ways that teachers can optimize their classroom presentations and their reading comprehension instruction.

### **Purpose for Reading and Writing**

Research in this area presented various strategies such as journal writing, identifying various techniques that authors use, and the connection between using reading and writing.

Finder (1970) presented eight causes in writing that can produce an effect on reading: 1) An argument or explanation. 2) A set of details (thoughts, facts, opinions, etc.). 3) An organization of details in a sequence. 4) A logical or psychological basis for unifying the sequence. 5) A scale or degrees of emphasis assigned to details and the sections into which the discussion is divided. 6) A selection of particular kinds of words, sentences, and varieties of usage. 7) A role through which the writer represents himself to the reader. 8) An attitude or point of view conveyed towards the author, topic, and audience. He then explains how these can be taught in the classroom.

Gudaitis (1976) outlined a reading course to be pursued by students who desired to go to college that focused on two critical areas: reading techniques and study skills. He presented five areas of concentration: reading rate adjustment, vocabulary building, how to read factual material, reading fiction, and collage study skills. Specific examples of each basic area are given.

Muller (1976) described various writing techniques used by authors of adult fiction that need to be introduced and examined by adolescents in order for them to better understand what they are reading. The techniques of Flashback, Interior Monologue, Point of View, Irony, Symbolism, Documentary Writing, Integral Use of Setting, Journalistic Writing, Allusions, In Medias Res, Integral Use of Subplot, Foreshadowing, and Stream of Consciousness are described. Examples of each are presented along with the titles of books that exemplify these writing styles.

Beyer and Brostoff (1979) discussed the way that social studies teachers use writing primarily to evaluate student learning, not as a tool for helping students learn. They view providing help to students in learning how to write as another way of teaching thinking and subject matter. They presented four answers, based on research, to the question: Why should social studies teachers give systematic attention to writing: 1) Less meaningful instruction goes on in schools that we care to admit, 2) Writing and content are inseparable. Learning to write outside of a content area does not automatically ensure the transfer of writing proficiency, 3) Writing is a way of learning, it is an aid to mastering content knowledge, 4) Writing is thinking. It helps students distinguish relevant from irrelevant information, generate and evaluate inferences, make relationships, and arrange data and assertions in a pattern. Beyer and Brostoff also described pre- and post-writing activities designed to aid students in submitting a polished social studies paper rather than a first draft. Data Analysis, question strategies, games, simulations, and values education strategies provide sources for focusing on the topic. Rewriting involves evaluation, revision, and editing.

### **Readability**

Readability research looked at assessing the difficulty level of materials that student encounter, primarily in content textbooks.

Roe (1972) addressed a frequent complaint from high school teachers, that they had no reading materials to use with students who read below grade level. She asked a group of nine graduate students enrolled in a reading course for secondary teachers to read a chapter from a content textbook and assess the readability of the selection using the Dale-Chall readability formula. Roe then asked the students to rewrite the selection simplifying the vocabulary and sentence structure, and then assess the readability of the

rewritten version using the same readability formula. All of the students reported being inspired to do more rewriting in their classrooms and Roe recommended that this type of activity be useful as inservice education for teachers.

Klare (1974) reviewed formulas and predictive devices that tell whether a particular piece of writing is likely to be readable to a particular group of readers. Twenty-eight scales are briefly reviewed and a set of guides are provided for choosing among the various predictive measures. Choices included the user's need, scoring options (manual or machine), simple (2-variable) or more complex, and formulas that measure semantic or syntactic variables.

Bormouth (1975) believed that there were three approaches to teaching in content classes if students are unable to comprehend their textbook: 1) The teacher can spend hours preparing lectures over the material, 2) They can teach their students as many reading skills as may be required by their instructional materials, 3) They can alter the materials to more closely match the reading skills of the students. The first method does not allow the teacher to spend time directing students in discussion and other activities. The second method is time consuming and students may not see the practical application of strategies not taught in context. The third method can be accomplished by testing students either using a cloze readability test over material from their text, or applying a readability formula to the material themselves. Of the two techniques, Bormouth prefers the first. He stated that using a readability formula, while it can predict cloze reliability, can only be done safely when the students have recently taken a standardized reading test, when that test was the same one used to derive the readability formula, and when the teacher has analyzed several samples from the text.

Krause (1976) provided a checklist of evaluation criteria to supplement the SMOG readability formula in choosing new content area textbooks for adoption. He recommended using the SMOG readability formula to quickly determine an accurate readability level and then gives an 18-item checklist of considerations in evaluation a textbook.

Fry (1977) described the Fry Readability Graph and discussed why proper nouns should be counted and how to count syllables and words. Detailed recent work on the validity of readability formulas and the readability graph, which had been extrapolated to college level, are explained and shown in hopes that the Fry Readability Graph will prove more helpful to researchers working with readers that are more adept.

Hittleman (1978) talked about the shortcoming of standard readability formulas, and identifies four major shortcomings that they had: 1) a criterion of comprehensibility cannot be reliably determined. 2)

word frequency and sentence length do not stand in a simple relationship to reading difficulty. 3) the formulas may be of dubious value when used with pupils or materials dissimilar to those used in computing the formulas originally. 4) they do not consider difficulty caused by factors such as concept load, format of material, organization of ideas, or the writing patterns. He made three recommendations for consideration when making a determination of readability in the classroom environment: 1) Avoid using predictive formulas which have arbitrarily assigned grade equivalents or are capable of only establishing a rank order of difficulty. 2) Use some form of cloze procedure since it takes into consideration the constraints of language, the reading ability and other characteristics of the reader, and the background information needed by the reader. 3) Do not use the same criteria of success for all age groups, for all materials, and for all purposes.

Maxwell (1978) discussed whether educators had gone overboard with assessing readability of textbooks. She discussed how various subject disciplines have different reading and thinking requirements based on subject content and therefore, textbooks in those subjects will vary in difficulty of material presented. She stated that perhaps students would be better served if educators sought ways to teach critical thinking skills, complex problem solving, and logical processes rather than seeking ways to make all textbooks more readable.

Nelson (1978) talked about the recommendation made in content area reading textbooks that teachers use a readability formula to determine the appropriateness of text materials. She cautions that while teachers should be able to estimate the difficulty of materials used by students, the most important consideration is does the text convey the essential fact, concepts and values in a logical sequence. She made five recommendations of things that content teachers can do: 1) Learn to use a simple readability formula as an aid in evaluating material for student use, 2) Provide text materials containing the essential facts, concepts, and values of the subject at varying levels of readability whenever possible, 3) Don't assume that matching readability level of material to reading achievement level of students results in automatic comprehension, 4) Don't assume that rewriting text materials according to readability criteria results in automatic reading ease, 5) Recognize that using a readability formula is no substitute for instruction. She concluded that the best ways to enhance reading comprehension is to provide the type of instruction that will prepare students to read, guide them in their reading, and reinforce new ideas through reading and discussion.

Campbell (1979) explained why applying a readability formula to a content text is not enough to determine whether a student can read and understand the book. Campbell believed that factors which the

authors contribute include vagueness and ambiguity of written style, few explaining links in text, few examples included, absence of a principle-rule-principle writing pattern, and irrelevant statements or unrelated digressions. These factors, when factored in, may result in the student still being confronted with an unsuitable text.

Marshall (1979) points out several problems with using readability formulas to evaluate texts used in schools. Three problems noted are: 1) short sentences are not necessarily easier to read than longer ones, 2) readability formulas score for sentence length, not content, 3) they do not account for the context in which words are used, they also do not account for the relationship between the content in a book and the knowledge of the reader. She provided six questions to use as guidelines for analyzing and evaluating text based on comprehensibility:

1. Are the major points the author wished to make clearly stated?
2. Are the key vocabulary terms clearly defined?
3. Are the new concepts introduced in the context of familiar concepts?
4. Are the ideas clearly related to each other?
5. Are pronouns used unambiguously?
6. Has the author of the book addressed an audience of readers with backgrounds similar to those of the students who will be reading the book?

Marshall stated that this process would take no longer than it does to compute a readability formula, and it should produce a better indication of comprehensibility.

### **Reading Effectiveness**

Reading effectiveness research explored ways readers can approach complex reading assignments to aid in acquiring meaning.

Fiddler (1973) stated two common complaints expressed by adults who can read well, yet who are concerned with the effectiveness of their reading are: 1) that they read too slowly, and 2) that their minds wander too much while they read. Fiddler concluded that reading is more than just seeing and thinking, a third activity, perceiving, also takes place. If a reader sets aside something he has been reading and commences another task, the subconscious may continue to process the material, or the reader may simply allow thoughts to digress and wander. In cases of complex material, some readers need to be flexible in their reading rate and need to spend more time contemplating what they are reading. Fiddler presented five activities that need to take place when reading complex material: 1) Allowing mental digressions that

do not materialize into anything fruitful. 2) The writing of papers that express ideas that might seem like ridiculous methods of solving a problem or a series of problems. 3) Oral discussions that follow a stream of consciousness pattern. 4) Role playing that makes use of the daydreaming process. 5) The writing of papers that are based on provocations stemming from the reading of short paragraphs.

Herber (1971) published a final report on teaching reading in content areas, part of a three-year project focusing on problems related to teaching reading in content areas and secondary schools, sponsored by the U.S. Office of Education. The report focused on both how to prepare students for the reading of specific subject matter and how to guide students reading and reasoning so they are learning process as well as content. The emphasis was on pre-reading activities, development and testing of cognitive organizers, guided reading and development of guided materials, intraclass grouping, and vocabulary development.

### **Reading Skills**

Reading skills includes proficiency in critical reading, using context clues, locating information, difficulties presented by textbooks, and the importance of metacognition.

Herber (1972) talked about the implications for teaching and research concerning reading in the social studies. Finding focused on 1) 10 Reading skills necessary for achievement in the social studies, 2) Strategies for teaching those skills, and 3) the readability problems that social studies texts present to students. Herber's discussion focused on: Where should skills be taught, What skills should be taught, What vehicle should be used for instruction, and How can the skills be taught.

Jeffers (1972) discussed course objectives, program evaluation, reading materials to be used, as well as aspects of implementing a remedial junior high reading program.

Cassidy (1973) described ways that reading specialists could help content area teachers improve reading skills. One problem with content area reading is getting subject area teachers to implement workable and valid methods of reading instruction. Project C.A.R.E. (Content Area Reading Enrichment), which involves four content area teachers and a reading specialist teaching four classes of students. They provide reading skills instructions in a co-teaching environment where the reading teacher rotates among the various classes and demonstrates how reading skills can effectively be taught using the content teacher's materials and students.

Dechant (1973) authored a book, which is a comprehensive statement about the reading problems of adolescent students, and related the principles of learning and learning theory of the era to the teaching of reading. Using a linguistic orientation, Dechant guides the teacher through the procedure for developing

word recognition skills and rate skills.

Roehler (1974) looked at the social studies teacher's role regarding the teaching of reading skills, the variables that affect comprehension (ability to decode, background experiences, interest) and what types of thinking skills need to be taught in order for students to effectively analyze social studies materials (word meaning, structure, literal/inferential thinking, and evaluative thinking) Word meaning includes knowing the meaning of content words that name concepts and knowing the relationship signaled by function words such as *in* and *by*. The structure category includes skills that organize the meaning of material through perception of relationships and classifications and which reveal the structure of the author's thinking. The literal/inferential category in addition to drawing upon knowledge of word meanings, focuses on determining the author's purpose, finding the main ideas, drawing conclusions as they are stated or implied, and being aware of factual and inferred information. Evaluative thinking requires the student to pass judgment on accuracy, applicability, and quality of the material read. She finished up by providing examples of how to teach thinking skills. These include directing the learner's attention, directed assistance, and application.

Sherer (1975) described six myths about reading which often results in poor reading habits and inability to complete assigned readings: 1) I have to read every word. 2) Reading something once is enough. 3) It is sinful to skip passages in reading. 4) If I skim or read too rapidly, my comprehension will drop. 5) Controlled reading machines are necessary to improve reading speed. 6) There is something about my eyes that keep me from reading fast.

Barth (1976) described various educational resources such as literature reviews, multimedia instruction and ERIC to improve students reading abilities. He presented some reasons for use of multimedia in the classroom to help develop students' interest and thereby improve their reading (It's an emotional and sensuous medium; it provides a strong stimulus for students who are hard to motivate. Having students talk about a series of photographs encourages the development of critical skills and helps develop vocabulary. Incorporating newspapers into class can be used to help develop students' analytical skills and critical reading skills.

Canney and Schreiner (1976) examined the effectiveness of rule-oriented syllabication instruction and phonogram identification as advanced decoding strategies using a study of 108-second grade pupils. The pupils were divided into high, average, and low readers who were distributed across syllabication, phonogram, and control treatment groups. The experimental group received ten 25-minute lessons on

flexible application of one of these word analysis procedures. Analysis of covariance procedures were used to determine if pupils' posttest performance on several measures differed significantly from their pretest scores. The measures were four subtests of the *Stanford Diagnostic Reading Test* and two lists of unfamiliar stimulus words (a list in context and a list in isolation). Results suggested that neither syllabication instruction nor phonogram recognition strategies improved the word attack skills or reading comprehension of the test subjects.

Chesler (1976) explained a method for teaching basic reading skills using poetry that is similar to SQ3R. It consists of using skills such as skimming, reading for literal meaning, and critical reading. Chesler also gave criteria for selecting poetry to use in class, ways to introduce a poem in class, activities using poetry that help students learn to analyze figurative language, and teach vocabulary skills as a part of reading poetry.

Early (1976) reviewed studies, both empirical and theoretical, that seemed to illuminate the changes affecting the teaching of reading and writing during the decade of the 1970s. She quoted Moffitt (1968) who stated that, aside from art, music, and physical education, the only subject taught in schools is language, since all other subjects are learned in and through language. She recommended that four or five reading skills be taught consistently and repeatedly in all subjects, balanced with reading for personal motives and pleasure. She cautions that language is learned sequentially and that sequences cannot be reversed or stages skipped. There are also several settings that work for teaching reading and writing, no one is best for all children.

Kummer (1976) described a skills development course for high schools designed to give students concentrated direction to develop and foster abilities to use the language arts. The curriculum was individualized to each student's particular needs and looked at five areas: comprehension, oral and written communication, vocabulary, and attitude development.

Turner (1976) provided techniques for simplifying and structuring social studies textbook use to compensate for students reading deficiencies in the elementary grades. Defines five ways that the textbook is used by most social studies teachers: 1) As a bible. 2) As homeland, using other materials as well; 3) As harem girl, uses a variety of text materials. 4) As 76 trombones, all available textbooks and a variety of other materials are used. 5) As hood ornament, textbook used very little). He described seven reading problems that students may encounter in using a social studies textbook: 1) Children lack the necessary reading and writing vocabulary. 2) They can not understand questions; 3) They lack paraphrasing" ability.

4) They lack skills reading tables, maps, chart keys, scale, and symbols. 5) They have insufficient skills in using glossaries, indexes, tables of contents, and appendixes. 6) They read slowly or always at the same rate. 7) They have trouble concentrating on reading and are easily distracted. Turner gave nine techniques for working around these problems: 1) Record critically important textbook sections. 2) Have students read assignment in pairs so they can help one another. 3) Prepare summaries and outlines of textbook sections. 4) Develop question-asking skills by having less able readers ask questions about illustrations. 5) Have the class prepare a cartoon narrative of part of the text. 6) Cut pictures from old textbooks and other resources for use by low reading ability students. 7) Treat sections of the text in a “language experience” fashion, developing a sequence of sentences that express what the children got in their own words. 8) Have groups of children develop learning experiences for other students covering a small section of the chapter. 9) Use “key word” and “key name” searches where students search indexes and chapters for words of high conceptual value or significance). Turner concluded that the teacher should guide elementary reading experiences, that they need to understand and aid less able readers in grasping concepts from the social studies textbook, and that the text needs to be made personally meaningful and significant for students to benefit the most.

Dulin and Duran (1977) wanted to test the effect the characters surnames had on seventy-two, ninth grade social studies student’s perceptions in a series of short stories. Analysis was done of student perceptions of the implied nature of the characters using a 5-point scale. Stories were balanced to reflect fairly neutral characters going about fairly neutral activities. The researcher found that pattern of response to specific characteristics (goodness or badness) occurred consistently throughout all four of the story lines.

Busch (1978) stated that television had had a major impact on the reading habits and achievement of children. Found that preschool and primary student benefit the most from viewing, but after age 12, students’ total knowledge declines as they increase the amount of time spent viewing programs. Also found that children use television to satisfy their fantasy needs rather than their need for information (reflects types of programming they prefer to watch); low-ability children regarded television information as factual more often than middle- or high-ability students; television helps build vocabulary prior to about age 10. Continue exposure to television appears to have a negative effect on vocabulary growth after seventh or eighth grade.

Lunstrum (1978) discussed approaches to improving students’ skill in reading social studies

materials, including reading problems and orientation of reading in the social studies. Identifies three problem areas in Social Studies: 1) making a suitable match between pupil reading abilities and instructional materials, 2) providing motivation to read in social studies classes, 3) improving comprehension in the reading of social studies material. For each problem, selected strategies, procedures, and suitable resources for various grade levels are identified, described, and activities are suggested where appropriate. Lunstrum concludes by describing methods for assessing readability of text.

Olshavsky and Kletzing (1979) described the importance of being able to predict both the content and the way the author will present it, using a study to determine whether poor readers could predict as well as good readers when they read easy material. They also wanted to determine what effect the difficulty of the material had on tenth and eleventh grade readers' predictive ability. They expected that both good and poor readers would use prediction, but that good reader's predictions would be more accurate. They also postulated that a direct or concrete style of writing should be easier to comprehend and therefore lead to more accurate predications than an abstract style. Using a 2 X 2 analysis of variance (good vs. poor readers; concrete vs. abstract writing style), the dependent variables were scored on multiple-choice prediction questions and the subjects written predictions. Results indicated that both good and poor readers were better at predicting events in a concrete story, but good readers did better on both types of stories than did poor readers. Several suggestions for further research are suggested.

### **Reading Strategies**

Studies in this area focused on presenting students with various methods to help them learn better from text.

McCracken (1971) described how to implement a Sustained Silent Reading program and talked about types of materials to use, teacher's role in the process, teaching methods, and student reaction to the program. McCracken also presents suggestions for teacher modeling of responses, which can evoke questions, and meaningful responses that indicate the level of student comprehension.

Earle and Sanders (1973) described several techniques for individualizing reading assignments in subject matter classes. 1) Matching the difficulty of the questions to the student's reading ability. 2) Incorporate varying degrees of stricture when asking questions or giving direction. 3) Use collaborative grouping to solve difficult assignments. Grouping can consist of one strong reader and a weak reader, two readres of equal ability who can augment one another, or dividing the class into ability groups. Experience suggests that use of these approaches provides many nonreaders with the help they need to become

successful readers. Earle and Sanders discussed the benefits of teachers providing individualized reading assignments, varying the structure of reading assignments, using collaboration, selecting materials that are appropriate, and varying the length of assignments.

Earle and Morley (1974) pointed out a systematic process for opening up the classroom to students using three ways that will allow for both freedom and responsibility in reading instruction: time, task, and student movement. Increased time means teachers can allow students some choice as to the sequence of completing learning tasks. Increasing task options consists of separating learning into “required” and “optional”, thus everybody in a class is required to complete 3 out of 7 tasks and have the option to pick which two of the remaining tasks they want to do. Increased movement simply means adapting the classroom setting to match the type of learning going on.

West (1974) prepared a workbook for content area teachers whose students evidenced reading problems. She identified five general areas of reading skills for development by teachers: reading readiness, vocabulary, reading comprehension, study skills, and reading rate. The workbook is designed to help teachers identify and evaluate skills students need within a discipline and in constructing exercises to improve those skills. Topics covered included: reading readiness, estimating readability, selecting textbooks, using book parts, interpreting graphs, assessing students’ ability to read content, making an informal reading inventory, extending vocabulary, improving comprehension, relating rate to purpose, and developing study skills and preparing study guides.

Manzo (1975) explained the Guided Reading Procedure as a “means of drawing student attention to some neglected fundamental skills and attitudinal factors: unaided recall, recognizing implicit questions, self-correction, and organization. GRP helps develop four sub-skills: unaided recall, recognizing implicit questions, self-correction, and organization. These skills when utilized by students improve overall reading comprehension. Manzo state that GRP is designed to increase factual recall without resorting to rote memory. It stresses accuracy in comprehension, and awareness of implicit questions.

Vacca (1975) described a method for teaching reading in content areas called “Magic Squares” which may be used with matching items on a study sheet to help students self-check their answers. Students must correctly match terms and definitions in the example provided and list the number of the correct term in the box on the magic square that corresponds to the letter for the definition. If done correctly the sum of eh numbers in each row will be the same. Vacca cautions that this strategy, like other strategies, can become ineffective if overused.

Donlan (1976) discussed the use of multiple textbooks in the content classroom as a way of meeting the learning needs of students and the steps to follow in creating multiple text participation guides for students, establishing types of learning within a study unit (core readings, supplementary readings, and non-print media), and creating basic goals and terminal performance objectives.

Eanet and Manzo (1976) described REAP (Read, Encode, Annotate, Ponder) and the seven types of annotations, with an example of each type. Heuristic- is a statement usually in the authors own words, which have two purposes: to suggest the idea of the selection and to provoke a response. Summary condenses the selection into a concrete form that is brief, clear, and to the point. Thesis is an inclusive statement of the author's proposition. Question directs attention to the ideas that the annotator thinks are more germane. Critical is the annotator's response to the author's thesis. Intention is a statement of the author's intention, plan, or purpose in writing the selection, as it is perceived by the annotator. Motivation is a statement that attempts to speculate about the author's likely motive for having created or written certain thing.

Craig (1977) recommended a way to make text materials that are too difficult for students to read easier, rewriting. A step-by-step procedure is provided that involves identifying main ideas to be learned, making lists of specialized vocabulary and important concepts, substituting easy words for more difficult ones, avoiding polysyllabic words, using common nouns, underlining proper names, keeping sentences to 10 words or less, turning written numbers into numerals, using simple sentences and using present tense as much as possible .

Epstein (1977) explained how newspapers published on students' birthdays could be used in the classroom to stimulate reading. Reading a newspaper from a student's date of birth offers the student a wealth of information, which might be used in any subject area. Skills such as critical reading, comparing and contrasting, skimming and scanning, summarizing, evaluating and reacting can be either taught or refined. Epstein finished by suggesting 25 activities using the newspaper that encourages students to investigate their past and promotes learning.

Olshavsky (1977) identified ten strategies used by 24 tenth grader students to comprehend a short story. Using a 2 X 2 X 2 design, verbalizations about the subjects' silent reading behaviors were transcribed and analyzed. Ten strategies were identified:

- 1) The use of context to define a word.
- 2) synonym substitution.

- 3) failure to understand the word.
- 4) rereading.
- 5) inference.
- 6) addition of information.
- 7) personal identification.
- 8) hypothesis.
- 9) failure to understand a clause.
- 10) use of information about the story.

Strategies were related to three factors: interest (high or low); reader proficiency (good and poor); and writing style (concrete or abstract). Results showed that although all subjects used the same 10 strategies, readers with high interest, readers with abstract style and good readers used certain strategies (stated failure to understand a word, synonym substitution, addition of information, hypothesis, and stated failure to understand a clause) more often. It did not show any differences in strategies used by good and poor readers but it did show that good readers use strategies more frequently.

Tutolo (1977) discussed various types of study guides, their purposes, and their value. He stated that poor comprehension is a problem that concerns most teachers, and one contributing factor is extensive concept load found in most textbooks. Teachers can help students improve their learning by designing study guides that lead learners to important concepts. There are two types of study guides: Interlocking, where the sequence of thinking moves from literal to interpretive, to applicative. Non-locking study guides do not follow any set hierarchy of thinking. Tutolo concluded that study guides increase textbook flexibility and appear to make it possible for more students to be successful.

Vacca (1977a) presented three ways structured overview can help students and teachers to clarify objectives in content reading: 1) setting purpose for reading, 2) building background and experiences, and 3) teaching unfamiliar vocabulary. Structured overview, which has its foundations in Ausebel's theoretical base of meaningful reception learning, provides a visual diagram of the key vocabulary of a learning task in relation to vocabulary concepts that have been previously learned. It serves a purpose of helping the teacher to clarify their content objectives and to identify the major ideas to be acquired by students.

Vacca (1977b) conducted a study that compared the effectiveness of direct reading instruction in a reading class setting, a strategy of functional reading instruction using guide materials, and interdependent

small group discussion. Findings were: 1) that the function reading instruction strategy increased students' ability to recognize patterns of organization, and 2) prepared reading guide materials, discussed within the framework of interdependent small groups had a positive influence on students' acquisition of content.

Schachter (1978) suggested ideas for using content area texts, tables of contents, newspapers, magazines, and phone books to teach skimming and scanning. Instead of having to always reading every word of a piece of text, these skills will help students to develop habits that will enable them to decide how best to use their time. Schachter stated that flexible reading habits should be taught systematically from kindergarten through high school.

Manzo (1979) presented the ReQuest procedure, which was designed to improve reading comprehension by providing an active learning situation for the development of questioning behaviors. In ReQuest, both teacher and students reading the first sentence of a passage silently. Then they alternate asking questions about the sentence and what it means. Students are to phrase their question in a fashion similar to that which the teacher models and questions are to answered as fully and honestly as possible. Teachers are not to withhold information in an effort to draw students out and students may not answer with "I don't know." Questions that are unclear need to be rephrased or clarified. This procedure continues until the student can answer the question "What do you think is going to happen in the rest of the selection?" At this point, the teacher says. "Read to the end of the selection to see if you are right."

Patberg (1979) suggested a design for future research based on Herber (1972, pp 191-210) and then offers areas of research (Preteaching Vocabulary; Guided Reading Instruction; Prereading). She stated that there is a lack of empirical support for both skill-centered and content-centered approaches to teaching reading recommended in professional journals and content reading methods textbooks. She said that while using many of the reading strategies cited *should* result in more learning on the part of students, the question remains, *does it* and if so, are some more effective than others? Patberg suggested that content reading strategies should be validated by research as suggested by Herber (1972): 1) conduct studies that identify and validate promising strategies, 2) run comparative studies to determine the relative effectiveness of each strategy. Patberg suggested three possibilities for studies: 1) preteaching vocabulary (should the teacher preteach vocabulary using a short, direct technique that makes reading the assignment easier and more understandable or should the teacher preteach vocabulary using a strategy that will teach both word meaning and help the student learn vocabulary development skills necessary for independent reading? 2) Guided reading Instruction- Should teachers design reading guides which help readers understand the

important concepts explained in the reading assignment or should it be in the form of questions inserted into the reading material in such a way that a student has to stop reading and consider the question before resuming? 3) Which pre-reading strategy- directed reading questions, previewing, advanced cognitive organizers, motivational activities- will result in the greatest understanding of the reading assignment for the majority of students?

### **Summarizing**

Research in this area looked at how to teach students to condense what they had read into an accurate capsule statement.

Putnam (1974) gave specific techniques for helping students learn to identify and verbalize main ideas what they read. These include the ability to read a section or chapter in a textbook and express the main ideas in concise statements or in a good outline. She suggests starting by having students read five or six paragraphs from a science or social studies textbook. Then present them with three statements and ask them to select the one that best expresses the main idea of the section. Statement 1- has nothing to do with the text, and is completely irrelevant. Statement 2- is related to the text, but is composed of minor details. Statement 3- is the best expression of the main idea you can compose. After sufficient practice, change the statements to: Statement 1- contains minor details. Statement 2- is the main idea expressed poorly. Statement 3 is the main idea expressed well. In each case, if the student does not select the correct statement, it is easy to show them why one is more encompassing or includes only the main point. The essence of these techniques, according to Putnam is- Do not tell students how to do it, show them how.

### **Vocabulary**

Research about ways to teach vocabulary, the importance of learning vocabulary, and its impact on learning included the following.

Warner (1972) presented a way of making the study of vocabulary a stimulating experience, not a depressing one. He suggested using etymology (the study of the history or words) as a way of generating interest in language and vocabulary. Using narrative storytelling, teachers are encouraged to weave vocabulary terms in which could stimulate student learning. Several examples are presented and strategies provided to enhance learning in the classroom, such as asking students to locate words they have studied in class in newspapers, magazines and books. Warner concluded that studying the history of words and their

origins provide a way of developing a mental attitude that will facilitate the learning of words and turn a boring subject into a study of the complexity of our language and vocabulary.

Earle and Barron (1973) described a set of procedures for teaching vocabulary in content subjects using three instructional components: structured overviews, skills teaching, and extension activities. Structured overviews provide students with an idea framework for organizing information and assist teachers in clarifying instructional objectives. Skills teaching increases students' ability to independently derive meaning from unfamiliar words encountered during reading. Extension activities provide opportunities for students to increase their understanding of word meanings and discern interrelationships among key terms. Examples of all three instructional components are given.

Crist (1975) described the use of vocabulary capsules (words encountered that relate to a specific topic such as food, politics, entertainment, etc.) as one strategy to increase and incorporate new vocabulary into concepts needed for better-spoken communication. During the first portion of instruction, the terms are discussed so that a framework for their correct use is developed. In the second portion, students pair off and conduct a conversation while attempting to correctly use the new vocabulary they have learned at least one time, thus pairing hearing and speaking. Finally, students write as part of a brief exercise to incorporate their newly acquired vocabulary.

Burmeister (1976) discussed ways to develop vocabulary knowledge in content areas using morphemes. Because morphemes are the smallest unit of meaning in language, an understanding of both free morphemes (which can stand alone) and bounded morphemes (prefixes, suffixes, and some root words) which must be attached to another morpheme to gain meaning, can help students in interpreting new vocabulary they encounter. Several techniques and activities to help students develop knowledge of morphemes are presented.

Dea (1978) studied the possible effects on test scores of use and nonuse of vocabulary recognition materials for difficult words in one eighth-grade history teacher's class load of 80 students. Vocabulary recognition materials were used to augment four chapters of the history textbooks that the students were studying, while four chapters not accompanied by vocabulary materials served as control chapters. Not only were there higher grades for the chapters with vocabulary materials, but t-score computations of the overall differences between experimental and control chapters were significant at the .01 level of confidence. The conclusion that vocabulary recognition helps to improve content reading implies that

teachers should investigate the reading levels of students and the textbook, followed by attempts to reconcile reading differences through an emphasis on the difficult vocabulary within the text.

Lee (1978) introduced seven types of context clues to aid students in understanding vocabulary in texts. They are:

1. Experience Clues- students' draws on their own experiences.
2. Comparison or contrast clues- use similar or contrasting word in another part of the sentence to define an unknown word.
3. Synonym clue- the sentence contains a near synonym.
4. Summary clue- The student can ascertain the meaning from reading several sentences.
5. Association clue- student can determine meaning from making associations with words in the sentence that indicates the kind of movement needed to react as described.
6. Reflection or mood or situation clue- student can get the image being created and assign some meaning to the new word through the other words creating the mood.
7. Previous contact- student has had previous contact with the content and can figure out an acceptable meaning for the new word.

She explained that context clues can help a student determine the meaning of an unrecognized word in a content area selection. She discussed the merits of cloze and the maze technique, recommended that word identifications strategies which are taught in early reading be continued by intermediate and secondary teachers through direct instruction, and suggested strategies that will help teachers diagnose the kinds of context clues that students need to practice.

Anderson and Freebody (1979) reviewed the role of vocabulary knowledge or knowledge of word meanings in reading comprehension. They stated that while an assessment of the number of meanings a reader knows enables a remarkably accurate prediction of an individual's ability to comprehend discourse, the reasons why word knowledge correlates with comprehension cannot be determined satisfactorily without improved methods of estimating the size of people's vocabularies. They suggested that improved assessment methods depended upon thoughtful answers to questions concerning what a word is, what it means to know the meaning of a word, and the most efficient way of estimating vocabulary size from an individual's performance on a sample of words.

Duffelmeyer and Duffelmeyer (1979) recommended a vicarious, first-hand experience to the

teaching of vocabulary skills in place of direct instruction, specifically, the use of dialogues or dramatic reading to help students learn and incorporate new vocabulary in content classrooms. It is an approach similar to the way that most foreign language immersion programs work, where students are forced to utilize phrases that they know to deal with everyday experiences in a language where they lack fluency. According to the authors, this may help establish background experience that can be helpful in anchoring vocabulary meaning.

The decade of the 1970s saw increased interest in looking at reading in the content areas because of educational initiatives beginning in the early twentieth century. Looking at the research by G. Stanley Hall and Arnold Gesell, whose studies had pointed out that children exhibit varying degrees of development as they grow, Developmentalists believed that what educators needed to do was to tailor reading instruction to individual requirements and all grade levels with a variety of texts and tasks (Gray, 1939). Educators began calling for differentiated instruction and readiness activity to stimulate content area reading instruction by directing attention to what students needed in order to cope effectively with subject matter reading assignments. Scientific determinants also played a role to the development of content area reading in the 1970s by seeking to identify and implement the most productive approaches to education. In order to identify what worked best, educators need trustworthy scientific methods of comparison. The result was standardized tests, which provided a needed comparable measure of student's academic abilities. Reading comprehension has historically been one of the abilities that were measured in order to assess the outcome of the school. The reading comprehension test required students to demonstrate their understandings of never before seen passages. Standard reading comprehension test formats required students to comprehend passages with out the benefit of prior, direct instruction about the contents. Other research studies directed attention to investigations of the correlation between reading achievement and overall achievement in school subjects. Researchers investigating this topic compared reading achievement with subject matter achievement as measured by either course grades or standardized tests. Researchers also investigated numerous factors involved in active comprehension. The concentration of some research studies was on getting meaning through the understanding of words, phrases, sentences. Others looked at the arrangement of words in sentences and the role that prior knowledge played in increasing comprehension. Using William Gray's research findings (1925) that students read to get the central point, some researchers in the 1970s looked at how good and poor comprehenders differed in an attempt to develop techniques and strategies to help all students read and comprehend better.

One of the big controversies in the early 1970s related back to research done by A. S. Artley (1944) between the two extreme points of view: who should teach content area reading -the English/reading teacher or the content teacher? It had been pointed out that reading teachers furnish the nucleus around which basic training is given, while content teachers apply these basic learning strategies to their particular content area, as well as developing other skills and abilities that appear uniquely related to their own content field. He noted that content teachers willing to teach the skills necessary for learning would contribute to a transfer of these skills to other content areas. After the Chinese invasion of South Korea in 1952, President Truman called for a strengthening of emphasis on national character. The concern resulted in changes to materials read by students in the social studies and teaching reading in the content areas became much more important. The National Defense Education Act (NDEA), passed in 1958, provided large amounts of federal funding for research and curriculum projects and laid the foundation for research studies that affected education in the 1970s. Although Title III of the National Defense Education Act initially looked at strengthening science, mathematics and modern language instruction, in 1963 it was expanded to include funding for history, civic, geography, English and reading both at the elementary and secondary level (Crary & Petrone, 1971). Research at the middle school level identified that “the primary task facing the middle school teacher is aiding student transition from the skills oriented primary curriculum to the content oriented secondary curriculum” (Allington, 1975). At the secondary level, teachers needed to continue to reinforce the use of effective strategies and further develop vocabulary, thinking skills, and understanding. It entails more than making reading assignments, assigning questions to answer, or lectures about what students should have read. Driven by a desire for funded categorical aid programs, many schools pursued remedial reading in both elementary and secondary schools under Title I of the Elementary and Secondary Act (ESEA) of 1965. Reading deficiencies, identified as a major problem for students beyond elementary school age, caused many school systems to scramble to institute remedial reading programs for students in junior high grades. Funding under Title III was available for local educational agencies to create innovative programs to meet local needs in elementary and secondary schools, and some districts tried implementation of newly organized classes in middle and secondary schools that taught developmental reading. These classes, frequently labeled Basic or Remedial English, were created to reach students who were not eligible for Title I educational initiatives and those with mild forms of reading dysfunction. These reading teachers were also asked to work with content area teachers to design in-service programs aimed at content area reading instruction. Title IV of ESEA

provided funds for educational research and training and led to increased interest in areas such as content area reading studies. Perhaps one of the largest influences on the path of content reading education in the late 1960s and continuing into the 1970s (and later) was the impact of National Assessment of Educational Progress. The NAEP was the first major effort of the federal government to standardize schools by establishing a "measuring stick" against which state education programs could be assessed for determining eligibility to receive federal money for education. The NAEP reports would lay the foundations for both the GOALS 2000 education program of the Clinton presidency and The No Child Left Behind Act of 2001.

## Chapter 4—The 1980s

The purpose of this study was to identify the research related to methodologies of teaching content area reading reported in major research journals and research reports during the period between 1970 and 1999.

Chapter 1 presented the introduction, provided a statement of the problem, the purpose of the study, need for the study, basic assumptions, delimitations and limitations, definition of terms, procedures, and a statement of the organization of the study. Chapter 2 dealt with a historical overview of major influences in reading instruction, and a review of the early history of content area reading leading up to the increase of interest in content area reading in the 1970s. Chapter 3 discussed the relevant research reported in content area textbooks that were published in professional journals during the 1970s.

This chapter deals with the relevant research reported in content area textbooks that were published in professional journals during the 1980s. These included attitudes towards reading, attention to reading task, background knowledge, checking comprehension, content area reading programs, cooperative learning, curriculum issues, developing study skills, purpose for reading/writing, questioning strategies, readability, reading comprehension, reading skills, reading/learning strategies, schema, summarizing, testing, thinking skills, and vocabulary.

Research through classroom observation and interviews in the 1980s continued to address problems in integration of reading instruction in content areas. Findings confirmed that very little assigned reading was being done in the content area textbook, that students perceive teachers as the primary source of information, and scan the textbook only for answers to lower-level questions needed to complete their work sheet assignments. If students are not are required to read their textbook to any great length, then demonstrating reading strategies and methods would be considered a waste of both teachers and students time. These types of techniques and strategies take time to develop, and even more time and patience to properly introduce to a classroom of students.

Much of the foundations in the area of teaching content area reading skills came from the development in cognitive psychology in the 1970s and 80s, which provided insight into the relationship between a reader's background knowledge of a topic and the reader's ability to make sense of text. Part of what came out of this movement was something called Schema Theory. The term used, "schema", is a set of cognitive structures of interrelated ideas and concepts built from a person's experiences. A popular term

of this decade was metacognitive learning or Metacognition. As defined by Baker and Brown (1984b, p. 453), it is the notion that readers have various degrees of control and awareness over their own thinking. In other words, Metacognition has to do with the ability control one's thinking and to be aware of one's own cognitive processes. To help students become literate in the social studies requires we teach them how to use reading to construct knowledge. Students need to learn how to make meaning from what they encounter using their thought producing capabilities. We need to show students not only what to do but why, how, and when "this helps... (them) to develop independent strategies for coping with... (the) kinds of comprehension problems they face in school." (Pearson, 1982).

Goodlad (1984) described the predominant form of instruction taking place in schools as "a teacher standing in front of a class imparting knowledge to a group of students" (p.105). Much of this "imparted knowledge" is an amplification of what the students should have read for homework the night before. This practice may have developed out of a growing concern for the inability of students to learn on their own from textbooks. This concern continues to appear in content reading textbooks as an example of how "not to" teach in the classroom (Alexander et al. 1988; Vacca & Vacca, 1989; Roe, Stoodt, & Burns, 1991; Richardson & Morgan, 1994; Vacca & Vacca, 1996; Roe, Stoodt, & Burns, 2001).

## **CURRICULUM**

### **Cloze**

Ashby-Davis (1985) examined the various forms of cloze used to test reading comprehension and reviews norms for validity for structuring tests through qualitative analysis. There are two major categories of cloze procedures: Strict open and modified. Strict open is the original mode developed by Wilson Taylor in 1953, a 250-word text in which every nth word is omitted, with the first and last sentence of the passage left unaltered. Omitted words are indicated by blanks of equal length, no hints or clues are provided, and only exact replications of the author's words are counted as acceptable. Modified cloze refers to any other form of cloze procedure. Clues may or may not be provided, and synonyms may or may be allowed and offered a set of comparisons of cloze with ordinary reading situations that reveal their similarities and differences. Some difference that cloze has are: 1) reading speed (cloze does not permit the reader to decode at a meaningful rate of speed). 2) eye movements (cloze changes the span, rate, and movement of the eyes). 3) reading comprehension (students who are successful with the cloze procedure often use these strategies: Read the first and last sentence of the unmutilated text to determine the main

idea. Skim the mutilated text to try and get clues to the gist. Read the passage from beginning to end trying to find meaning for the omitted words by checking context clues before and after the omitted word or from general knowledge. 4) Then reread the entire text when they guessed all or most of the words, filling in remaining blanks or correcting words already guessed in terms of total text.

Chance (1985) reported on a comparison of the cloze procedure with an oral reading test to assess students' reading abilities. He stated that most secondary reading textbooks indicated that the reading level obtained when using a standardized reading test is the frustration reading level. In this evaluation, students used the Slosson Oral Reading Test to obtain the reading level and the Fry Readability Graph to locate a passage in a high school textbook that matched the grade level, and constructed a cloze test. Of the 600 secondary students who were tested in this way, 60% scored at the instructional reading level, and 20% each scored at the frustration and independent reading levels. For those students who scored at the frustration reading level an easier passage was located and the test administered again. An increase in the number of correct responses was noted. Those who had scored at the instructional and independent reading levels were given a slightly more difficult passage, their scores showed more variations. Chance points out that the Slosson does not distinguish reading levels beyond the 10<sup>th</sup> grade, and. He concluded that teachers could use cloze to evaluate students reading abilities of content textbooks.

### **Content Area Reading Programs**

Research about content area reading programs in the 1980s centered on strategies and techniques to be used by readers before, during, and after reading

Manzo (1980) pointed out that the basis for content area reading programs are twofold. First, developmental skills such as reading, language, and thinking need to be taught throughout the school years. Second, content area teachers are in the best position to promote these skills within the teaching of subject content. He suggested three strategies to aid students in understanding content area texts and concepts: 1) the oral reading strategy; 2) the key concept, key terminology, key questions (C/T/Q) strategy; and 3) the question-only strategy. Manzo noted that since there are drawbacks to any new technique and that teachers need to try each strategy at least three times to properly implement it.

In 1981, Barrett and Graves looked at a program designed to teach the 180 words selected by science and social studies teachers as the most important words used in their courses. They enumerated four factors behind the decision to teach content area vocabulary words: 1) Science and social studies teachers' indication that poorer reader had great difficulty with the vocabulary in their classes. 2)

Authorities in the field of reading (Herber, Thomas, and Robinson) emphasized the importance and potential difficulty of technical vocabulary. 3) Observations that most remedial reading students lack vocabulary skills. 4) Students would experience better success in content classes if they learned certain important vocabulary terms. Pre and post tested was done using the vocabulary and comprehension sections of Level II of the Stanford Diagnostic Reading Test (SDRT) and a random criterion referenced test consisting of a random selection of 45 of the words taught in the program. Barrett and Graves found significant student gains on the test of words taught and the SDRT comprehension test, which showed increased vocabulary growth and improved comprehension.

Gold (1981) described a method (DL-LEA) that offers content area teachers a practical way to help groups of students who are having difficulty in reading by producing content material rewritten on a level the students can comprehend. Directed Listening-Language Experience Approach integrates learning of subject matter, learning to read, beginning with student's background knowledge and developing that knowledge through discussion, and directed listening. Reading is taught and skills reinforced through having student observe the teacher writing summary statements dictated by the students. Gold outlines the steps of DL-LEA and explains how sight vocabulary is reinforced through seeing, saying, and writing.

Lunstrum (1981) explained and demonstrated the use of controversy as a significant motivational strategy for reading in the content areas. Controversy is based on the assumptions 1) that conflict in society is inevitable and therefore, students need to learn to deal with it, and 2) that controversial topics act as a motivator and research has demonstrated that highly motivated students perform at higher level in reading than students with low motivation do. Lunstrum talked about the tradition in education of using controversy to teach in schools. He presented two basic approaches: the introduction of materials and strategies built around a theme or problem and an improvised approach, which involves dealing with potential conflict situations as they arise in class. Examples of both are provided in the text.

Berryhill (1984) suggested that the literature focusing on reading instruction in the social studies consistently identifies the need to integrate reading into social studies instruction. He presented several reasons why reading instruction in the social studies classroom is frequently avoided, all of which deal with perceived teacher inadequacies at teaching reading skills, lack of teacher reading diagnostic skills, or assumptions by teachers that students know (or should know) more than they do. A list of specific skills required for reading social studies material such as technical vocabulary, comprehension skills and study skills that teachers need to ensure that students can perform adequately are presented. Finally, he discussed

strategies to help students learn in the social studies classroom. These included various informal assessments, cloze tests, inventories, using an assortment of reading materials besides the textbook, supplemental learning activities, and the use of sustain silent reading to improve student's exposure to text.

Patberg, Dewitz, and Henning (1984) described an inservice program in which secondary school teachers from various subject disciplines were taught content area-reading objectives, learning strategies, and how to implement them. To evaluate the effectiveness of the training, data was collected using three instruments: an attitude questionnaire, a simulated teacher planning activity, and a real-time observation designed to record the strategies teachers used in their classrooms. Analysis of the data collected showed that teachers reported using a number of strategies they had been taught during the in-service. The planning activities demonstrated that they were integrating strategies they had learned into their lesson plans, including using the cloze procedure, informal reading inventories, and grouping students for instruction. Because of distance constraints, only vocational teachers were observed in the classroom setting. The results of the observations showed that what teacher planned to do in the classroom and what they actually did differed. Since there was no pre in-service evaluation of the teachers, no accurate evaluation of the extent of the use of strategies could be made. There were two possible explanations for the discrepancies between the lesson plans and the observed activities: 1) teacher's thought that some strategies such as asking questions did not need to be enumerated in their lesson plans, i.e. lesson plans are a form of teacher "shorthand" for what goes on in the classroom. 2) the lesson plans reflect the day-to-day reality of the classroom and strategies were added on that day because they were being observed. Patberg, Dewitz, and Henning noted that they believed that the results of the attitude questionnaire seemed to be a better predictor of what teachers would do in their classrooms than were their lesson plans. They recommended further research be done.

Shannon (1984) proposed an instrument that should help teachers and administrators monitor how well reading is being taught in the content areas. He presented an instructional practice checklist focused on five categories of desirable teaching practices: 1) sensitivity to the readability of materials, 2) preparation for reading, 3) the use of reading in content areas, 4) outside reading (supplementary reading), 5) knowledge of principles of reading in the content areas. Once completed, scores are graphed on Cartesian coordinate graph and an assessment of scores given.

Blanchard & Mason (1985) presented five categories of computer programs useful for content area reading instruction: utility programs, word processing, simulations, telecommunications for access to a

database, and story architecture. This is an interesting historical look at the use of computers and the futuristic idea of exchanging information between computers using a modem, and accessing on-line information located in network databases, which are commonplace, everyday activities in the classroom today.

Conley (1985) described how to use content area reading strategies to promote cultural understanding in the secondary school classroom. Conley noted that content area reading strategies are particularly well suited to developing cross-cultural understanding in both minority and mainstream culture students. One goal of cross-cultural understanding is the need to diminish misconceptions about other cultures. Reading strategies should encourage students to compare their preconceptions with what they are reading to develop a more realistic picture of other cultures. Conley presented and compared strategies devised by secondary school teachers in rural Alaska to demonstrate how some teachers are already promoting cross-cultural understanding in their content area reading instruction.

Haggard (1985) suggested an approach to content reading instruction that emphasized both content and process, and encouraged reader's response in social, affective, cognitive, and metacognitive realms. It begins with the Directed Reading- Thinking Activity, which requires students to recall prior knowledge and organize information while reading. During the Group Mapping Activity student organize information after reading, synthesize and articulate new learning while establishing a base of information for further learning. Finally, in the Vocabulary Self-Collection Strategy students learn vocabulary needed to label important concepts, elements and relationships, and focus on identifying known words and terms that are used in new contexts. This approach is designed to increase students' ability to use prior knowledge and experience, form hypotheses about (predict) outcomes in text, and organize information. Additionally, Haggard stated students learn to identify key elements and relationships in text and acquire vocabulary needed to label important concepts.

Ratekin, Simpson, Alvermann, & Dishner (1985) using evidence drawn from classroom observations, addressed the question: If content teachers are not implementing the methods that reading educators suggest, what are the characteristics of existing instruction? They believed that changing teachers' knowledge and attitudes about content area reading strategies does not guarantee they will use those strategies in the classroom. Eight classroom teachers representing various content areas were observed for the strategies they used. Six themes emerged: organizational setting, instructional resources, instructional aids, instructional methods, inferred instructional purpose, and guidance materials. These

were collapsed into three main categories: 1) Organizational setting and instructional methods, 2) Inferred instructional purpose, and 3) Instructional resources. Analysis done indicated that teachers relied heavily on lecture or lecture-discussion and monitoring of seatwork as methods of instruction. That 69% of instructional time was used presenting information and less than 15% of the time was involved in internalization or readiness activities. That teachers predominately used the textbook for assignments and as supporting backup to information presented during lecture. The authors asked the question: Why did the teachers in this study not follow the guidance that textbook authors had made? They speculated: 1) Perhaps the teachers constructed a simplified model of content area reading instruction that better fit the constraints of their workplace and understanding of recommended practices. 2) Perhaps the teachers found that recommendation made in the past had little instructional value. 3) If teachers do not use the textbook as the primary source of concept development, it may be futile to attempt to teach them how to help students gain concepts from text independently.

Berkowitz (1986) compared two methods of instructing sixth graders to use the organization of ideas in content reading as a framework: studying map-construction and map-study procedures. These were compared with two control study methods that did not focus students' attention on text organization (question-answering and rereading procedures). After a six-week instructional program, students who used map-construction scored significantly higher on immediate free recall for one or two expository passages than students who used the other study procedure. When students who were judged experts at either constructing maps or answering questions were considered, map-construction fostered significantly greater free recall than question-answering under immediate and delayed recall conditions. Results showed that students in middle-grade classrooms would benefit from instruction and practice in map construction.

Alvermann and Swafford (1989) examined the extent to which reading research supports the comprehension and vocabulary strategies recommended in content reading methods texts. They also wanted to know if there was support in the research literature for the content reading strategies that teachers report using most frequently. They stated that Patberg (1979) observed that there was a lack of empirical support for many of the reading strategies recommended in professional journals and content reading methods texts. They investigated three questions: 1) What kinds of strategies do textbook authors recommend? 2) What is the extent of the research base? 3. How effective are the strategies that have a research base and that teachers report using? They generated 8 conclusions:

1) More of the research found strategies to be effective (n=62) than ineffective (n=49).

- 2) No evidence that any particular strategy was more or less effective for any group of students based on differences in reading level.
- 3) Forty-four percent of the studies involving either guides or the use of text structure were effective when these two strategies were used in conjunction with social studies materials.
- 4) Group organizers were twice as likely to be effective as ineffective with science texts (not the case with social studies material).
- 5) The use of text structure also found to be more effective with social studies material as compared to science material.
- 6) Structured overview was the only strategy found to be effective with math texts (advanced organizers, DRA, and three level guides were uniformly ineffective at promoting learning from math texts).
- 7) The seven strategies receiving the most research attention were advanced organizers, graphic organizers, question placement, self-questioning, structured overview, three level guides and use of text structure. Strategies that received the least amount of research attention were anticipation guide, DRA, imaging, pattern guides, and ReQuest.
- 8) The nine strategies (advanced organizers, anticipation guides, DRA, graphic organizers, pattern guides, structured overview, study guides, three level guides, and the use of text structure) were reported as being used most often.

Alvermann and Swafford drew four implications from the available data. First, there is a broad array of content reading strategies from which to choose. Second, the gap between research and practice may not be as wide as imagined. Third, there is an unevenness of the research base that underlies many of the recommended practices in secondary reading. Some practices that seem to work well in the classroom lack a significant research foundation that does not deter their use or impact their effectiveness. Finally, findings showed that strategies are not simply effective or ineffective, but vary in degrees of effectiveness.

Mathison (1989) argued that the focus of content area instruction needs to include an emphasis on factors that motivate students to read their textbooks. She presented five strategies linking readers and text:

1) using analogies; 2) related personal anecdotes; 3) disrupting readers' expectations; 4) challenging readers to resolve a paradox; and 5) introducing novel and conflicting information. Several examples of interest promoting strategies are given. According to Mathison, these strategies provide an opportunity for students to create more meaningful and purposeful relationships with textbooks that will facilitate their ability to learn in the classroom.

Wilson (1988) presented several ways that reading in the content areas can be taught, concentrating on readjusting materials and approaches to reading to more closely reach those optimal reading conditions where comprehension will occur. The focus was on the following: 1) Strategies to increase readers' motivation to read and learn. 2) Building conceptual background to enable readers to comprehend more easily. 3) Providing purposes and a direction for reading. 4) Helping readers build and integrate meaning more successfully as reading occurs. 5) Helping readers monitor their own comprehension while reading. 6) Creating a greater awareness of text structure and rhetorical devices to make the process or comprehension easier. Strategies were broken down into prereading strategies, strategies during reading, and post reading strategies.

Prereading strategies are designed to motivate students to want to do reading, help set purposes and a focus for their reading, bridge the gap between students' conceptual backgrounds and the concepts presented in the reading, and to activate and build on readers' existing schemas for making material more comprehensible. Several activities that encourage students to find a focus for their reading are think-aloud, the ReQuest procedure, and SQ3R. Other pre-reading strategies include PReP, anticipation guides, semantic mapping as a pre-reading activity to introduce new material, and journal writing, which helps students, concentrate on specific ideas and relate concepts to prior experience.

During reading strategies includes the following: 1) Self reflection. 2) Applying the three middle steps of SQ3R (Questioning, Read, and Recite). 3) Directed Reading-Thinking Activity (DRTA), which promotes active comprehension by having students predict, based on titles, heading and illustrations, and then reading to check the accuracy of their predictions. 4) Question Answer Relationship (QAR) which provides students with experience using three sources of information: 1) explicitly stated information in the text, 2) answers that are in the text but are stated implicitly, and 3) information that the reader needs to search is own knowledge for.

Post reading strategies include anything that checks student comprehension of what they have read.

The ultimate goal of questioning is to motivate students to think. Some examples are the fifth step of SQ3R (Review). Having students retell what they have read to show understanding of the significance of the material. As a feed back for teachers on how well their student are doing, they can ask their students the following five questions after they have finished reading: 1) Did you find answers to your questions? 2) Which questions are still unanswered? 3) What information was provided for which you did not have a question? 4) What was most interesting or surprising to you? 5) What have you leaned by reading this? Wilson concluded that reading in the content area is no different from other kinds of reading. It demands active participation in the process and requires the reader to bring their background knowledge and experiences into play.

### **Curriculum Issues**

Curriculum issues in the 1980s focused on results from the National Assessment of Educational Progress Reading Test, comparisons of literacy models with what is actually occurring in classrooms, how content teachers are actually using their textbooks, and why students are not learning as much as they could from their textbooks.

Anders (1981a) suggested that secondary school reading specialists desiring to establish a school-based, school-wide reading program form a reading committee composed of content area teachers, who propose ideas and help implement them. She gave five justifications for having a reading committee in the secondary school. First, it helps in fostering a relationship between the reading specialist and the content faculty. Second, it provides a forum for the reading specialist to receive feedback on the practicality, acceptability, and efficacy of new ideas. Third, content committee members can help facilitate the introduction of new ideas in their departments. Fourth, the reading specialist can more easily share knowledge about the reading process and content specialists can share knowledge about the process involved in learning content area concepts. Finally, responsibility for the program is placed on the shoulders of both the reading specialist and content area teachers.

Forbes (1981), the director of the National Assessment of Educational Progress, provided a cautious review of educational gains that appear too be occurring in schools located in the southeastern part of the U.S. The optimism is based on the assumptions that the observed changes are a result of the desegregation of schools in the South and implementation of compensatory education programs such as Headstart and Chapter 1. Students in the southeast, have traditionally lagged behind other regions in

educational attainment.

Micklos (1982) reviewed the latest data available on reading achievement in the United States as reported by the National Assessment of Educational Progress (findings from reading tests administered in 1970-71, 1974-75, and 1979-1980). The data showed that reading achievement in grades one through three had consistently risen at all levels, while basic skills of students at all other levels had remained stable. Forbes concluded that overall, schools in the U.S. were doing a pretty good job of meeting the basic reading needs of most youngsters. Schools have been effective in help populations of students who traditionally experienced trouble with reading to improve their reading scores. Shortfalls occurred for older students who are not getting the type of help they need to improve their reading achievement and the needs of high-achieving students were also not being met.

Cheek (1983) offered selection criteria for use by teachers in choosing the best supplementary reading materials for classroom use. Four criteria are used: readability, format and style (use of graphic aids and maps), organization (tables of contents, indexes, glossaries, chapter headings and subheadings), and vocabulary load (definitions, illustrations and graphic aids). Cheek recommended that teachers refer to *Resources in Education* and *Current Index to Journals in Education* under the headings Reading Material Suggestion and Textbook Selection for additional helpful documents.

Patching, Kameenui, Carnine, Gersten, and Colvin (1983) described a study comparing a direct-instruction approach and a workbook-with-corrective-feedback approach, in training three critical reading skills. The skills they examined were the ability to detect instances of a) faulty generalization, b) false causality, and c) invalid testimonial. Results from the two supplementary tests were either non-significant or favored direct instruction and were not what the researchers expected with respect to the workbook group versus the no-intervention group. They expected the workbook group would perform better than the no-intervention group but that was not the case. They attributed this outcome to the fact that the workbook group was presented with rules to use in interpreting text they encounter, but the presentation of the rules without practical training in how to apply the rules was inadequate. Students also complained that they were tired to doing workbooks type lessons throughout most of their day. Patching, et al recommended that future research look at the maintenance of skills over time and the generalizeability of skills to other contexts, tasks, and overall reading achievement.

Pearson (1983) reported on a search for the principles upon which to base a model of reading instruction. He looked at research done by Goodman and his colleagues (Whole language), LeBerge and

Samuels (language centered), and schema-theoretic view. Without coming to any definitive conclusion, he presented four identified traits that he felt warranted further investigation: 1) what is the orientation of reading programs, 2) how much and when should teachers intervene in students' discovery of specific comprehension strategies, 3) who controls the learning environment, and 4) what is the dominant role that practice seems to play in instruction?

Blatt and Rosen (1984) examined two ways students can write in response to literature, an approach that forces the students to shape and form vague responses to a text. First, it has them examine the literature more closely than they might normally do and helped them to understand better and become more involved in it. It presented ways to get students to write about prose, about poetry, and engage in journal writing. Second, it provides readers with opportunities to express their feelings about a book, to relate the literary experience to real life, and to step back and review the book in a more objective manner.

Rosenshine and Stevens (1984) examined research reviews on a number of topics: general and specific classroom instructional procedures, the content covered, academic engagement and allocated time, and error rates. For each topic, they presented research results, offered suggestions for improving instruction, and made suggestions for future research. One conclusion they reached was the proven important impact that teachers had on student achievement. Rosenshine and Stevens stated, more research is needed to support the importance of instructional variables, the interrelationship of these variables, and the potential difficulties in training teachers to implement these instructional procedures.

Friedman and Tinzmann (1985) focused on the use of graphics in middle grade U.S. history textbooks. They questioned whether, other than aesthetically, graphics increase comprehensibility of textbooks and they cited several research studies that suggested that the placement of graphics and text must be purposeful. The authors compared four widely used middle-grade U.S. history textbooks, looking at the kind of graphics used, the number of graphics and the amount of space compared to and amount of prose in each of three common sections. Friedman and Tinzman's results from this study showed that the great majority of graphics in the textbooks depicted only descriptive information, which suggests that textbook developers may have a limited conception of the kind of information graphics can convey. They recommended that similar studies be conducted in other content areas to assess textbooks.

Ferris and Snyder (1986) reviewed research that attempted to evaluate the validity of the claim in a secondary writing curriculum guide that use of a process oriented writing program would improve reading ability. The program, developed by local secondary teachers in a suburban Vancouver, British Columbia

school system, purported that students' speaking, listening, and reading skills would improve because of participation in the writing process. The experimental group received instruction in the writing process for a 19-week semester, while the control group took no courses that engaged in either direct reading or writing. Both groups were pre and post tested using the different forms of the Gates-MacGinitie Reading Test, and the Writing Diagnostic Test. Ferris and Snyder found that the experimental group made significant gains in writing skills as measured on the writing test, but no significant difference between the two groups was indicated on the reading test, although both groups stated a gain in vocabulary knowledge.

Woodward, Elliott and Nagel (1986) looked at declining test scores nationwide and attempted to discover a reason for this occurrence. Textbooks, teachers, home life and other factors have been cited as possible causes, and any or all of these factors have some influence on students learning as well. The authors cited research studies that stated that textbooks alone are not enough to ensure proper learning is going to take place. It has also been shown that textbooks in a series are mostly collections of loosely related material and there is no certainty that a 5<sup>th</sup> grade content textbook will build on what was in the 4<sup>th</sup> grade textbook in the series or lay a foundation for the 6<sup>th</sup> grade textbook. Another finding was that the breadth of the social studies curriculum was too wide and that depth too shallow. There is virtually no way for a social studies teacher to adequately cover all the material in a typical textbook to a sufficient level that their students will adequately understand all of it. They concluded social studies textbooks are of poor instructional quality because of a combination of factors. First, preoccupation with superficial yet broad content coverage, lack of care in content choice and presentation. Second, an absence of "point of view" and the use of readability formulas that result in "inconsiderate" content presentation involving short sentences, simple vocabulary and the exclusion of connectors and referents that help make text easier for youngsters to comprehend. Woodward, Elliot, and Nagel recommended that the social studies need better, more varied materials and that teachers must use these materials as a means to fulfill carefully considered curriculum goals.

Feathers and Smith (1987) compared a real world model of literacy instruction (where reading is an integral part of everyday functioning) with actual classroom instruction to suggest that, at least in some content classes, this model is not operative. When people function effectively in the real world they use multiple sources of print and non-print information, comparing and evaluating the sources, and judging which are reliable and useful. In content subjects, little application of content was made to occurrences or situations outside of the classroom. Course content was determined by textbook chapters and instruction

centered on acquisition of information not issues or problems. Sources of information used in the classroom was usually limited to the textbook, a few handouts but relatively little other outside sources of information (other books, photos, news stories). Intellectual activities were usually limited to literal questions on worksheets or phrases copied from the text. Class discussions were usually teacher directed and questions came most often from a worksheet or text with students providing short answer responses. Feathers and Smith concluded that teaching and learning activities in schools must reflect tasks, problems, issues that confront citizens outside of school and the skills with dealing with them.

Moore and Murphy (1987) presented procedures for textbook selection in the content areas. Textbooks are the core of the curriculum in most schools, and many teachers use them as the primary source of information when teaching. They presented two sources of authority that are projected on textbooks. First, the distance between the author and the reader provides an impression of objectivity and validity that is not present in a face-to-face conversation. Second, schools and teachers use textbook so extensively as a source for teaching and ensuring that a common body of knowledge is transmitted, that textbooks become a handy repository of information that teachers can rely on. Moore and Murphy presented two checklists that can be used for selecting textbooks (Irwin and Davis, 1980; Singer, in Dishner et al, 1986) which help guide selection committees to evaluate factors such as understandability, organization, reinforcements (summaries, illustrations, maps and graphs, adequate supplemental activities, do review questions ask students to draw inferences), motivation, consistency, coherence, and density of concepts.

Davey (1988) provided results of a survey of how 90 elementary and secondary teachers used their content area and English textbooks. Davey looked at components of textbook use that had been previously identified and suggested by reading authorities. There were significant differences between secondary and elementary teachers in response to certain uses of textbooks in the school setting. Both elementary and secondary teachers use textbooks primarily to supplement instruction rather than as a basis for lectures or content learning. Davey stated that secondary content area teachers could benefit from the following: 1) Inservice education on flexible use of textbooks. 2) Grouping strategies for cooperative learning. 3) The value of overviewing text sections prior to assignments. 4) The desirability of using a variety of information resources. 5) The importance of vocabulary development prior to and following textbook activities. 6) Specific strategies for selective reading and learning such as summarizing, cueing important information and self-question. Elementary teachers would benefit from learning strategies for developing student

independence (self-monitoring and self-study practices). Davey's recommendations for future research included incorporating classroom observations to validate conclusions drawn from this study.

Gee and Forester (1988) reported on a teacher survey designed to 1) determine to extent that reading instruction is being offered beyond the reading classroom and 2) explain why some programs fail and some succeed.

Factors identified that discourage reading, included: (number of respondents who indicated that factor)

-Beliefs that reading instruction is not the responsibility of the content teacher (207)

-Lack of administrative support or leadership (202)

-Lack of inservice education (152)

Content teachers' feeling that they were not qualified to guide students' reading (139)

-Lack of personnel to coordinate programs (123)

-Belief that such a program is not needed (123)

-Lack of financial support (11)

Gee and Forester proposed four steps to follow to develop a successful program: 1) Strong support from both teachers and administration. 2) Both clear short term and long-term goals along with when and how assessment of learning is to be accomplished. 3) The need for effective inservice training of teachers that focused on awareness, knowledge, learning practicing strategies and incorporation of strategies in the classroom. 4) A support system that allows teachers to better plan the content reading program.

Alvermann and Hayes (1989) conducted a study of classroom discussions of content area readings and attempted to modify the discussions to reflect higher-order thinking and critical reading. Five classroom teachers, the authors, and two research assistants cooperatively planned instruction aimed at modifying the kinds of verbal exchanges between teachers and students and among students. Videotaped discussions, field notes, teacher-student conferences, and student questionnaires were analyzed.

Alvermann and Hayes' findings were that teachers did elicit more inferential responses, even though they did not effect substantial and lasting changes in classroom interaction patterns. Prior to the intervention, patterns of classroom discussion resembled recitation rather than give-and-take. Some classes were successful at getting more students involved in classroom discussion than were others. There were changes

in the types of references they made to the material they read and evidence that if teacher switched questions in class from reciting factual information to questions requiring higher-order thinking about the text, the students will respond.

Bean and Ericson (1989) looked at the integration of text previews (teacher-developed synopses of the text) and three-level study guides (encourages factual, inferential, and problem-solving responses). In the social studies, text confronts students with events and ideas that are often distant from their day-to-day experiences. They noted that information is also usually presented in a detached, third-person, passive voice. Bean and Ericson explained how text previews and three-level study guides can work in the classroom. “In the preview section, an analogy is made which acts as a bridge between the topic of study and students’ experiences. After reading, students work cooperatively to answer the guide questions before participating in whole class discussion” (p. 338-339). Bean and Ericson claimed a combination of these constitutes a powerful strategy for content area reading.

Cooter and Griffith (1989) proposed that if we are to get kids immersed in the world of written communication we must restructure curriculum to “seduce them” into challenging learning experiences. They proposed using the Dublin Model and presented the key elements of this approach. The model utilizes a whole language approach, flexible grouping based upon interest, and a view of the student as an independent learner. Five aspects of the program are presented: 1) Students must be permitted to choose reading materials that appeal to their interests, needs and motivations. 2) Once students understand the requirements of a given unit, they should progress towards completion of the assignment at their own pace and be held accountable for their assignments. 3) Students work in groups and must develop strategies that foster group success. 4) Teachers function as group and individual facilitators. 5) Administrative support—when administrators allow teacher to select the reading program they think best, student achievement levels increase tremendously (Veatch and Cooter, 1986). Cooter and Griffith concluded that this approach appears to have potential for helping secondary reading teachers achieve a sense of creativity and cooperation while making learning more interesting for their students.

Tyson and Woodward (1989) looked at why students are not learning very much from textbooks. Historically, according to the authors, 75 to 90 percent of classroom instruction is structured directly from the textbook. They stated that publisher usually organize textbook material based on the requirements of a dozen or more of the most populous states and cities who make up the largest single buyers of their product. The attempt to be all things to all buyers simply results in nothing being covered in significant

depth. Other areas of concern were: 1) Some content areas are slow to incorporate new findings and theories such as world hunger, and global warming statistics. 2) Inaccuracies in the causes and projected outcomes may also affect the dissemination of new information. 3) Brief coverage of many topics in history courses means that students may not get a clear explanation of causes for growth, the decline of cultures, or the historical significance of certain events. 4) Colorful illustrations, graphs, and charts cannot make up for listless, poorly written text. Tyson and Woodward suggest that textbooks need to be better written and cover fewer topics in detail. They recommended that textbook selection committees should appoint content experts who know enough about a subject to reject books with gross errors and significant omissions. They believed that if the textbook selection process became more qualitative and careful, that when sales are lost because textbooks are judged trivial, confusing, or boring, textbook publishers were become more thoughtful in their choice of topics, more concerned about accuracy, and more conscious about clarity.

### **Testing**

Research on testing in the 1980s centered on the use of standardized test to assess basic literacy, testing skills that students should be taught, and alternative to standardized tests.

Farr and Olshavsky (1980) addressed some concerns about the testing of basic literacy and its affects on Scholastic Aptitude Test (SAT) scores. Because the skills tested on the SAT are higher order thinking skills than those of basic literacy, testing basic literacy will not necessarily improve SAT scores. The results of National Assessment of Educational Progress (NAEP), which does test literacy, indicated that students do possess basic literacy skills. The authors compare the types of skills tested by the National Assessment of Educational Progress (NAEP) and the SAT. They pointed out that SAT tests skills are much more advances than those of basic literacy, and tests college-bound junior and seniors rather than what NAEP tests, basic literacy skills of a rather broad, representative sampling of all youth at three age levels. They concluded that trying to address needed improvements in curriculum to effect changes in SAT scores using NAEP results is not a viable alternative.

Anders (1981b) reviewed five commercially available tests that measure functional literacy and discussed two concerns related to the testing of functional literacy. 1) What exactly is the definition of functional literacy? (she stated that further research is needed on identifying the skills required of adults in all sectors of society) and 2) If functional literacy can be described, what is the best way to measure it?

McPhail (1981) talked about test wiseness, what are the skills involved, can they be effectively taught, how should they be taught and provided an outline of test-wiseness principles? Test-wiseness is the ability that students possess to utilize the characteristics and formats of a test to receive a high score. Two reasons are stated for why educators should teach test wiseness: 1) to improve the validity of test results and 2) to provide equal education, employment and promotion opportunities for minorities. He also presented two approaches for teaching test wiseness: associative learning- being told and practicing skills learned, and problem solving- where students search for a pattern from previous associative learning; they are presented with evidence and are asked to investigate the data and draw conclusions. Findings seem to indicate that teaching test-wiseness develops important test taking skills and should have an influence on the validity of tests that students take.

Popham and Rankin (1981) described Detroit's High School Proficiency Programs attempts at improving basic skills and minimum competency testing. The program looked at a manageable number of significant community-endorsed competences in reading, writing and mathematics. Student mastery was assessed by criterion-referenced tests designed specifically to measure those competencies. Instructional improvement depended on the clarity of the competencies described, the need for extensive support in materials and services, and the need for local ownership had to be promoted. The authors describe the process of developing the program and the test used to evaluate the competencies. Results from testing administered in the spring of 1980 to all 10<sup>th</sup> and 11<sup>th</sup>-graders indicated that 81% of the students passed the reading test, 55% passed the writing test and 49% passed the math test. While these results were not unexpected, the school system put in place remediation strategies and subject-matter specialists worked to modify school curriculum to address areas noted as having a high level of difficulty for students. At the time of this articles no further testing results had come out so further evaluation of the effectiveness of the remediation strategies could not be done.

Gambrell (1985) surveyed minimum competency testing and programs in reading in the U.S. to assess the extent of minimum competency testing and the nature and extent of remedial programs based upon minimum competency testing in 1984. The results of this survey indicated that 29 out of 50 states required minimum competency testing in reading, but only 15 states linked minimum competency tests to graduation requirements. Nineteen states did not plan to implement minimum competency testing in reading. Of the 29 states that required minimum competency testing, 22 required remedial programs for

students who did not achieve a passing score. The finding of the survey point to early testing and intervention for those students who cannot achieve a passing score, and results of tests are used to guide remedial instruction.

Bader and Wiesendanger (1989) discussed the use of Informal Reading Inventories (IRI) in evaluating reading performance. They stated that there is a need to understand the full potential of informal assessments in light of increasing realization of the complex role background plays in reading comprehension. Teachers who want to assess a students reading ability have the option of selecting a standardized reading test or using their professional judgment in selecting a passage for which the student has sufficient concepts and interest to do well. Factors such as age, sex, and background need to be taken into consideration. The authors concluded that although IRI's can provide an in-depth evaluation of reading behavior, they should be used in conjunction with other types of assessment information to assess reading ability.

Readence and Martin (1989a) discussed alternatives to standardized tests for assessing comprehension. The authors believed that what students are asked to demonstrate on standardized reading comprehension tests is not representative of reading tasks they are assigned in the classroom. These types of test typically ask students to read short passages and answer multiple-choice questions. Other ways of demonstrating comprehension, which are not tested, include producing miscues, retelling passages, and dramatizing stories. They also do not have an opportunity to pose questions, justify answers, or demonstrate ability to anticipate what comes next. Readence and Martin recommended that teachers use informal inventories using passages from the textbooks students use. In addition, teachers need to observe their students to assess how they react to naturally occurring classroom activities. They also advocated for direct instruction of specific comprehension strategies that are effective such as anticipation guides and guided reading procedures.

## **LEARNING**

### **Background Knowledge**

The emphasis on activating a student's background knowledge as a precursor for introducing new materials continued in the 1980s. Studies continued to emphasize missing prior knowledge, the relationship between background knowledge and comprehension, and the advantages in depth and scope of learning when background knowledge is tapped.

Stevens (1982) asked the question: Can we improve reading by teaching? Stevens's research results indicated that teaching background knowledge of a topic improves their reading comprehension. It also showed that background knowledge can be taught directly and that it provides students with an ideational scaffold that enables them to understand information about a topic better.

Anderson (1984) pointed out that inappropriate or missing prior knowledge can influence learning from reading. He made five generalizations: 1) There is strong evidence that students will understand and learn more from text that is coherent. 2) If students lack vital information about a topic it not only hampers them in comprehending material but also can prevent or inhibit them from making valid assumption based upon new material that they encounter. 3) Students will learn more from a text that emphasizes main ideas and asks questions about important points of understanding. 4) Prior knowledge can cover a wide range of skills, ideas, and can affect the students' attitudes and feeling about a subject topic. 5) Effective teaching which incorporates strategies to activate prior knowledge can be effective for students at all levels of achievement in the classroom. Anderson concluded that teachers also need to be aware of how coherent the textbook that they use is and help students cope with material that is not coherently presented, with a clear overall structure that establishes the significance of ideas presented and a flow that ties ideas presented together.

Langer (1984) examined 1) relationships between background knowledge and passage comprehension, 2) relative usefulness of certain variations in measuring available knowledge, 3) value of a background measure as applied to a teacher-directed small group language and concept organizer activity and 4) effect of a prereading activity on text-specific activity, background knowledge and on comprehension. Passage specific background knowledge based on free association and stimulated by key content words was measured by categorical levels developed by the author. Findings suggest that the background knowledge measure is a significant and reliable predictor of passage-specific comprehension. The pre-reading activity significantly raised available background knowledge and this improved comprehension on moderately difficult comprehension questions. A measure of text specific background knowledge may be useful for teachers in assessing the difficulty of a reading assignment, and for researchers in controlling for differences in prior knowledge or in examining the relationship between background knowledge and various aspects of learning.

Graves, Prens, and Cooke (1985) suggested the use of previewing as a means of introducing new material that the teacher realizes is essential for bridging knowledge that the students already possess.

Previewing included questions that students need to find the answers to from their reading assignment, such as a description of the characters, setting, point of view, or the plot of the narrative. Schema theory suggests that prior knowledge and using appropriate schemata are essential in reading comprehension. The authors believed that previewing increases student interest and comprehension. The more information a reader already has about a text before reading it, the less taxing the actual reading is. Research has shown that students who have activated prior knowledge score higher on factual and inferential questions, written and oral recall than students who have not.

Wittrock (1986) looked at three often-reported findings that relate teaching directly to student achievement: 1) a Student belief that success in school is possible is one of the most important factors related to school achievement. 2) Student perceptions and expectations found that teacher self-fulfilling prophecy often depends upon the individual student's ability to perceive teacher's expectations and differential treatment of students in the classroom. 3) Self-reported measures of student attention correlate more highly with student achievement than do measures of time-to-learn or time-on-task. Wittrock's results indicated that learners' attributions about the causes of their success and failure influence their interest and persistence in leaning in school. Success in school enhances motivation primarily when students attributed the results to their own effort, rather than to people or factors outside their control. Comprehension and knowledge acquisition are facilitated when learners incorporate new information into familiar frameworks, or revise conceptual frameworks to accommodate new information that is incompatibles with their preconceptions.

Davis and Winek (1989) presented a way of improving expository writing by increasing student's background knowledge. The process of using prior knowledge involves retrieving stored information from long-term memory and organizing it before beginning to write, and this is where the writing process breaks down for many students. Insufficient background knowledge may be one of the primary causes of comprehension problems. One of the authors (Davis) tried this procedure with a class of gifted seventh graders because he did not think the students had enough background knowledge to generate topics for a paper. The authors concluded that planning for writing was not as big a problem for middle school students as was their lack of adequate background knowledge about topics they are asked to write about. Based on student-generated feedback provided after the project was over, students felt much better prepared to do a research paper after they had built up their background knowledge on a topic. Some additional suggestions made were smaller groups, more time spent in the library, and the option of setting their own deadlines.

Davis and Winek recommended that teachers apply what is known about the role of background knowledge when they ask students to write research reports.

### **Cooperative Learning**

Research into ways of using cooperative learning in the classroom continued in the 1980s with an emphasis on how to set up cooperative learning experiences in the classroom, the advantages to students learning cooperatively including increased accountability and improved self-esteem, the building of social connections among dominant and minority students as a part of the learning process.

Sharan (1980) summarized five recently published methods for conducting cooperative small-group learning, evaluated, and compared them. The five methods were Aronson's Jigsaw classroom, DeVries' Teams-Games-Tournaments (TGT), Slavin's Student Teams and Academic Divisions (STAD) which were classified as Peer-Tutoring methods and the Johnsons' cooperative learning approach, and Sharans' Small-group Teaching Method, which were classified as Group Investigation (GI) methods. The study findings were concerned with their differential effects on academic achievement, students' attitudes, and on ethnic relations in desegregated classrooms. Sharan proposed eight hypotheses to be tested in future research and which constitutes the findings of this research study:

- 1) Team methods stressing peer tutoring were more effective in promoting low-level cognitive learning, and group investigation was more effective at promoting high-level cognitive functioning,
- 2) Peer tutoring was more effective than whole class instruction or the GI model in teaching low-level cognitive material to low-status students, and GI was more effective in teaching high-level cognitive functioning to both low- and high-status pupils,
- 3) A combination of peer tutoring and GI methods is more effective for fostering both low- and high-level cognitive learning than whole class instruction,
- 4) Team learning methods, which eliminate unequal status interaction within teams, are more effective for promoting interracial liking and friendship than team methods or whole class instruction that affords higher status to majority or more academically able students,
- 5) Team methods that emphasize cooperation and minimize competition have a more positive effect on pro-social behavior than methods with high ratios of cooperation and competition,
- 6) Team methods emphasizing cooperation and eliminating competition are more effective in promoting racial integration than methods that contain a high ratio of cooperation and competition or do not eliminate the use of competition in the classroom,

7) Team methods that are consistently implemented during the school day and for prolonged periods during the school year are more effective in both the cognitive and social-affective domains than methods implemented for relatively short periods of time or duration.

8) Cooperative team learning implemented at the very start of the school year will be more effective in promoting racial integration than after a class has had a collective history.

Slavin (1980) critiqued results of 28 primary field projects, lasting at least 2 weeks, in which cooperative learning methods were used in elementary and secondary classrooms. The pattern of research findings supports the utility of cooperative learning methods in general for increasing student focus, accountability and level of achievement. In addition, higher level of cognitive learning were noted to be taking place, positive race relations were noted in desegregated schools, increased mutual concern among students, increases in student self-esteem, and reports that classes using cooperative learning reported that students liked school better traditionally taught students.

Davey (1986) described how textbook activity guides (TAG) emphasize active student involvement through cooperative learning and a self-monitoring component could help students become active, flexible, more effective readers of textbook materials. It differed from other textbook study guide approaches in several ways: 1) They are not based on rather restrictive and possibly inaccurate notions of hierarchical levels of comprehension in learning from textbooks. 2) They are not dependent on clear, coherent organization patterns being presented in textbooks, as are pattern study guides. 3) They emphasize active student involvement through cooperative learning and a self-monitoring component. Davis gave a five-step procedure for developing a TAG.

Larson and Dansereau (1986) looked at utilizing cooperative learning in dyads, which entails one student in the pair acting as a recaller who attempts to summarize readings from memory while the other member acts as listener/facilitator who tries to correct errors in the recalled material. Students who are experienced and trained have shown improved comprehension and retention of information. Based on several studies that the authors had conducted (but for which they provided no other data) the results showed that cooperative pairs, using a didactic strategy outperformed individuals both during cooperative learning and transfer. They stated that active listening is more effective than passive listening, metacognitive activities are more effective for initial acquisition of material but elaboration activities are more effective for transfer of information.

Dansereau (1987) looked at cooperative reading and study groups and suggested activities designed

to enhance individual learning and study skills for such groups. In cooperative learning, all group members read the same material and intermittently discuss what they have learned. In cooperative teaching, they read different material and take turns teaching it to each other. Dansereau endorses both techniques for use in the classroom primarily because it frees the teacher to circulate, providing diagnostic and remedial assistance. The author presented five suggestions for effective utilization in the classroom: 1) Students should be paired with partners whose level of verbal ability differs from their own. 2) In cooperative teaching, a script should be used if mastery of content is desired. 3) In cooperative learning, a script, with its emphasis on the elaboration step, should be used if transfer to individual reading and studying is the goal. 4) Students should be encouraged to tailor scripts to their own needs in developing individual study plans. 5) Transfer from the cooperative experience can be facilitated by switching partners and analyzing videotapes of the dialogue that took place.

Davey (1987) suggested using guided practice in study skills through cooperative research reports. She described the four steps required to write research reports in which students work in teams, with systematic guided practice (topic selection, planning, researching the topic, and organizing and evaluating information). Davey then presented three suggestions for enhancing teamed research: 1) encourage cooperative spirit as part of the team effort, 2) ensure ample time and resources are available including class time for guided practice, assistance, and feedback, 3) provision for both student and teacher monitoring of progress, specifically the use of checklists, and rating scales (example included).

Wood (1987) pointed out the advantages of fostering cooperative learning in middle and secondary classrooms. Citing research done by Morton Deutsch in the late 1940s, she stated that research revealed that instruction directed at cooperation and collaboration resulted in significant student gains in achievement, self-esteem, and social development. She lists nine advantages that support using cooperative learning:

- 1) Student engaged in cooperative learning score higher on achievement tests.
- 2) Students have higher motivation to learn and greater intrinsic motivation.
- 3) More positive attitudes towards instruction and instructors.
- 4) Improvement of both tutor and learner.
- 5) Increased self-esteem.
- 6) More positive perceptions about the intentions of others.
- 7) Decreased competitive goal structure.

- 8) Greater acceptance of differences.
- 9) Decreased dependency on the teacher.

Wood concluded by presenting several examples of grouping methods: Group retelling, associational dialogue, dyadic learning, needs grouping, the buddy system, cybernetic sessions, research grouping, interest grouping, ability grouping, tutorial grouping, random grouping, social grouping, team or competitive grouping, and base grouping.

Little Soldier (1989) looked at the use of cooperative learning activities with Native American students. Certain core values characterize the diverse cultures of different Native American tribes: 1) Native Americans respect and value dignity of the individual, and children are afforded the same respect, as are adults. 2) Children are encouraged to develop independence, to make wise decisions, and abide by them. 3) Cooperation and sharing are core values of Native Americans, and the idea of personal property may be foreign to them. 4) Native American children may be more advanced in social behaviors such as getting along with others, working in groups, and taking turns. 5) They view time as a continuum with no real beginning or end. They tend to live in the present and not worry about the future. 6) They tend to be more concerned with helping others and do not view “giving” information as cheating. Cooperation, not competition in the academic sense, is emphasized, and cooperative learning appears to benefit Native American students by improving their achievement and is in harmony with traditional values and behaviors, which focus on an internal locus of control.

Slavin (1989a) further suggested the use of the cooperative learning approach, Jigsaw II, which is based on the jigsaw technique. The advantage of Jigsaw II is that it can be used with existing textbooks and only requires the creation of four topics from a chapter, story, biography, or similar narrative or descriptive material, and a brief quiz for each unit. A description of the materials needed to create the unit and the method of constructing groups are given. Jigsaw II consists of a regular cycle of activities in the classroom: reading, expert group discussion, team report, test, team scores and recognition of team. Slavin also presented three alternative activities that can be done.

### **Learning Strategies**

Learning strategies research in the 1980s looked at how study skills like note taking and using structured overviews help students’ master content material. Strategies discussed include DRA, PORPE, QAR, RAFT, and text previewing.

Bellows (1980) discussed how analogies are a valuable tool for learning and thinking. She provided a ready-to-use outline of an analogy unit of instruction and gave examples from different content areas to demonstrate the effectiveness of using analogies in all subjects. She points out that learning to solve analogies leads students in developing the ability to apply formulas or rules in decision-making situations, an example of research on reading/learning strategies.

Ignoffo (1980) proposed the use of analogies in the classroom because they not only work on developing vocabulary but also the skills of thinking and reading. The author believed analogies are practical because they carry implied context with them. Several examples are provided in support of effecting inductive and deductive reasoning, thinking in sentence patterns, and vocabulary enrichment. Using analogies provided practice for students on tests such as the College Board examinations and Ignoffo suggested that they be used at all levels of vocabulary-reading development.

Milton (1982) looked at note-taking procedures and asks eight fundamental questions:

- 1) How useful is note-taking?
- 2) What are the criteria of good notes?
- 3) Are externally provided notes as effective as self-generated ones?
- 4) When should notes be taken?
- 5) What are the effects of reviewing notes before an exam?
- 6) What is the relationship between test mode and test interval expectancies, note-taking strategies, and performance?
- 7) How does the organizational structure of the material to be learned influence note taking?
- 8) What individual differences are important in note taking?

The conclusions Milton reached are that note taking is a complex and intensely personal thing for students. While there are styles and formats that should tend to make note taking simpler, the individual can only be exposed to the various methods and provided opportunities to develop and incorporate a style that works for them. Note taking is not just one skill but a series of skills, which are used to varying degree by students in various different situations. Educators have a responsibility to teach study skills but also to assist students to see themselves in relation to the materials, demands, and strategies of learning.

Thelen (1982) described a teaching method that combines the concepts of the structural overview and concept attainment in order to help students read content area textbooks. This method hinges on the

teacher developing a hierarchy for the target concept to be learned and then defining the concepts to assure relevant attributes. Students are then told the name of the concept and are asked to contribute any examples that they might have. Examples are organized into categories. The teacher then explains why certain concepts are sorted into particular categories. The students are guided into identifying common characteristics and characteristics that are different. This approach allows the teacher to ascertain what learners already know and to teach them accordingly, using both receptive and discovery learning techniques.

Hornberger and Whitford (1983) asked students to describe a few things teachers could do in their classrooms to improve student learning. Some responses were: 1) Teacher can help students prepare for tests. 2) They can give us study guides. 3) They can point out important things to study. 4) They can give us a sample of the types of test questions. 5) They can give us important vocabulary we should know. 6) Give us a course outline at the beginning of the course. 7) Help students read textbook chapters and point out what is important in the chapters.

McAndrew (1983) surveyed research concerning underlining and notetaking in the classroom. Previous research findings suggest that isolation of an item against a homogeneous background produces increased recall of the item, that relevant markings significantly increased students' comprehension while extraneous marking impaired comprehension. McAndrew provided a table of suggestions for underlining and notetaking and draws from it some suggestions for teachers in guiding student use of these two study techniques in the classroom.

Bryant (1984) introduced an activity called the textbook treasure hunt to teach students how to spot a book's organizational patterns, the first time it is placed in their hands. She stated one difficulty students have with textbooks is that they fail to recognize that the skills you need to use varies greatly between texts. The textbook treasure hunt activity acquaints students with the general outline of the book, the table of contents, overviews for each chapter, learning aids that are provided (graphs, charts pictures), and how to effectively use parts of the textbook such as the index, the bibliography, gazetteer, pronunciation guide and other aids to learning.

Raphael (1984) conducted research using a descriptive study, a training study and two instructional studies concerning the importance of teaching students about different information resources using the Question Answer Relationship (QAR) technique. The results of the descriptive study showed that the ability of students to provide answers related to the task demands of the questions with higher ability

students doing better on questions that did required higher levels of information processing. In the training study, students who had received prior instruction about several topics were compared with students who had not received training. As expected, students who had received the prior instruction did better than those who had not received any training. One instructional study looked at the feasibility of integrating QAR into a developmental reading program, whether training would transfer to other question answering activities in the classroom, and how much inservice would be necessary for program success. The results of this study substantiated those of the training study. The second instructional study looked at differences in QAR training requirements for students of different ages and suggestions made by teachers in the first instructional study. Results indicated that older students benefited as much from instructional orientation time as practice time. Younger students needed longer time to practice what they had learned. As in previous studies, students who showed the greatest gains were students who did not already use effective question answering strategies. Overall results of the study were that students from fourth to eighth grade benefited from instruction in the QAR technique. It sensitized them to task demands of questions and improved the quality of their answers. Teacher training could be conducted effectively in a half-day inservice training session. For students, the amount of training varied with grade level (4<sup>th</sup> & 5<sup>th</sup> grade- 1 week of intensive instruction followed by 6-8 weeks of practice; 6<sup>th</sup> grade- 1 week of training was sufficient; 8<sup>th</sup> grade- ten minutes of orientation was as effective as longer training periods). Raphael recommended the use of Question Answer Relationships in developmental reading programs in content area subjects.

Dolan (1985) said that the Directed Reading Activity (DRA) is a useful five-step framework for teaching students to comprehend literary text at varying levels of response. The first two stages explore the students' background and builds on that knowledge through prereading activities. The third stage is reading the text. The fourth and fifth stages consist of discussion of the text read and extension activities. Depending on each individual student's prior experience and background knowledge, varying levels of response are possible from students at the different stages in the learning process.

Holston and Santa (1985) described RAFT, a method of writing that can be used across the curriculum to help students learn content from text. RAFT is a simple system for making sure that the following key ingredients are part of every writing assignment. R: Role of the writer- Who or what are you? A: Audience- to whom is this written? F: Format- What form will be taken? T: Topic. The basis for RAFT is an assignment, usually from a viewpoint other than the student, to an audience other than the

teacher, and in a form other than the standard theme. An example of its use from a social studies and biology classroom are provided.

Slater (1985) talked about teaching expository text structure with structural organizers. He examined three unresolved issues: Will students' comprehension and recall from expository passages improve if they are given information about the organization of the passages before they read it? Will the effects be similar with students of varying abilities? Will the effects be similar with differently organized passages? Results from the study indicated that students scored highest on a multiple choice test when receiving a structured organizer and completing an outline grid, the next highest was the controlled conditions with notetaking, the next highest when receiving a structured organizer without an outline grid, and the lowest in the control condition without notetaking. Implications are that students are likely to learn more from text if they receive well-defined information on the organization of the passage before they read it. The effects of providing students with information on the organization of a passage should be enhanced if students use that information to produce an outline of the text. Slater suggested notetaking is likely to improve students' learning from text.

Simpson (1986) explained a five-step strategy that can be used in any content area to help students prepare for studying and learning in the content areas. PORPE was developed in response to her students' anxiety about essay type questions. The five-steps are: 1) Predict potential questions to guide subsequent study, 2) Organize key ideas using your own words, 3) Rehearse the key ideas, 4) Practice the recall of key ideas in self-assigned writing tasks, 5) Evaluate the completeness, accuracy, and appropriateness of the written product. Simpson said the advantages of PORPE are: 1) It capitalizes of the power of verbal language to involve students actively in planning, monitoring, and evaluating their learning. 2) It involves students actively in defining tasks, setting purposes, identifying key words, reorganizing information in their own words, and self-questioning and self-testing. 3) It makes explicit the processes necessary for preparing for an essay exam or for any exam. 4) It requires a split mental focus from students to look at both content and themselves to see if learning is occurring. 5) It is a strategy that moves from total teacher control to total student independence and control. 6) It can be taught by any content teacher without jeopardizing the time necessary for the learning of content and concepts.

Weinstein and Mayer (1986) investigated learning strategies that students can be taught. Learning strategies can be defined as behaviors or thoughts that a student engages in during learning and that are

intended to influence the learner's encoding process. The authors presented eight categories of learning strategies:

- 1) Basic rehearsal strategies- such as repeating the names of items on an ordered list.
- 2) Complex rehearsal strategies- such as copying or underlining material presented in class.
- 3) Basic elaboration strategies-such as forming a mental image or sentence relating the items on each pair of a paired-association list of words.
- 4) Complex elaboration strategies-such as paraphrasing, summarizing, or describing new information related to existing information.
- 5) Basic organizational strategies-such as grouping or ordering to-be-learned items from a list.
- 6) Complex organizational strategies-such as outlining a paragraph or creating a hierarchy.
- 7) Comprehension monitoring strategies-such as checking for comprehension failure.
- 8) Affective and motivational strategies- such as being alert and relaxed to combat test anxiety.

Each of these learning strategies may be used to achieve certain goals. Weinstein and Mayer concluded evidence indicated that learning strategies could be taught to learners who are at appropriate levels of maturity.

Carr and Ogle (1987) talked about the addition of mapping and summarization to the K-W-L (know, want to know, learned) strategy to produce a reading-thinking strategy, K-W-L Plus. This strategy is equally helpful to remedial and non-remedial high school students for learning from content area textbooks. The authors stated many secondary readers, particularly disabled ones, fail to realize that good reading means asking questions and thinking about ideas, while reading. Using KWL Plus, students tend to define their purpose for reading which causes them to focus on the text and to monitor their learning. As they read and encounter new information, additional questions can be added to the "W" section and they are thinking about what they have read, monitoring their comprehension. Mapping is a graphic activity used to organize and relate text information for further study. Summarizing involves writing in a logical and comprehensible manner that further aids in comprehension. Mapping can be used as an outline for the summary portion of learning.

Duffelmeyer, Baum and Merkley (1987) noted that expository text, the predominate form of writing in content textbooks, is generally more difficult for students to comprehend than narrative, which predominates in basal readers. One frequently cited explanation for the difference is the complexity of concepts presented. The authors recommended the use of the extended anticipation guide as a strategy for

helping students build background knowledge for understanding content texts. One weakness they cite with anticipation guides is that they generally lack a built-in feature for testing one's beliefs. The extended anticipation guide is designed to force students to interact with key propositions they encounter, and the second part of it resembles a study guide. The use of both parts of the extended anticipation guide aids in assimilation of information because the two parts work together to make students see connections and test them against what they believe.

Ericson, Hubler, Bean, Smith, and McKenzie (1987) described three content area-reading strategies: anticipation/reaction guides, text previews, and three-level study guides that capitalize on cooperative small-group learning and emphasize higher order critical thinking.

Anticipation/reaction guides provided students with a series of teacher prepared statements that related to the topic under discussion. Before reading, students agree or disagree with the statements and discuss the reason for their answers. The statements also act as a guide for post reading discussion and as topic sentences for a writing assignment. Another benefit of the statements is that it raises interest in the topic and this can enhance comprehension.

Text previews provided students with a detailed framework for comprehending a selection using a section to build interest, a synopsis, and a brief review, which includes key vocabulary and several questions to guide reading. The preview encourages students to use their background knowledge and stimulates discussion and interest because of the connections it makes between text and student experiences. Because text previews are difficult to construct, teachers should consider them for more difficult passages that will be taught several times.

Three-level study guides are used to stimulate students' critical thinking during and after reading. It entails analyzing a reading selection for major concepts and important details and then developing questions that reflect these concepts and details at multiple levels of understanding.

Rakes and Smith (1987) suggested that comprehension and recall of information could be strengthened through using recitation, the act of saying aloud the ideas to be remembered. The authors presented four reasons why recitation works: 1) Students who know they will be required to recite are more motivated to understand what they read or hear in order to be prepared. 2) Recitation lets the student and teacher know how they are doing. 3) Recitation deepens the memory trace because the mind must actively think about the material. 4) Thinking, pronouncing, and hearing involves more physical aspects in

the learning process and thus makes a stronger neural trace in the brain. They then presented 10 ideas for using recitation to strengthen reading comprehension:

- 1) What did I just say? Stop and ask students to put what the teacher just said into their own words.
- 2) One thing I learned today. Have students tell one thing they learned that day (no repeats).
- 3) Student generated test questions. Let students submit questions to be used in a review session.
- 4) Guess what will be on the test. Teacher provides students with a list of major topics and students brainstorm what they think will be on the test.
- 5) Where is it located in the book? Students are provided with a sticky note listing topics or facts studied and students must determine where it is found in the book.
- 6) Every pupil spoon response. Each student is given 2 plastic spoons, one with a “Y” for yes and the other an “N” for no. The teacher reads a question and the students respond with the correct spoon.
- 7) Teacher show and tell. Teacher brings in something of interest to share with their students.
- 8) Inquiry training or what’s in the box. Teacher puts something in a covered box and gives student the opportunity to ask 20 yes or no questions about it.
- 9) What’s the big idea? Students read a short selection, then four students are given strips of paper with possible main ideas on them. Students read their summary aloud and the class votes on and discusses each possible main idea.
- 10) Thought for the day. A famous quote is used as a springboard for daily discussion for writing exercise.

Weinstein (1987) examined the concept of the cognitively active learner and discussed the following categories of learning strategies: rehearsal, elaboration, organization, comprehension monitoring, and affective. Rehearsal strategies emphasize repetition and are designed to facilitate verbatim recall. Elaboration strategies involve adding some sort of symbolic construction to what the student is trying to learn in an attempt to make it more meaningful. These are bridges between what the student already knows and what they are trying to learn. Organizational strategies help transform information into another format that is easier to understand. These included strategies of grouping, making a timeline, outlining a textbook

chapter, or creating a concept map. Comprehension monitoring strategies involve establishing learning goals and monitoring your understanding of what you are learning. Affective strategies are those methods a student uses to help create and maintain a climate for learning including positive self-talk, setting a time and place to study, using rewards and setting learning goals. Weinstein concluded by presenting activities that teachers can use in training students to develop more effective learning strategies: talking through how to read a selection and pointing out common structure and aids that the author has provided. Another way is using the assignment of a class project or paper to discuss time management issues. A third way is taking time to explain your thought processes when presented a new or difficult concept so that students can learn how to generalize problem-solving strategies. In all cases, she stated that instruction must be followed by an opportunity to practice what has been taught.

Deshler and Schumaker (1988) described an instructional model for teaching students how to learn. They describe five major reasons why some students, primarily those who are mildly handicapped or low achieving, are functionally excluded from beneficial learning in mainstream classes. They introduced the Strategies Instructional Model (SIM) developed at the University of Kansas. SIM allows for cooperative planning and implementation of instruction, and facilitates mainstreaming of mildly handicapped students in the regular classroom. Support service teachers (learning specialists) teach specific strategies to the students and encourage learner independence. Students participate in the selection of learning objectives and mastery targeted strategies. In the mainstream class, the teacher teaches content using teaching routines that enhance understanding and memory and cue students to use appropriate strategies. Student responsibilities include using appropriate strategies to acquire content and respond to other mainstream classroom demands. Additional support comes from administration, other school staff, family, and community agencies as necessary. There are four main goals of this program: 1) To make students independent learners by teaching them to use specific learning strategies. 2) To make students skilled in the use of specific social strategies so they can interact appropriately with others in a variety of situations. 3) To empower students to earn a standard high school diploma. 4) To enable students to make a successful transition from secondary to post secondary life. Deshler and Schumaker believe that the SIM approach is structures to ensure that students gain maximum benefit from instruction provided.

Singer and Bean (1988) presented three models for helping teachers to help students learn from text, the intern model, the inservice model, and the evolutionary model. They stated that normally,

readers construct meaning as they interact with the features of text. However, in the classroom environment, the teacher is often the one who establishes purposes and goals to be achieved. Some effective strategies that teachers use to help students learn include: single text (marginal glosses, SQ3R, text guides, direct reading activities, and graphic organizers) and multiple text (the inquiry, concept, and project, methods of Singer & Dolan, 1980). Single text methods assume that the teacher will adapt one text to meet the needs of an entire class. Multiple text strategies assume the teacher will use several texts on a given topic in one class. The first model, the intern model, placed teachers who were attempting to complete a master's degree program with a concentration in reading and a content area, into several junior high schools. These students taught two-thirds of the day and did reading consultation with content teachers one-third of the day. During these consultations, they taught teachers how to effectively use study guides and work with small groups. The results of standardized tests administered at the end of the school year revealed no significant differences between students in class where the consultation took place and classrooms of teacher who had not taken part in the program. The second model, inservice, consisted of 15 junior high content teachers who attended a two week, half-day, summer inservice. Participants were introduced to various learning strategies and asked to develop and present sample lessons using these strategies. Feedback, in the form of course critiques, indicated that anticipation reaction guides, directed listening lessons and study guide questions were the strategies most likely to be used during the next school year. The evolutionary model was a three-year research study involving one high school teacher, using various learning strategies over the course of the study. Singer and Bean found that students taught to create and use of graphic organizers in social studies significantly outperformed students using a traditional outlining format. These students were also better able to reconstruct ideas from poorly structured text in order to write a succinct summary.

Egan (1989) described four layers of historical understanding that need to be taught chronologically if students are to understand history. The first type of history is mythological accounts, which mix divine past with the present day of the narrative in an attempt to validate present experiences of individuals, groups or nations. The second type is dramatic historical narratives. Stories containing figures that are larger-than-life who perform extraordinary deeds and events seen through the actions of these great figures. A third type of history are historical accounts of that emphasize underlying patterns, or laws of history rather than intervention of the gods or exaggerated accounts of moral heroes. The last type is history of

relatively recent origin (early 20<sup>th</sup> century) consists of an attempt to narrate earlier history using one or more of the previously mentioned types of historical narrative.

Egan presented six principles for teaching history.

- 1) Affective orientation- history can be made more interesting by organizing it into story form.
- 2) Abstract binary opposites- survival/destruction, fear/security, love/hate, cooperation/competition, etc.
- 3) The heroic- teach heroic qualities that embody overcoming everyday constraints.
- 4) Detail and distance- present history from either a close-up or far-off perspective.
- 5) The exotic, wonder, and awe- presents perspectives that focus on something strange or exotic, something out of the ordinary, or something that is mysterious.
- 6) Humanizing knowledge- focus on human struggle, emotions, hopes and fears.

Egan presented two frameworks for introducing historical material that attempt to capture and engage student's imaginations in the process of learning: 1) The Story-Form Frameworks appropriate with students up to about age eight, and 2) The Romantic Framework is appropriate for students aged eight to 15. Egan concluded by presenting some statements concerning the nature of understanding historical material. He stated that the understanding of certain kinds of historical concepts tends to occur relatively late in adolescence and therefore history is not an appropriate area of study for younger children. These inferences, he stated, are reinforced by elaborations of Piaget's theories of educational contexts. He also says that, from his perspective, historical material can only be well understood if students are familiar with the earlier forms of historical narrative before they are exposed to the later forms. This would be the presentation of mythological stories early on and progressing through each of the other types.

Jones, Pierce, and Hunter (1989) presented ways of teaching students to construct graphic representations. They contend that students understand better which ideas in text are important points, how they relate, and what points are unclear when they construct graphic representations. Examples of graphic representations are pie charts, flow charts, compare and contrast matrices and other sophisticated graphic representations of information. These help the learner to comprehend, summarize and synthesize complex ideas in ways that make more sense. Procedures for having student construct a graphic representation are described and the authors presented various types of graphic representations including the spider map, a continuum scale, a compare and contrast matrix, a series of events, solution outlines, a

network tree, a fishbone map, a human interaction outline, and a cycle. They presented five steps in training students to use graphic representations: 1) present at least one good example of a completed graphic outline. 2) Model how to construct either the sample graphic outline or the one to be introduced. 3) Provide procedural knowledge (when to use the graphic and why). 4) Coach the students. 5) Give the students opportunities to practice outlining individually and independently, and provide feedback., and they concluded that graphic organizers and outlines are fundamental to skilled thinking because they provided information and opportunities for analysis that linear outline and reading alone cannot provide.

Schmidt, Barry, Maxworthy, and Huebsch (1989) described specific problems that students encounter when they begin the transition into content area studies. They identified two particular types of problems that unsuccessful students have: 1) They often miss important ideas, focusing instead on less relevant details or facts that interest them, 2) They do not use strategies that can help them learn and remember. They concluded that some students need more explicit directions than others do in order to learn to study effectively. Most students need a significant amount of guided practice with any structured type of study skill before they can be expected to use it independently.

### **Questioning Strategies**

The use of various types of questioning strategies was also an area of interest in the 1980s including student-generated questions, self-questioning, and using questions to probe student understanding in class.

Turner (1981) presented five benefits of getting students to ask effective questions, including providing a purpose for reading social studies material, assisting the child to solve problems, and helping students to become more sensitive to a variety of influences that affect them. He presented 13 game show formatted activities designed to help students learn to ask effective questions while adding an element of excitement and fun to learning.

Balajthy (1984) suggested a variety of self-questioning techniques that students can use to improve their attention to and retention of expository material. These included:

- 1) Analysis of sentences using who, what, when, where, and how.
- 2) Asking question-eliciting question (what else would you like to know?).
- 3) Student led discussion (student asks class discussion questions).
- 4) Group competition (groups of students answer each other's questions).

- 5) ReQuest Procedure.
- 6) Acronym study technique (using techniques like SQ3R helps them become independent learners).
- 7) Content oriented structure exercises (provide students with topic sentences and have them write questions based on the topic sentences).
- 8) Teaching students to generate higher-order thinking questions.
- 9) Question circle (Students write questions based on sentences they encounter in a reading selection).
- 10) Test-wiseness exercise (Students write their own test by predicting what types a questions their teacher will ask).
- 11) Exam clue words (have students write questions based on facts, understanding (what is the cause/effect), analysis, synthesis, evaluation).
- 12) Inferential comprehension strategy (select three ideas important to the reading selection and develop two types of pre-questions for each).

Dillon (1984) stated that research illuminating use of questions and classroom discussion is fragmented and scarce. The greatest part of the knowledge is not contained in the literature but is privately held by skilled teachers as intuitive, implicit, knowledge-in-action. Recitation is defined as recurring sequence of teacher questions plus student answers. Students “recite”, what they already know or come to know through the questioning. This includes classroom activities such as review, drill, quiz, guided discovery, inquiry teaching, and the Socratic Method. Discussion included various activities in which teacher and students discuss what they do not know such as 1) Putting forth more than one point of view, 2) Students and teacher examine and respond to points of view different from the one they put forth, and 3) An intention of developing knowledge, understanding, and/or judgment on a matter under discussion. For discussion to work in the classroom all participants are supposed to adhere to a set of values or principles of conduct, which include: 1) reasonableness, 2) peaceable and orderliness, 3) truthfulness, 4) freedom to express an opinion, 5) equality- regarding an opinion or interest, and 6) respect for persons. Dillon listed several kinds of discussions (subject matter mastery; issues-oriented; moral development; and problem-solving) and described how difficult it is to conduct a discussion as it is truly intended to be done and presented ways for teachers to keep the discussion flowing once a student has finished speaking.

Nessel (1987) believed that reading comprehension is often tested by teachers through verbal questioning of students on a literal, interpretive, or evaluative level. Stated that two drawback of this method are that the nature and timing of the questions causes this follow-up activity to function more as an oral exam than as an occasion to develop understanding. Second, teachers often pose unnecessary questions, such as a question that requires interpretation but is based on relatively unimportant information. She stated that a better approach is to have students work in groups to make logical predictions about the story's outcome. This type of group interaction allows for critiquing, building on the ideas of others, and open exchange of ideas helps students' develop skills in presenting opinions and debating issues.

Roby (1987) addressed the various models of discussion that can take place in the classroom. Identified nine functional types of questions and five models of classroom conversations based on 1) "Who leads the conversation?" and 2) "What is the conversation about?" The five models of discussion are: 1) The quiz show- where one person, usually the teacher, has the right answers. 2) Problematic discussions- usually are questions of a philosophical nature that have no final answer. 3) Informational discussions- provided a forum for students to develop and express their opinions on an issue. 4) Dialectic discussions- involve students and teacher attempting to resolve opposing narrow opinions by broader understanding. 5) The bull-session where both sides claim to have the right answer to an issue. Each of these models functions by using certain types of questions during the interaction.

### **Study Skills**

The emphasis on teaching students how to study in the 1980s continued to focus on techniques to help students learn.

Gove (1981) suggested a procedure by which content area teachers can be motivated and trained to implement the use of study skills and study guides in their classrooms. This is a "how to get high school teachers to using content reading strategies" article and included a description of the programs and staff-development procedures that have been used successfully.

Moore (1981) described a study technique, Concentration, Reading, and Remembering (C2R), that encourages college students to develop strategies that are best suited to improving their study skills based upon the subjects they are studying. Moore provided a list of common distractions (boredom with the subject, mind wanders, little or no confidence in your ability to concentrate, trouble getting started, a lack of goals, fatigue, noise, and worry about personal problems) to effective studying. Effective reading

involves setting a purpose, recognizing word and paragraph signals and patterns and learning to adjust reading rate to material being read. Remembering involves developing strategies that help associate new material with previously learned material. In some cases, students must unlearn ineffective study habits and learn new ones before progress can be observed, but C2R gives students an opportunity to experiment and adjust their study strategies to meet the different demands of subject material. Olson and Longnion (1982) presented the steps for a special type of study guide, called a pattern-guide. It directs students' efforts to understand and remember information from texts and appears to have applications for the social studies classroom. Pattern-guides are useful when students are studying cause/effect relationships, compare/contrast relationships, for listing characteristics, and for enumerating time-order. The five steps in creating a pattern-guide are: 1) Identify the essential concepts to be taught. 2) Read the appropriate section of the text, taking notes and underlining the portions that correspond to essential concepts. 3) Identify the organizational pattern of the author. 4) Integrate the essential concepts, the author's writing pattern, and the reading/thinking skills the student will use. 5) Determine how much help and direction to give the students in completing the pattern guide. Some examples of pattern-guide formats are presented.

Rogers (1984) suggested that teachers could develop students' study-reading skills (a deliberate procedure for retaining or applying what is read) more successfully using investigative processes rather than workbook-type exercises. He began by stating that research into the effectiveness of study skills such as underlining, outlining, and written summaries and the use of techniques such as SQ3R had not been proven over traditional study techniques or a student's own method of studying. He presented a checklist approach to evaluating student's ability to perform certain necessary skills. These included: 1) Comprehension skills such as ability to interpret graphic aids and ability to follow directions. 2) Information location skills such as ability to vary reading rate and ability to locate information using book parts, reference books, and library aids. 3) Assessing study and retention skills such as ability to study information and remember it and ability to organize information. Rogers concluded by stating that as student progress in learning to read, instruction needs to shift towards helping them to gain knowledge and skills they need to be able to learn on their own through reading.

Langer (1986) examined how six high school juniors approached three common study tasks: completing short answer study questions, taking notes, and writing essays. She found that when completing short answer study questions, students focused on specific ideas that their teacher (not the writer of their textbook) has chosen. When taking notes, students look at larger concepts than when completing fill-in

questions and they integrate ideas across sentence boundaries. When writing essays, students seem to step back from the text and reconceptualize across ideas, focusing on larger issues, after reading the content. Langer concluded that different study activities involve very different thinking patterns and lead to different kinds of learning. Students were concerned while answering study questions with seeking the right answer. During note-taking students were concerned more about individual ideas, not integration of what they were reading with what they already knew. When writing, students were more likely to read in terms of the questions they had to answer, brainstorm relevant ideas, and combine or recombine ideas into thought units.

Peters and Levin (1986) investigated the effects of a mnemonic imagery strategy on good and poor readers' prose recall. Thirty-eight junior high students representing above- and below-average reading levels read several passages about the accomplishments of famous people. Nineteen students in the mnemonic imagery condition were taught a systematic strategy to apply to the passages they read, whereas the nineteen no-strategy control students were left to their own devices. Consistent with previous findings, mnemonic imagery students remembered more name/accomplishment information than did students in the control group. Benefits were obtained by both above- and below-average readers on short fictional passages, as well as on longer nonfictional passages taken from actual school reading material. According to Peters and Levin, the results seem to indicate that mnemonic imagery has great potential for enhancing students' associative processing of factual information contained in prose passages.

Finley and Seaton (1987) recommended teaching students to use text structure clues to determine the organizational patterns of content material and to use these patterns to predict possible test questions. The authors stated that many students are not aware of text structure clues and consequently do not apply them to their text reading. This results in them not being as successful as they could be in preparing for tests. Students tend to rely too heavily on their teachers as their source of content information. They believe students benefit from learning to analyze patterns of information in material since they can increase their confidence, comprehension and recall, and reading efficiency. They presented six common organizational patterns:

- 1) Analysis- properties or characteristics of a concept.
- 2) Cause/effect- reasons for a concept or the results they produce.
- 3) Comparison-contrast- similarities and differences between concepts.

4) Definitions- a statement of what a concept is.

5) Example- specific ways a concept is used.

6) Sequence- the order of events.

They also presented an approach for teaching text patterns:

1) Introduce the six most common organizational patterns.

2) Provide key words that authors used to signal a pattern (figure provided).

3) Present topic sentences and have students predict the text pattern being used.

4) Have students identify the pattern of paragraph frames in order to develop main idea statements (done using a cloze format with topic sentences and key words included, but content-specific information deleted).

5) Have students learn how to use text patterns to help state main ideas in longer texts such as a textbook chapter.

6) Have students learn how to use patterns to predict possible test questions by transforming a list of main ideas into questions answer: who (definitional information), what happened (sequence information), when and, where (could indicate sequence or example information), how and why (could indicate a cause-effect pattern).

Smith and Tompkins (1988) described a structured note taking technique using expository text structures and graphic organizers as a basis for taking notes from content area texts. Structure notetaking is a graphic organizer in which the top-level structure used by the author is explicit in the graphic. Students who generate structured notes use common text structure as a beginning point and as an organizing framework for their notes. According to the authors, notetaking has been shown to have several benefits, which result from heightened activation of several cognitive processes. 1) Students actively attend and select important ideas to retain as notes. 2) Students who paraphrase and add their own comments or examples are relating prior knowledge to new information. 3) As learners elaborate on content by paraphrasing, indicating relationships among ideas, and developing their own examples, they are processing

the content more deeply. The authors presented and talked about seven expository structures (description, time order, cause-effect, problem-solution, problem-solution-result, comparison-contrast, and definition-example) and provided a diagram showing each of these graphic organizer formats. Smith and Tompkins concluded with four benefits of this notetaking strategy: 1) It is fun and students enjoy creating graphic representations of text. 2) Students spend more time reflecting on reading passages, leading to better understanding and retention. 3) They can transfer this strategy to notetaking during lectures or recopying notes. 4) Students can use the text structure patterns that they have learned in organizing and revising their own compositions.

## **READING**

### **Attitudes Towards Reading**

Student's attitudes towards the reading in the 1980s looked at the process and some of the techniques student use to avoid reading or doing work in school are addressed. Also addressed were at-risk readers, the link between attitude about reading and comprehension of materials, ways to create interest in reading, and the use of Uninterrupted Sustained Silent Reading (USSR), which was later changed to Sustained Silent Reading (SSR).

Research cited included a study by O'Rourke (1980) in which he described the attitude of 60 junior and 60 senior high school teachers towards teaching reading in the content classroom. He concluded that there was evidence that having taken a college level course in reading improved a content teacher attitude about teaching it as part of the content curriculum. O'Rourke recommended from his research that future teacher certification should require a course on teaching reading in the content areas and staff development workshops should be conducted on reading in the content area for current teachers. He recommended further studies examine differences in methodology, classroom climate, student morale, achievement, behavior problems, and other aspect between teachers who score high in attitude about teaching reading in the content classroom, and those who do not.

Tullock-Rhody and Alexander (1980) described the need for teachers to be aware of the ways students felt about reading since this will affect reading achievement. They talked about common concerns about the evaluation process for determining how students felt about reading. These included: the need for an adequate paper and pencil assessment device designed to be used early in the school year that required minimal time for administration and scoring, and the need for a reliable and valid instrument that takes into

account the need to periodically measure student attitudes and contain items truly representative of students' feeling about reading. Since there was not an instrument that met all these requirements, the authors set about to create one and tested it on students in grades 7 through 12 from both urban and rural environments. The instrument was validated it on a separate sample of students. The authors noted three indicators of validity: 1) The instrument was constructed from comments made by secondary students, 2) Twelve teachers were each asked to designate five of their students who had positive attitudes about reading and five who had negative attitudes about reading. The scores were compared and the results indicated the instrument discriminated between these students, 3) Individual test items retained in the final scale correlated at an acceptable level with the total scale (reliability of 0.84).

Wolfthal (1981) presented approaches of attitudes towards reading by looking back over comments made by educators beginning with Horace Mann in 1838, and continuing up to the present. The comments concern student's poor reading skills and habits. This showed that when we say, "things ain't the way they use to be," we really mean, "things are not really any different than they use to be."

Lehr (1982) described research related to student attitudes towards reading. She presented six findings from previous research studies, the most significant of which is that students value reading as a source of information, not as a source of pleasure or a means of understanding themselves or cultural values. This finding may have a significant impact on the field of social science education because it speaks to why students do not get much out of reading their textbook. She stated the following generalizations:

- 1) students frequently do not understand that reading is sometimes hard work and can be boring,
- 2) reading attitude are multidimensional with both a cognitive and affective component,
- 3) factors that influence student feelings about reading include the amount and kind of reading done by their parents, the value placed on reading, or the amount and type of material available,
- 4) classroom environment and teacher behavior can also have an effect. Positive reading attitudes have been shown to be linked to reinforcement of student self-concept,
- 5) Sustained Silent Reading (SSR) is one practice that has been shown to improve student attitudes towards reading when used in secondary schools. Lehr concluded by discussing ways of assessing reading attitudes using attitude scales, self-reports, and interviews.

Ortiz (1983) presented ways of generating interest in reading. Monitoring student responses in class, Ortiz determined that material related to some aspect of the student's life or experiences (current or past) led to increased interest. Desire to learn more about a particular topic of

interest to the student was seen as a motivation to read. Ortiz recommended teachers ask their students several questions to help guide the selection of reading materials and provided nine other ways to develop student's interests.

Levine (1984) recommended using the technique of uninterrupted sustained silent reading to improve student attitudes towards reading. Like many skills that are taught, the tendency is to over teach the skills and fail to provide students with sufficient time to practice and incorporate the skills they have been taught. The use of uninterrupted sustain silent reading provides the student with an opportunity of discovering reading as a pleasurable activity instead of a chore to be avoided. Learning to read independently is a major benefit of uninterrupted sustained silent reading. Levine discussed how to implement the program and talked about how it can be applied in both a reading class and in remedial reading settings as well. Recommended further research to identify and measure the full effect of this program on reading achievement.

### **Attention to Reading**

Wigfield and Asher (1984) presented integration of findings from research about how motivation and socialization influence children's reading skills. They specifically looked at how race and social class differences in children's reading performance are influenced by social and motivational factors. One finding of their review is that it appears that peer pressure exerts a negative influence on low-SES children's achievement and that strategies are needed for involving low-SES children more in the school situation. One recommendation for future research focused on research that more closely integrates achievement motivation and socialization influences of reading. Another recommendation was that research was needed on how particular features of the home and school environments influence the development of reading skills.

### **Benefits of Reading**

Winograd and Paris (1989) proposed a cognitive and motivational agenda for reading instruction, by fostering the use of cognitive strategies and helping students understand the benefits of reading. They discussed three historical influences that affect current practices in reading instruction: 1) Basal readers, 2) Assessment, seen as driving the curriculum because of national, state, and district mandated policies, and 3) Competition through ability grouping and striving for good scores rather than information gained or pleasure experienced. They presented four changes that they felt need to be made in reading instruction

focused on making students become more thoughtful: 1) An approach that presented a model of effective reading, teaches students effective reading strategies, and the reasons for using those particular strategies. 2) Effective direct explanation, characterized by information about the thinking process, awareness of how to solve problems, information that is precisely presented in the framework of meaningful reading, and presentation of information of increasing complexity. 3) Scaffolded instruction that engages the student's interest, reduces task size to manageable bites, focuses students on achieving the task goal, and accentuates features of the task that the learner can use. 4) Cooperative learning to allow students to work together, to discover, to share and debate ideas as they read. Winograd and Paris concluded that the goals of reading can and should be redefined to include both cognitive and motivational components and reflect a commitment to help students become lifelong readers.

### **Comprehension Strategies**

Studies about comprehension strategies in the 1980s looked at word meaning acquisition, using dialogue and guided practice in the classroom, and vocabulary in inferential comprehension.

Langer (1982) talked about the facilitating of text processing through the elaboration of prior knowledge and described the Pre Reading Plan (PREP), a three-step instructional/assessment paradigm: 1) initial associations with the concepts, 2) reflections on initial associations, 3) reformulation of knowledge. She stated this type of exercise provided teachers with information necessary to decide if sufficient knowledge is present for the students to read and understand the text. Langer concluded that elaboration of prior knowledge, awareness of what is known about a topic, and expectations about the content and language to be presented all lead to more efficient processing and recall of subject area text.

McKeown (1985) described the process of acquiring word meaning from context for high- and low- ability fifth-grade students. Students were given a task that tested their ability to derive the meaning of an unknown word from a sequence of contexts and to use the newly learned word in subsequent contexts. Significant differences were found in favor of the high-ability group. Qualitative comparisons revealed differences in the types of errors made by each group and differential difficulties within certain aspects of the task. Results show that gaining word meaning is far from an automatic process and the less skilled students are much less likely to be successful. Sometimes factors like multiple contexts send low ability students mixed signals that may interfere with their effective processing of the text. Findings demonstrated characteristics of processing that differentiated successful and less successful acquisition and

underscores the complexity of the meaning-acquisition process. The authors recommended the use of teacher modeling for the instruction of complex skills.

Paris (1985) talked about using of classroom dialogues and guided practice to teach comprehension strategies. Research seems to indicate that little actual instruction is taking place in classroom designed to teach students how to scan, reread, elaborate, or summarize information. Six comprehension strategies that had been identified as fundamental are: 1) understanding the purpose of reading, 2) activating relevant background knowledge, 3) allocating attention to main ideas, 4) critical evaluation, 5) monitoring comprehension, 6) and drawing inferences. Guided instruction is an effective method of teaching students how to use these strategies because it involves not only teaching the strategies but also telling students why they need to use the strategy, but it provides practice and feedback so they can become proficient. This provides motivation to use strategies enable students to assume responsibility for their own learning and give them ways to successfully attempt to solve learning problems that they may encounter when the teacher is not available. Using others who have successfully mastered certain skills as teachers, students not only learn more quickly but also can learn alternative methods for solving problems.

Amlund, Kardash, and Kulhavy (1986) examined the quality and quantity of recall of students who read text material one, two, or three times before being tested. They sought to identify the effect of the number of times a passage was read on both immediate and delayed recall of main ideas versus details, using both free recall and cued recall measures. Sixty graduate students were instructed to read a 669-word expository passage one, two, or three times and completed both free and cued recall measures on three test occasions. Subject who read the passage twice prior to first recall remembered significantly more text information than subjects who read the passage one or three times. Subjects who read the passage three times exhibited disproportionate recall of detail, versus main ideas. Persistence of initial encoding errors was remarkable stable for all groups despite the fact that all subjects reread the passage after the first recall. Results suggested 1) that errors on the first cued recall were more likely to be repeated on a delayed recall, once they had been repeated on an immediate retest. Efforts to improve accuracy of recall must be implemented either prior to or during first contact with material to be learned in order to be effective in influencing accuracy on long-term recall. 2) Repetitive reading as a study strategy yields optimal benefits in terms of overall recall and retention when material to be learned is read twice during initial contact. For subjects in this study, the third read resulted in lower recall of main-idea information with no corresponding benefit in recall of details over that evidenced by those who read it twice.

Heller (1986) described a teacher modeling technique, entitled What I Know, a structured procedure for modeling metacognitive strategies, through direct explanation of the reading comprehension process, in the content area classroom. Heller described the process that a teacher would go through to develop a lesson in front of their students, modeling for them steps they should go through before, during, and after reading to learn information. A three column worksheet is created with sections for “What I Already Know”, “What I Now Know” (what I learned from reading), and “What I Don’t Know” (things that are confusing or not understood). The teacher demonstrates the use of prereading questions to focus learning, how predicting aids in comprehension, and directs students to locate information. Students should also be taught to use purpose questions as a check of their learning as they proceed, setting a purpose for reading, activating prior knowledge, and looking at the structure of text and learning aids such as graphs, charts, maps, and diagrams are all helpful activities that aid students learn better. The goal is that ultimately, teacher modeling will give way to students acquiring independence in learning with increased comprehension.

Johnson and Johnson (1986) looked at highlighting vocabulary in inferential comprehension instruction. The authors stated that construction and modification of inferences are essential to reading comprehension and they presented 10 categories of inference types that are recommended for instruction to students, which provide a strong base to enable most students to handle the task of reading material. The authors proposed a three step procedure for teaching students to make inferences while reading: 1) Teach (teacher presented a brief passage requiring students to make an inference, after which the teacher highlights important words and describes how they contribute to the correct inference). 2) Practice (students are given a short passage that they must analyze to determine the important words and describe how these words lead to making a correct inference). 3) Apply (Students are shown a passage one sentence at a time. They must make an initial inference and then confirm, reject, or modify their initial inference as more text is exposed). Johnson and Johnson stated that because everything we read requires us to make inferences, direct instruction in the types and processes of inference making are recommended as the best way to train students.

Paris (1986) presented several contributing factors to students’ poor reading comprehension and presented some practical alternatives. The National Assessment of Educational Progress (1981) had found that students in intermediate and secondary grades especially had difficulty understanding, inferring, and recalling meaning from texts. Durkin (1979) found that teachers in intermediate grades rarely provided

explicit instruction on comprehension strategies. Paris discussed five years of research conducted at the University of Michigan using a technique called the Informed Strategies for Learning (ISL), a learning instruction program for grades 3, 4, and 5. ISL is based on three fundamental principles: 1) Students need to understand the skills they are expected to learn, 2) They need an opportunity to share their thoughts and feelings about what they are learning, 3) They need to be guided and coached to successively better and more independent learning performance. Instruction utilizes techniques such as informed teaching, where students are not only introduced to effective learning strategies, but they learn how and why these strategies work. The use of analogies- a sleuth looking for clues to identify “tracking down the main idea.” Group discussion to allow for the flow and exchange of ideas cooperatively and provided insight into thinking processes. Guided practice to help reinforce and practice using strategies individually. Paris goes on to extol the virtues of ISL stating that over the past 5 years students who had participated demonstrated increased awareness about comprehension strategies, and that the body of research seems to indicate that those students who are most cognizant, score highest on several tests of reading comprehension. Although he refers to several other articles that had been written, Paris does not cite any research data to support these claims in this chapter.

Winograd and Bridge (1986) reviewed research dealing with comprehension of important information in written prose. They sought to answer three questions: 1) What is meant by important information. 2) What methodological issues are involved in the research that examines the comprehending of important information in written prose? 3) How do fluent readers identify and use important information? In answering the first question, the authors acknowledge that different authors use different terms in different ways to define what is “important.” The readers or researcher must be careful to ensure that they understand what those authors mean when they use a particular term. In response to the second question, methodology issues depend on the level that the researcher chooses to focus on in their study. These can include the word level, sentence level, or paragraph level. Other researchers look at story level factors (setting, initiating event, internal response, protagonist’s effort, the consequence and the reaction). A third alternative is to look at central content (the purposeful causal sequence of action and events that make up the plot), the supportive content (added details) to the central content which might describe the main character or the setting, and distracting content- events that do not involve the main characters or description of minor characters. The third question has one of two possible answers: either the author provides cues in the text, which identify the ideas that they felt are important or as the reader gains

experience with text types and develop background knowledge, they become more proficient at identifying the authors intended message. Most likely, it is a combination of the two possibilities. These skills develop with age and exposure to text and can be enhanced by learning how to generate summary statements about text read. This contributes to improved comprehension and memory. Winograd and Bridges recommended further research to learn more about the nature of written prose in general and the nature of written prose most suited for reading instruction in particular. They also recommended further research be done about the processes by which fluent readers identify important information, and how to help less fluent readers acquire this skill.

Simpson (1987) looked at what it means to understand a word or concept in order to determine which classroom strategies to use and when. She addressed three questions: 1) what is involved in understanding a word or concept? 2) How do we presently measure word knowledge? 3) What are some alternative formats that teachers could utilize with their students? She suggested techniques such as paired word questions, categorizing, analogies, and sentence writing as ways to evaluate vocabulary knowledge. Simpson stated there are four processes that represent the mental operations involved in the conceptual understanding of a word: 1) Students should be able to recognize and generate critical attributes, examples, and nonexamples of a concept. 2) Students should be able to sense and infer relationships between concepts and their own background knowledge. 3) Students should be able to recognize and apply the concepts to a variety of contexts. 4) Students should be able to generate novel contexts for the targeted concept.

### **Engaging Readers**

Bohning and Radencich (1989) presented the origins of action books, selection guidelines for use in the classroom, and an annotated list of science and social studies action books. An advantage of action books is that they can be a motivator for students to engage in further exploration of a topic they encounter through involvement and may be a source of stimulation to students who might not otherwise pick up a book. Two disadvantages are that, over time, the action mechanism tends to wear out or break and they seldom include reference aids because of the limited number of pages they had.

### **Purpose for Reading and Writing**

Research in this area presented various strategies such as précis writing, evaluating student journal writing, teaching effective writing skills, and the connection between using reading and writing.

D'Angelo (1983) described how précis writing (a paraphrase of another's writing, which condenses the original, retaining its emphasis and point of view) helps student to develop vocabulary and comprehension. She demonstrated the use of graphic symbols for teachers to use to aid students in locating topic sentences, and how to teach students to select and rejects an author's ideas. She believed that précis writing teaches students how to write clear and concise summaries that are useful in doing reports and research papers. It also can aid them in summarizing classroom learning and preparing for tests. Finally, by paying more attention in class, students had a greater likelihood of learning and incorporating both receptive and expressive content vocabulary.

Gerhard (1983) discussed the reasons that content and reading specialists should teach writing skills as part of their curriculum. She provided evidence that reading and writing are not only complementary language processes but also that acquiring encoding and composing skills assists students in developing decoding and comprehending skills. She presented four principles for teachers to use in implementing a program: 1) Widening the audience of student writing to make it genuine communication, 2) Make the writing task consequential(something other than a grade, 3) Vary the types of writing assignments, 4) Writing should help students integrate new material into what they already know.

Hoffman (1983) showed how student journals could help teachers and students identify behaviors and attitudes that affect study skills and college work. Writing journals and summaries gave students an opportunity for self-study, reflection, and class discussion that can develop self-awareness about the learning process. It gave needed practice in a writing style that comes naturally and easily to students. Hoffman stated that this type of writing puts emphasis on the student's responsibility in the learning process.

Pearce (1983) presented some guidelines and some techniques content area teachers can use for evaluating student's writing assignments. He stated that writing on topic covered in class requires students to examine the concepts and facts involved, to focus on and internalize important concepts in order to better grasp the course material. Using a holistic evaluation, the teacher should determine whether the assignment displays specified traits, that is, were the instruction for content and elements of the paper met. Three elements of feedback are recommended. First, write brief comments directed at primary trait features that have been chosen for evaluation. Second, in papers with multiple problems, concentrate on one or two major areas. Do not overwhelm students with all the errors. Third, instead of making

statements, try asking a question. He also recommended that students be provided with the rubric or checklist you will use for grading the assignment as an additional guide for their writing.

Newell (1984) focused on how school writing tasks (note taking, answering study questions, and essay writing) interact with three measures of learning (recall, concept application, and gain in passage specific knowledge). Results indicated significant gains in passage-specific knowledge for essay writing. Differing profiles of writing process scores for the three writing tasks indicated that with notetaking and answering study questions, information in the prose passages remained isolated and detached. Essay writing enables students to integrate elements of the prose passages into their knowledge of the topic.

Beaman (1985) talked about perceptions of the importance of teaching students to write as part of learning in the social studies. He provided several examples of writing prompts that he uses to get students to do more than just memorize facts for a test. Beaman believed that this type of classroom activity offers students opportunities to engage in meaningful learning that encourages them to participate more actively in class.

Pradl and Mayher (1985) suggested that having students keep a journal of their classroom experiences can help them understand the concepts they learn in school and how lessons relate to their own lives. They observed that most writing tasks require thinking, but few demand that a finished product be done. They ask the question: How can the active use of language aid in the mastery of content in other subject areas, because learning from writing is an active exploratory mode. It has the potential for students to achieve genuine levels of academic excellence because thinking and writing forces students to actively engage in learning. Pradl and Mayher concluded that many schools view education as a passive process for students and that they need to change this to an active construction of meaning approach that links in school lessons to the world outside the classroom.

Bromley and McKeveny (1986) offered suggestions for successful instruction in précis writing. They noted that this is a strategy designed to develop vocabulary, promotes critical reading and comprehension, and improves learning in general. Results of recent research support the use of summaries and précis with middle school students. One distinct advantage of a précis is that, because it emphasizes major learning points, it can be used to review and studies in preparation for tests. Bromley and McKeveny presented numerous suggestions to help students in the prewriting stage, during the composing stage, and after composition use by students. They stated that once mastered, this could become an effective study

skill, which is useful for the remainder of not only the student's educational career but in the workplace as well.

Kucer (1986) presented a way to help teachers use writing effectively in the curriculum to help inexperienced writers produce better expository text. He highlighted the kind of difficulties that less able writers frequently experience and presented a strategy to help poor writers learn to organize their thoughts so they can write better. Kucer stated that struggling writers overly focus on surface features such as punctuation, spelling and grammar when trying to write rather than organizing what they know about the topic through elaboration of their thoughts. The card strategy forces students to list ideas about a topic of their choice on separate index cards, which form the organization of distinct paragraphs in the writing exercise. It helps with organizing thoughts and can be accomplished in small groups with members of the group providing ideas for consideration. Students can then review the cards and select those ideas that they want to include in their composition. Kucer concluded that learning to write would aid students with learning content area subjects better.

Konopak, Martin, and Martin (1987) suggested the use of reading and writing to enhance students' learning of content material. They believed that both reading and writing share certain common characteristics: generating, organizing, drafting, and revising ideas. To check this they conducted two experimental studies using the Guided Writing Procedure to check writers' fluency and coherence of ideas. The first study involved eleventh graders in three U.S. History classes who formed two treatment groups and one control group. Results indicated that the writing treatment group produced few text explicit details and more higher-level ideas on the final writing than the other two groups. This would indicate that the writing treatment group was better able to synthesize information acquired from all its activities than the other two groups. The second study was a replication of the first study with two modifications: there were only two groups (writing treatment and control) and the number of writing samples was reduced from four to three. Seventy-six eleventh graders in four U.S. history classes participated, two classes were control groups and two classes were writing treatment groups. The results of this study support the finding of the first study, the writing treatment group produced higher quality ideas. Konopak, Martin, and Martin concluded that writing, as a reinforcement of learning should be used more extensively in the classroom to encourage deeper understanding and retention of material.

Self (1987) listed ten purposes for using writing to learn:

- 1) To focus student's attention on subject matter,

- 2) To engage students actively with the subject matter,
- 3) To arouse students' curiosity about subject matter,
- 4) To help students discover disparate elements of subject matter,
- 5) To help students make connections between subject matter and their lives,
- 6) To help students make their own meaning from subject matter,
- 7) To help students think aloud on paper in various ways: associating, analyzing, synthesizing, etc,
- 8) To help students identify what they do and do not know about a subject,
- 9) To diagnose students' learning successes and problems,
- 10) To prepare students for subject matter discussions.

She then presented examples of writing-to-learn strategies and provided suggested instructions for teachers to use in presenting these strategies. Self's reason for using writing to learn in the classroom is the desire to involve students actively in their learning and to provide them with opportunities to think and interact more with their peers.

Jenkinson (1988a) suggested that if students are to do well on essay exams they need some practice with those types of questions. Teachers can help students learn how to answer essay questions by teaching them what to expect and what they mean by certain words they use in writing test questions. He suggested that teachers consider making it possible for students to answer exam questions in a variety of modes: dialogues, interviews, fictionalized accounts and story problems and that students be given an opportunity to practice writing responses since these provide occasions for learning to write while writing to learn. In a follow-up article, Jenkinson (1988b) provided some suggestions for students who respond to journal writing assignment with "I don't know what to write about today." These suggestions concentrate on things that students like (favorite food, television shows, things they like to do); on their opinions (I like or dislike \_\_\_\_; why I like certain movies, songs, or sports; what I would do if I were \_\_\_\_); and perennial questions (I wonder why \_\_\_\_?).

Oberlin and Shugarman (1988) presented three purposeful writing activities for students in middle school. Activity one allows students to compare the prewriting and pre-reading stages to view them as an analogous cognitive process. This solidifies and enhances the relationship between pre-reading and pre-writing. Activity two introduces the unique style, concepts, and vocabulary of a given text prior to reading and familiarizes students with key terms, concepts, and the author's style. Activity three reveals students'

current understanding of an up-coming reading topic and helps student to locate beginning points for learning and teachers beginning points for instruction.

Gahn (1989) described a practical guide for teaching writing in the content areas and stated that writing has been shown to aid in retention and understanding material. Gahn suggested three strategies that can be used to teach students how to write better. The first was the PORPE strategy (Simpson, 1986) which included the 5 phases: predict, organize, rehearse, practice, and evaluate. The second, paraphrase writing, consists of three types: rephrasing, summarizing, and elaborating. Rephrasing requires students to reword short paragraphs. Summarizing has students highlight the main points of the text. Elaborating relates text to prior knowledge in some new form. The third strategy is Guided Writing Procedure. Before reading, the class brainstorms reactions to an assigned topic and students write individual paragraphs revealing their ideas. After reading the text, they revise their drafts and share their final papers with the rest of the class.

Pearce (1983) surveyed teachers about the extent to which they used student writing. Only 10% indicated that they used tests composed exclusively of essay questions, and most indicated that the type of writing they used was the non-evaluative type, such as journal writing. Sensenbaugh (1989) identified two sources that can lead to failure of writing across the curriculum programs. In the first instance, the teacher needs to be a collaborator and writing assignments should be designed to demand discovery, inquiry, and synthesis from students, yet this is not the way most teachers view their role. In the second instance, the process of writing is inadequately conceptualized and definitions vary. Pearce indicated that writing assists in learning, writing should be incorporated across the curriculum, writing should be process oriented, and frequent writers develop into better writers. Pearce concluded that content area teachers are not teaching writing, yet they are expecting students to use it. He noted that that good content writing demands instruction by the content teacher. Pearce stated that there had been few attempts to evaluate the effectiveness of existing programs or to develop a theoretical framework to support writing across the curriculum.

### **Readability**

Readability research looked at assessing the difficulty level of materials that student encounter, primarily in content textbooks.

Bradley, Ames, and Mitchell (1980) discussed a study designed to measure the readability of eight

junior high school American history textbooks. They pointed out that most social studies textbooks are written in a manner that makes their use inappropriate for students of average and below average reading abilities. Most readability studies evaluate the average readability of a textbook based upon two or three 100-word passages taken from different parts of a textbook. Three sections, the Constitution, Reconstruction after the Civil War and World War II, were chosen because they occurred near the beginning, in the middle, and at the end of the textbook. All eight textbooks were evaluated using the Fry Readability Scale, with each entire chapter divided into 100-word segments. The finding indicated that intrabook readability variations did exist, both within and between chapters, and that in some textbooks the readability differences were substantial. The authors recommended that teachers need to evaluate textbook chapter passages to determine those that will provide the greatest difficulty to student comprehension so that they can provide students with more guidance and assistance or can present the material to their students.

Irwin and Davis (1980) provided an alternative procedure for determining the readability of material when it is not available. They identified some inadequacies of readability formulas: that they do not examine the match between the conceptual background of the reader and the concept load of the text; they do not examine the way new concepts are introduced; they do not consider how motivational the material seems; and they do not examine factors such as organization and reinforcement. They presented a readability checklist consisting of 36 items, rated on a scale of 1 to 5 for each item. The checklist is divided into sections on understandability (the relationship between the text information and the students' conceptual and experiential background, concept development) and learnability. Irwin and Davis believed these factors are better at evaluating reader-related issues and will maximize students' comprehension.

Fitzgerald (1981) asked the question: How many samples should one draw from a reading selection to determine its average difficulty? Using the Fry Readability Graph, the author attempts to answer this question. The Fry graph attempts to estimate readability using the variables of number of syllables per 100 words and number of words per sentence. Fry recommended that normally three 100-word samples be taken. However, if large variation is found among the three samples, Fry suggests, "a few more be added." Based on some previous work by the author, she stated because of internal readability issues in most textbooks, such a large number of samples must be taken before readability estimates stabilize that the task

becomes impractical. Fitzgerald cautions teachers to use readability estimates with extreme caution and recommended that we need to know more about how samples reflect a whole text.

Davison (1984) examined the limitations and liabilities of the use of readability formulas from several points of view. She says, from a theoretical point of view, readability formulas are of no use whatsoever as an explanatory measure and are completely useless in adding to the store of knowledge about reading. Second, readability formulas fail to make diagnostic predictions that fit the intuitions of normal readers about what the real source of difficulty might be in a text. They do not define what makes a passage difficult to read. They only reflect the statistically general features of difficulty (long sentences, unfamiliar vocabulary).

Dreyer (1984) stated that the goal of readability research was to objectively match reader and text. Readability formulas are not meant to define readability, but instead measure factors that can correlate with difficulty. Dreyer stated that teachers must keep in mind that readability formulas do not identify all text features that affect comprehension but assume that sentence length, word length, or percentage of unfamiliar words determine level of difficulty. Some factors that readability formulas do not account for include syntax, complexity of sentences, unusual positioning of sentence components and number of dependent clauses. They do not measure textual factors such as word frequency, concept density, level of abstraction, nor organization, coherence, and logical presentation of ideas. They also do not consider format factors such as length of the typed line, hyphenated words, long paragraphs, confusing punctuation, or type style, size, illustration or color that can influence readability. Dreyer provided teachers with several suggestions for helping students to better read material they encounter.

Kretschmer (1984) presented a computer BASIC program called RIXRATE that allowed entering text into a microcomputer and then computing the readability of the text on a sentence-by-sentence basis using the Rix Readability Index. While not relevant in today's microcomputer age, it points out a developmental stage in readability formula development, whereby teachers could use a computer program to help determine readability of text passages. Additionally significant was the reported correlation (.96) of the Rix Readability Index with the Flesch formula, and the Fry graph.

Carver (1985b) looked at the Degrees of Reading Power Test, a criterion referenced test that provides a measure of "the ability to read prose at different levels of difficulty," as a solution to the problem of finding a way to match students to text. A typical DPR test consists of 11 passages arranged in order of

difficulty starting with very easy material. The difficulty rating is derived from a readability formula that relies on average word length, average sentence length, and percent of easy words. After analyzing typical passages obtained at several grade levels, Carver argued that the Degree of Reading Power Test is not a valid tool for its main purpose, matching students to appropriate texts, because the test's units of text difficulty are not uniformly comparable to the test's units used to reflect reader's ability. Specifically, the DRP considerably under-estimates student abilities in elementary grades and over-estimates the abilities of students in high school. It appears to have large internal inconsistencies but it may be valid for evaluating how individuals compare with each other in reading achievement, for measuring gain in reading ability, or for indicating remedial assistance.

Gross and Sadowski (1985) presented a computer program version of the Gunning Fog Readability Index. The advantage of this version (and keep in mind this is 1985) it only uses 8K RAM and does not require a disk drive; it is accurate within a half point on the FOG index; it is free, and it is user friendly. The article contained detailed instructions for typing in the program.

Armbruster, Osborn, and Davison (1985) talked about how the use of readability formulas might detract from textbook quality. Some of the ways included 1) that they overlook text and reader characteristics that affect comprehension. 2) moreover, "average readability levels ignore wide variations within text and between scales. 3) the shortened sentences and simplified vocabulary used to confirm texts to formulas sacrifices precision and connectedness, and thus reduces comprehensibility." The authors contended that students can read and understand text within a wide range of difficulty and that it is to their advantage to do so. Armbruster, Osborn, and Davison stated that students can be successful and learn ways to vary their reading speed by practicing on various difficulty levels of text and believed that there is a place for using readability formulas but that trying to match each student to a textbook is not one of them.

Bormuth (1985) discussed problems associated with matching readers and the material they are reading. A general problem with reading scales is that they tend to overestimate the difficulty of simple materials for young readers and under estimate the difficulty of advanced materials for older readers. Most reading tests are designed chiefly to measure knowledge of linguistic skills and some measure of complexity such as sentence and word length or familiarity. Four factors- linguistic skill of the reader; required linguistic skills of the material; the background knowledge of the reader, and the background knowledge assumed in the material need to be considered. Bormuth closes by pointing out that until researchers

resolve the problems with the validity of their tests and formulas; these will be of limited use in assessing how well readers can comprehend material.

Fry (1987) presented the varied uses of readability measurements to match learners' reading ability to the difficulty level of material. School librarians use them to make book purchase decisions, textbook selection committees' use them for decisions on purchasing one publisher textbook over another, teachers use them to select books for outside reading or to tailor reading for individual students. In business, they are used as part of manufacturing's concern about safety issues, product liability and proper use procedures. The insurance industry has used them to make policies more understandable to policy owners. Corporations who produce consumer goods use them in writing ownership manuals and user guides. Government agencies and law firms that file class action suits use readability formulas to make form letters easier to understand, and contracts, rental agreements, money lending forms and other consumer types of contracts are made simpler, clearer and easier to read. Some states are using readability formulas to simplify driver's license manuals.

Holdzkon (1987) addresses the concept of readability, the ease of understanding of a text because of features of writing style. He points out that in trying to match students to text, three things need to be considered: the range of the reading ability among students, the readability level of texts, and the structural features of the text that facilitate or improve the students' processing of the information. Secondary reading material differs from elementary reading material in that while elementary reading material consists of general vocabulary, concepts for which children had some background experience and fairly simple sentence structure, secondary material requires students to acquire new strategies for dealing with increased technical vocabulary, concepts that are not a part of their background knowledge, and complex linguistic structures. Holdzkon points out that improving readability involves more than reducing the number of words per sentence. As an example, separating clauses in a difficult text with periods can reduce the readability score, but may not improve the level of understanding of the text because conjunctions often serve to clarify relationships between clauses. He presented other evidence that other factors such as reader's prior knowledge, understanding of how language text works, how texts are structured and how various part of text work together all influence the reader's ability to learn from text. Holdzkon concluded by presenting seven guidelines from an unpublished manuscript (Wetmore, 1980) for making text more clear.

Fry (1989) argued that readability formulas accurately predict how easily a passage will be understood by considering sentence length and word difficulty. He claimed that the misuse of readability formulas as writing guides is responsible for much of the criticism, because they were not invented as guides for textbook writers to use in writing textbook passages. The most common misuse of formulas, according to Fry, is for writers to take sample inputs and manipulate them irrationally, rewriting a passage and inserting shorter words in an attempt to lower the readability score. One criticism frequently cited is that longer sentences raise readability formula scores. Fry reiterates that readability scales are based on average sentence length, which implies that some sentences will be shorter and some longer. He also points out that high frequency words are generally shorter and easier to understand, but that is not always the case. The following are some factors that increase readability formula scores: paragraph length and organization, cohesion, signal words, active voice, personal words and sentences, subheadings, referents, illustrations, topic and example selection. Another criticism is that readability formulas do not take into account the background and motivation of the reader, to which Fry replies, "That's right." "But they work." Fry concluded that readability formulas help us to know something important about the difficulty of any prose passage. "The research proof for readability formulas doing what they're suppose to do is good, solid, and just as valid as the research for any educational or language communication procedure." He challenged critics to come up with something that is better in terms of overall validity and general usefulness.

### **Reading Comprehension**

Reading comprehension research in the 1980s focused on issues such as being able to distinguish between significant and insignificant text, the use of statement-based reading guides, difficulties that student had with comprehension content textbooks and some ways of reducing the complexity of text, the impact of cultural schema, and the effectiveness of predicting and self-question as aids to comprehension

Dolan (1980) stated that in reading comprehension, the ability to differentiate between significant and insignificant text is one aspect that tends to separate proficient readers from ineffective one. A problem experienced by many students in high school is that students frequently treat all words and sentences as if they were of equal importance. He presented a three-stage process for teaching the logical relationships that exists between individual words, words in sentences, and sentences in paragraphs. Teaching students to recognize four kinds of relationships: equal, opposite, superior/subordinate, and no relationship, will aid them in differentiating main ideas from subordinate statements during reading.

Moore and Readence (1980) stated that the reader must be able to recognize the main idea in order to understand a reading passage. Many strategies for identifying the main topic work when a statement is present or clearly stated. Since this does not happen frequently, they presented an instructional strategy, the “parallel lesson transfer”, for teaching students to identify main ideas. The strategy involves students in viewing pictures (asking students to describe what they see) and the teacher constructing three or four main idea statements related to the pictures to demonstrate the appropriateness of each. It also entails listening, where the teacher first demonstrates and then allows opportunities to practice identifying the main idea or topic of a selection. Selected oral reading acts as a bridge between listening and silent reading and helps students learn how to solve general types of problems, which they can apply to specific situations. These included activities like readers’ theater and reading along with a recorded presentation, employ both listening and reading skills. Silent reading is the fourth type and enables the student to formulate the main idea statement after reading a passage. Parallel lesson provides teachers a specific structure to progressively develop students’ comprehension abilities from concrete to abstract.

Obah (1980) explored the nature of comprehension and postulated levels of meaning beyond comprehension as commonly perceived. She believed there are two problems inherent in teaching comprehension: 1) there are different processes of comprehension for works of literature and non-literary works, 2) even though we think of reading as a two way communication model between writer and reader, we treat it as if only the writers message counts. Obah advocates taking into consideration what the individual reader bring into the equation because doing so helps the reader become integrated into the learning experience and helps them place what they are reading into a more meaningful context and hopefully leads to richer literary experiences.

Riley (1980) advocated the use of statement-based reading guides instead of guided reading questions for use in the content classroom. He presented research evidence that statement-based reading guide, written at three levels of comprehension- literal, interpretive, and applied- are effective in guiding student thinking. Several examples of guided reading statements are presented along with the use of small group discussion as a means of altering the traditional student-teacher relationship in the classroom setting. Riley believed that allowing other students to explain the techniques and thought processes that they use gave less able students a chance to not only acquire content area concepts, but also learn from their peers strategies for acquiring those concepts.

Taylor and Berkowitz (1980) looked at the difficulties students had with comprehension of content material, specifically content area textbooks. They examined the relative effectiveness of three study techniques- 1) generating summary statements for paragraphs while reading, 2) completing a study guide, and 3) answering questions after completing a reading assignment- on elementary students' comprehension and memory of social studies material. Results indicated that the study-guide method was not a particularly effective technique. The summary generation procedure appeared to enhance students' memory in general for social studies material. Writing a one-sentence summary after each paragraph also was more effective than having student answer teacher prepared questions. Taylor and Berkowitz stated that, if a summary-generation strategy is implemented, teachers will spend less time having to prepare questions for students to answer, students can use the strategy without teacher input once it has been taught which takes a minimum of three times, and students are learning an important independent study skill.

Tuman (1980) defined the issues involved and surveyed the major literature concerning the relationship between listening and reading comprehension. The results of previous studies led to four general conclusions: 1) there are comprehension difficulties in listening for poor readers; 2) there is a relationship between semantic and syntactic processing for both good and poor readers in both written and oral form; 3) there is an impact in a lack of automaticity in decoding; and 4) the importance of incomplete decoding as a function of poor reading comprehension. Tuman cited research which challenges whether reading and listening involve the same types of skills since reading and listening comprehension scores do not seem to correlate that highly. There is also not enough evidence to support the idea that listening skills can be taught effectively. One criticism of the phonic approach is that phonics assumed that any difficulty a reader had lies in the reader's inability to receive the message in an intelligible form, when the problems seems to be that the reader is unable to understand the message after it is received. On the positive side, Tuman claimed that students could be taught that printed material contains information worth knowing and experiences worth having. Therefore, teachers need to concentrate on teaching general area of verbal competency, and students need to learn how to give and receive messages.

Tyo (1980) presented a study on the effects of furnishing taped alternatives to textbook learning in social studies classes in the junior high level. Tyo noted that readability is an issue for many students in middle and high school. Comprehension was checked using a cloze test over the material and the analysis of variance done showed gains to be highly significant ( $p < .01$ ). Results indicated that the use of taped

readings facilitated significant comprehension gains and the author advocates listening alternatives are useful additions to instruction in social studies classes.

Anderson and Freebody (1981) summarized what was known about the role of vocabulary knowledge in reading comprehension. They review the three distinct views of why vocabulary knowledge correlates so highly with linguistic ability (The instrumentalist position; vocabulary tests measure verbal aptitude; and the knowledge hypothesis). They stated that while current research demonstrates the importance of a reader's perspective on a text and text structure, that we do not understand exactly why people who do not know the meanings of very many vocabulary words are probably poor readers. We also need further research on how word knowledge grows throughout the span of life.

Cohen and Stover (1981) discussed the results of three experiments that investigated structural format variables of math word problems that appear to interfere with average achieving sixth-grade students' abilities to read and solve those problems. The first asked gifted students to rewrite word problems to make them easier to understand by their peers. Content analysis identified three format variables that appeared to interfere with comprehension. The first was the difficulty of the vocabulary used in the word problems. The second was the length of the sentences used to write the word problems. The third was extraneous information included in the word problem. A second experiment, presented identical word problems, one with the interfering structural format and one without for each of the three variables. Large differences were observed in favor of the easier formatted word problems. The third experiment, was designed to teach sixth grade students to modify difficult formats of math word problems, indicated that treatment effects were effective. The results of the study suggest that reading comprehension involves something more than knowledge of the content being read. The three specific operations investigated in this study, inserting a diagram, reordering number sequences appropriately, and extract erroneous information suggest that the reader needs a comprehension set and specific strategies for teasing out the message imbedded in the deep structure of word problems.

Drum, Calfee, and Cook (1981) stated that many researchers had tried to isolate the components of reading comprehension but the results give only marginal support to the concept of separate components. The authors described a developmental model of performance on reading comprehension tests in which variables had stronger or weaker effects depending on the skill level of the reader. The model has been used to identify structural variables for predicting performance on seven standardized reading achievement

tests. Drum, Calfee, and Cook concluded that reading comprehension tests that were valid for beginning readers should incorporate different factors than tests appropriate for upper elementary readers, since word recognition and word meaning are prime sources of difficulty for younger readers while content density depresses the performance of readers in upper elementary grades.

Durkin (1981) examined manuals of five basal reading programs, kindergarten through grade six, in order to determine what they suggest for comprehension instruction and to see whether what they offer and what was found in an earlier classroom-observation study (see Durkin, 1979). In that study, almost no comprehension instruction was seen when grades 3-6 classrooms were visited. However, considerable time was spent on comprehension assessment and written exercises. Like the teachers, the manuals gave far more attention to assessment and practice than to direct, explicit instruction. When comprehension procedures are provided, they tend to be brief. A possible outcome is that the children receiving the instruction never see the relationship between what is done with reading in school and what they should do when they read on their own. Questions that remain to be answered included what will be taught and then; how each selected topic will be taught; how often and when each will be reviewed; and how much practice and what kind will be provided.

Hansen (1981) described research using two experimental methods intended to improve inferential reading comprehension with second-grade children. One method presented a prereading strategy in which students predicted upcoming events in a story utilizing previous experiences. The other procedure provided practice in answering questions that required inference between text and prior knowledge, utilizing ten basal-reader stories. Hansen's findings suggested: 1) The technique which focused children on making connections between what they already knew and what was in the text should increase the likelihood of them drawing inferences. 2) Requiring children to practice answering inference questions enhanced their ability and inclination to do so spontaneously. 3) Students receiving either of the treatments processed explicit messages of text better than those students who a direct focus on explicit messages. 4) On stories that contained material about which children were familiar, better inferences were made by students in the experimental groups. There were no treatment differences for unfamiliar stories. 5) Literal questions negated any displayed growth in inference making ability, because of the easy nature of literal questions.

McClain (1981) provided a "how to" method for constructing a useable study guide for the

classroom. She talked about the value of using study guides and suggested that study guides could help teachers set priorities and teach students how to learn through reading that is more efficient. A sample guide shows sections on background, vocabulary, organization, cause-effect, and details. After completion, she suggested that study guides can be used for review, to reinforce the ideas learned. Some students need the motivation of a grade, so the completed guide can be collected and graded. Use of study guides acts as a motivation to students because it teaches students what and how to learn, and allows students to relate to materials they encounter and helps them to evaluate the information as well.

Kameenui, Carnine, and Freschi (1982) described two separate experiments involving elementary students addressing the following comprehension issues: 1) Whether substituting difficult words for easy words in a text makes that text more difficult to comprehend. 2) Whether learning the meanings of the difficult words facilitated text comprehension. 3) Whether embedding redundant information specific to difficult vocabulary words significantly contributed to text comprehension. 4) Whether a passage integration vocabulary training strategy is more effective than a vocabulary training strategy that does not include passage integration. Both multiple choice tests and scores for successful retelling were used. In both experiments, the results showed that substituting difficult vocabulary make the text more difficult to comprehend, and that redundant information in a text significantly contributed to successful text comprehension except for the retell scores in the first experiment. Instruction on difficult vocabulary facilitated comprehension in both experiments. Children who received passage integration training scored higher than those who did not receive integration training.

Clewell and Clifton (1983) discussed that difficulty of vocabulary and sentence lengths are the major criteria for determining a text's comprehensibility, but four other factors also need to be considered in determining whether a text is comprehensible. First, the extent to which the text takes into account the reader's prior knowledge. Second, the coherence (its unity of meaning). Third, the degree to which the author sticks to the topic. Fourth, the structure of the text or how well it is organized. They presented five classes of questions to ask about a textbook: 1) Do textual aids assist the reader in comprehending the material better? 2) Is the content accurate and explicit so that the reader does not have to rely excessively on background knowledge? 3) Is the coherence (relationship among ideas) clear, logical, and signaled by cohesive devices such as connectors and referents? 4) Are students familiar with the types of discourse (expository, procedural, or persuasion) that occur most often in textbooks? 5) Does the language and style of the textbook stimulate attention and maintain interest? Clewell and Clifton concluded by making

suggestions for using the guided questions: 1) As a part of teacher inservice training. 2) To make instructional decisions about during teaching. 3) To make decisions about what concepts and experiences students need to understand the text. 4) To evaluate textbooks being considered for adoption.

Freebody and Anderson (1983) conducted two experiments to assess the effects of text cohesion and schema availability on children's comprehension of social studies passages that varied in vocabulary difficulty, using free recall, summarization, and sentence verification measures. The results of the two experiments failed to support the hypothesis that when one source of knowledge about the meaning of a text element is degraded, other sources of knowledge may compensate and provide alternative ways of determining meaning expectations based on an interactive theory of reading.

In 1983, Vacca and Vacca reexamined research on reading comprehension in content areas. They stated that much of the research on comprehension done in the past grew out of a "let's wait and see if it works" attitude or was short term and disjointed rather than a systematic and continuous process of refinement. Three underlying issues in research were whether reading was generic or content specific; vocabulary and concept load in texts; and the nature of comprehension instruction. With regard to concept load, several studies found that as students' progress through the elementary grades that the vocabulary and concept load increases. They noted that within the same grade, textbooks vary significantly as to the difficulty of concepts presented and the level of vocabulary used. By the junior high grades concept load also varied between content area subjects making presentation of material a more complex task for the teacher. With regard to the nature of instruction in reading, they found that there were benefits to using functional applications of reading comprehension strategies in the content classroom, using actual texts for the content subjects; and the benefit of direct teaching of specialized skills in each content area. Vacca and Vacca concluded that future research on comprehension instruction needed to focus on integrating the information base and instructional methods that had been developed in the past content area reading studies with concepts and methodologies developed in studies on text structure and cognitive processes.

Baker and Brown (1984a) pointed out growing evidence that young children and those with poor reading skills often do not know when they do not understand something. Therefore, it falls upon teachers to instruct their students how to become more aware of their own thought processes and to think clearly about what they know. Students who are effective learners develop metacognitive awareness of what the goals for reading are and what they are reading. They monitor their comprehension to ensure that they are staying on task and when they experience problems, they apply appropriate strategies to get back on track.

They also check their comprehension strategies periodically for effectiveness and change strategies as the situation dictates. When they cannot come up with effective strategies, they will frequently seek out assistance from peers or adults to figure out other ways to learn more successfully. Baker and Brown stated that further research is needed to establish more clearly the nature of the link between cognitive monitoring and reading comprehension.

Beck, McKeown, Omanson, and Pople (1984) revised two commercial stories from basal readers to improve their coherence without altering their plots. Revisions increased the difficulty of the passages as indexed by traditional readability formulas but enhanced comprehension of both skilled and less skilled readers. Coherence refers to the extent to which the sequence of events make sense and the extent to which the surface structure of the text makes the nature of these events and their relationships apparent. Results indicated that the revisions were successful at improving comprehension as indexed by both recall and, to a somewhat lesser extent, answers to questions and enhanced the comprehension of those skilled and less skilled children, bringing the comprehension of less skilled students up to that of skilled children who received the commercial stories.

Anderson and Armbruster (1984a) identified aspects of text that can pose comprehension and learning difficulties for students. They discussed four characteristics of text: 1) Structure- the system of arrangement of ideas in text and the relationship connecting the ideas. 2) Coherence- how smoothly the ideas in text are woven together. 3) Unity- the degree to which the text addresses a single purpose. 4) Audience appropriateness- the extent to which the text matches the reader's knowledge base of both content and of features such as syntactic and rhetorical structures. The degree of this match appears to have strong effects on the comprehensibility of the text. They concluded with a textbook evaluation checklist teachers could use to determine the purpose of the text and how considerate the text is for readers. They believed that not enough is known about reader variables, text variables, and the complexities of reader and text interaction and this should guide the direction of future research.

Tierney and Cunningham (1984) addressed the research relative to teaching reading comprehension. They ask two questions: 1) with whom, in what situations, and in what ways does teaching improve reading comprehension? 2) How should research in teaching reading comprehension proceed? They described the nature and distribution of research in teaching reading comprehension in the context of stated and implied instructional goals. This included interventions that improve students' understanding, recall, and integration of information like the prereading activities- preteaching important vocabulary,

enriching background knowledge, using analogies, focusing attention with advanced organizers, and using pretests and prequestions. During reading activities- using imagery to visualize a scenario of an eyewitness, using inserted or self-questioning, lesson frameworks and study guides. Following reading- the use of post questions, feedback provided by the teacher, and group or whole class discussions. They presented issues of methodological significance: students achieve less in classrooms where there is a strong emphasis on students working alone. Students should read material with a difficulty level within their reach and perform comprehension task they can complete with high success. The more time students are engaged with academic material or activities, the greater their achievement. They suggest reasonable guidelines for future research and alternative approaches to investigation: apply a greater likelihood principle to experimental research. Design studies where the complexity of text, teaching, and content are addressed and can reveal their impact. Design studies where the complexity of classroom learning can be addressed. Design and implement research that can be coherently interpreted in the light of literature from all the relevant disciplines.

Buss, Ratliff, and Irion (1985) examined the influence of instruction in story structure on comprehension of simple narratives. Students were pretested using five measures (oral story production; story arrangement; picture arrangement; recall; and probed recall). Twenty-one students who scored less than 50% when all five measures were summed were randomly assigned to instructional (n=10) and control (n=11) groups. An additional 8 students who's summed scores was greater than 75% were assigned to a second control group. The instructional group received instruction for one hour a day for a period of two weeks on five story rules. After discussion of the rules, students listened to stories from children's literature and practiced individual identification of story parts related to the rule they had learned that day. Results showed that the second control group scored better in both post testing and delayed post testing on material covered that did either of the other two groups. However, students in the instruction group showed improvement over the control group comprised of their peers on both posttest measures. Further research was recommended.

Carver (1985a) investigated the reading rate and comprehension of 16 individuals who represented four superior reading groups: speed readers, professionals, college students, and people who scored exceptionally high on tests. Reading tests were administered individually over three testing sessions. All four groups read relatively easy material at rates around 300-600 words per minute when at least 75% comprehension was required. The speed-reading group had the best score for writing a 100-word summary

of a 6,000-word book administered under a 1,500 word per minute condition. However, the speed-reading group did not write the best summaries at any of the other rates, 375, 6,000, or 24,000 words per minute, and were the worst at recalling the book's important details at all four rates. Speed-readers seemed similar in ability to other superior readers except that they typically choose to skim at rates higher than 1,000 words per minute and accept lowered comprehension that accompanies skimming. Carver maintained, reading with comprehension at rates above 600 words per minute had not been proven scientifically. Readers who claimed reading rates above that speed are actually skimming. From this research, Carver contends that speed-readers do not read with comprehension at a rate any faster than do other groups of superior readers.

Herber (1985) presented an instructional strategy for improving reading comprehension that looked at how content-area teachers can manage reading instruction and how they mediate and model reading comprehension. Teachers need to ask themselves two questions: "What reading skills do I teach?" and "How do I teach reading skills?" The primary goal of reading instruction is to help the student understand what is read, but the importance of helping students develop an awareness of their own thought processes using guides is also a point of repeated emphasis in the literature. Modeling effective reading practices is one method of teaching students how to do this. Herber stated that the essence of good teaching is showing students how to do what you require them to do, and using various types of guiding material is one effective way to do so.

Shannon (1985) described the use of top-level structure in expository text. Top-level structures are the major points in the outline of a discourse, the main sub-heading in a textbook chapter for example. Shannon stated that research in this area had produced three areas of recognition that readers experience: 1) meaningful elements of a text had an organizations structure and work together to give the whole text coherence. 2) the full meaning of a text is condensed into a gist as the reader reads, 3) this gist, if stored in memory, can be used in the recall process in a way that the reader generates new text or summaries. Shannon points out four rules that can be applied to difficulties student experience with finding the main idea in text. First, generalization reducing the number of specific parts to one category. Second, deletion lets the reader eliminates irrelevant information. Third, integration provides a way of relating new information to prior knowledge. Finally, the reader constructs new meaning by restating ideas using new terminology. Students who can master these four rules do a better job of recalling important ideas from text.

Gambrell and Bales (1986) looked at the effects of mental imagery upon the comprehension-monitoring performance of poor readers. Subjects who received instructions to induce mental imagery identified both explicit and implicit inconsistencies in text significantly more often than did the subjects in the control group. Gambrell and Bales results may be interpreted as supporting the use of mental imagery as a comprehension-monitoring strategy.

Amlund, Kardash, and Zakaluk and Samuels (1988) talked about a new approach to predicting text comprehensibility. In a research study done by Zakaluk (1985) fifth-grade students read passages ranging from 350 to 435 words (difficulty levels- from grade four through seven) from social studies and science-health texts. After reading, students answered open-ended questions under various adjunct aid conditions. Results indicated that word recognition, automaticity (prior knowledge), passage difficulty as estimated by conventional readability formulas, and the use of adjunct comprehension aids (highlighting important information in the text) accounted for 40% to 28% of the variance observed in reading test scores. The new techniques utilized a nomograph (illustrated) to plot text readability and adjunct comprehension aids on one scale and word recognition skills and knowledge of text topic on the other scale. Explanation of how to determine level of word recognition, knowledge of text topic, readability level and adjunct comprehension aids are provided along with how to plot on the nomograph. Zakaluk and Samuels concluded that students make optimal learning gains when instructional text matches their reading achievement level this approach correct for problems in estimating text difficulty that consider only information from the printed page. In addition, it factors in the readers knowledge of the text topic and degree of reading fluency.

Gardner and Smith (1987) looked at does perspective-taking ability contributes to reading comprehension. They contend that some student may not enjoy reading because they lack the ability to take the perspective of another person. If students encounter character with which they cannot readily identify with and had difficulty viewing situations from someone else's point of view, they may lose focus and understanding. The authors explore this by selecting 40 freshmen at a racially mixed urban high school who were classified as "good" and "poor" readers. Students were asked to read two dilemmas (one about friendship and the other about peer group interaction). When compared, good readers showed better ability to take the perspective of another, but the difference was not significant. When comparing results of understanding of three types of questions (text explicit, text implicit, and script implicit) there was not a significant difference between good and poor readers for either text explicit or text implicit questions. For

script implicit questions, the greater the students overall perspective taking ability, the more likely they were to answer script implicit questions correctly. This results points out the importance of perspective taking ability to reading comprehension, especially when comprehension requires going beyond the stated to the inferred.

Nelson (1987) looked at the role that one's culture plays in reading comprehension. She reported findings of a study involving 27 adult, college-educated Egyptians in English as a Second Language courses in Cairo. These students were exposed to four pairs of reading matched for content, reading level and length: 1) Women: their changing roles in the U.S. and Egypt. 2) Factual descriptions of pollution in Egypt and the U.S. 3) Two folk tales: the Egyptian Goha and the American Pecos Bill. 4) Two short stories about a boy aged 6 or 7 who meets a situation that is difficult for him, one in Egypt and one in America. Each student read the pairs of stories on the same day and after completing each story, they were given a 10-item quiz. Lastly, they indicated which story they enjoyed more. In all cases, performance was significantly higher ( $< .05$ ) on the Egyptian passage. She concluded that students learning to read in a second language interpret materials in terms of their own culture. Students do not always appreciate or understand culturally significant factors in writings of a culture different from their own. There appeared to be a relation between background knowledge and experience, which affected their comprehension.

Armstrong, Patburg, and Dewitz (1988) reported on the effective use of a three level hierarchical and nonhierarchical reading guides with John Steinbeck's "Grapes of Wrath." The subjects were randomly assigned to one of the three treatment groups (hierarchical, non-hierarchical, or control- no reading guide). The study, conducted over seven weeks, with the guides being used every other day (treatment day). On treatment days, students were checked for having read the assignment by being asked to write a summary and then they used a reading guide and took a comprehensive test. At the end on the seven weeks all students completed a post test over the material and filled out an attitude questionnaire. On non-treatment days, the teacher conducted the lesson for all three classes in the same manner, using large group discussion and lecture. They found that students who used reading guides scored significantly higher than the control group on comprehension. There was no difference between those students who used hierarchical and non-hierarchical study guides. When scores were adjusted for the students reading ability levels, above average readers showed more gain than below average readers. Additionally, students who used the study guides transferred skills they had learned such as noticing and responding to important ideas in text to new material they were given. The attitude questionnaire showed that students who used study guides had

positive feelings about learning and they helped them understand the material better.

Bailey (1988) described a variation of SQ3R that she created, S-RUN. Just like SQ3R, “S” stands for Survey- looking at the title, introduction, pictures, charts, graphs, headings, subheading, italics words, summaries and end of chapter questions to gain a quick overview. “R” read the section actively, writing headings and subheading from the book on a sheet of paper. “U” students read to understand key ideas. “N” is notetaking, listing key ideas and concepts underneath the previously written headings and sub-heading on their paper using their own words. If done properly students will not have to reread a chapter prior to a test because they will already have a guide of the main and subordinate ideas of the chapter.

Jacobowitz (1988) explained the steps of SQ3R (Survey, Question, Read, Recite, and Review) and presented a modified form of SQ3R, to demonstrate how knowledge of the relationship between theory and practice makes reading and study skills instruction more meaningful. During the Survey stage of the modified SQ3R, students survey the material to be read and use strategies such as brainstorming and prior knowledge to determine the macrostructure of the material they will read. The act of reading then becomes a process of confirming predictions about the meaning of material they encounter. During the Question stage, students turn topic subheading into questions to be answered from their reading. Before reading, students should try to predict answers to the questions they have generated using their background knowledge and logical thinking abilities. When they engage in the third step, Reading, they are reading to confirm or refute their predictions. In the Recite step, students rehearse the answers they have discovered to aid in transfer from short-term to long-term memory. In the final step, Review, students summarize what they have learned using superordinate and subordinate ideas from the text. Jacobowitz noted that an awareness of cognitive strategy also enables teachers to modify various skills to meet student needs.

Jeremiah (1988) presented a teaching strategy that incorporates skill-by-skill approach and holistic approach to teaching reading comprehension, student summaries to improve their comprehension. A summary is an attempt to capture all of the information or message in a succinct or surface manner, but must contain sufficient detail as well. As an example, Jeremiah suggested asking students to summarize a movie or television program they have seen. Next, suggest a list of verbs and nouns that are compact, such as (v.)argue, claim, describe, discuss, investigate, show; (n) categories, effects, factors, ideas, persons, stages, and traits. They asked the students to summarize the movie or T.V. program again, using the nouns and verbs listed above. For the last part of the exercise, students are asked to validate specific incidents or

scenes from the movie based on questions asked by the teacher (who must have seen the program too). Having shown students that they can effectively summarize using visual stimuli, they are told that they can do the same thing with a textbook chapter or narrative story.

LeSourd (1988) described a lesson designed to facilitate students' comprehension of human beliefs and behaviors indigenous to foreign cultures. It involves teacher and learners through reading and discussing a story introduced with an advanced organizer. It was designed to make culturally implicit meanings explicit to learners in a different culture. LeSourd stated that text comprehension depends upon the reader's ability to construct an interpretation that approximates the author's intended meaning. Without the necessary background knowledge, comprehension is inhibited. Readers who lack adequate knowledge about another culture's values and beliefs had increased difficulty understanding and remembering. These readers tend to make modifications consistent with their own cultural knowledge in an attempt to produce an interpretation. The use of an advanced organizer helps to establish missing bits of schemata and is a workable design for multicultural instruction.

Memory and Yoder (1988) presented a concentration improvement guide for students, that explains to students the importance of doing whatever is necessary to ensure that they understand what they are reading or studying. It shows the importance of maintaining an interest in what is being read or studied, the need to have a definite purpose in mind when studying, ways of maintaining a pattern of attentive work when studying, and transforming good study procedures into habits.

Bean (1989) talked about the role of an author's structure in middle and secondary students' comprehension and looked at the value of observing students' use of cues that authors provide. Bean stated that most successful high school and college students had a well-developed sense of how authors' structure ideas in both narrative and expository text. The six most common text patterns that students encounter are cause/effect, comparison/contrast, time/order, simple listing, problem/solution, and argument. Some types of patterns had words that act as text signals (because, since, therefore, before, however, as well as...) which can increase the reader's comprehension. Bean cites Lytle (1982) who presented six moves that a reader is likely to make in attempting to comprehend text: 1) Monitoring- "I don't understand. This doesn't make sense." 2) Signaling- "What do I understand?" 3) Analyzing- "How does this text work?" 4) Elaborating- "What does this make me think of?", 5) Judging- "How good is this?", 6) Reasoning- "How can

I figure this out? Examples of other strategies such as structural organizers and graphic organizers, which help students to pay attention to the author's use of language, are presented.

Davey (1989) described how Multiple Response Techniques (MRT's) may be used before, during, and after reading to help students better comprehend content material and encourage active responding in the classroom. Multiple Response Technique (MRT) is a way of actively involving all students during questioning that focuses on student strengths, can be used to train students in reflectivity and self-monitoring, and allows the teacher to evaluate quickly the learning so that adjustments can be made. Questions can be presented orally, or displayed on an overhead. Student responses can be in the form of thumbs up or down (true/false), using fingers (for multiple choice), or response cards (3x5 index cards with numbers, letters, or "true" / "false"). A "no response" card can also be used for students who are unsure or an answer, but teachers need to monitor this response to ensure it is not over used. Some examples of how this strategy can be used are pre-reading assessment of prior knowledge, using chapter or section heading to predict what the section is about, post reading assessment of information, skills mastery check, monitoring understanding (use number cards 1 (I'm confused), 2 (I have some understanding), or 3(I've got it) to show level of understanding). Sharing perspective (1 finger = strongly disagree; 5 fingers = strongly agree). Davey argues that MRT's enhance comprehension by engaging all students, concentrates on students' strengths, trains students in reflectivity and self-monitoring, provided a non-threatening way for students to respond, and allows the teacher a way of quickly evaluating learning.

Lubell and Townsend (1989) presented a strategy for teaching complex prose structures. They point out that many of the classic works of literature, particularly the 19<sup>th</sup> century, contain difficult text structure that students are unfamiliar with and therefore cause them increased comprehension problems. They indicated three major obstacles that readers encounter: modifying structures (lengthy and complex sentences with several clauses), conditional structures (flowery language that figuratively refers to characteristics of a character), and periodic sentences (The writer withholds full meaning until the very end). Lubell and Townsend suggested that examples of these complex prose structures be presented in class and explained by the teacher. This will aid students in becoming familiar with these writing styles, and help them develop a road map to guide them.

Mathison and Lungren (1989) described ways to effectively use computers in content area classrooms and integrate computer software into a comprehensive instructional plan. Computer software included general application software such as word processing, database management, spreadsheet,

graphics, teacher utility programs and computer assisted instruction (CAI). Word processing programs help streamline the processes of writing and editing written work. Databases allow students to learn how to collect, organize, manage and manipulate information. Spreadsheets let students organize numerical information in row and columns and to manipulate that data using various formulas. Graphic software permits the computer to be used as a drawing instrument. Teacher utility programs can assist teacher in creating instructional materials or, in the case of a test making program, can create a quiz or exam. Computer Assisted Instruction helps teachers with dispensing information to students and providing practice opportunities for sharpening skills in specific content areas. Five broad categories of CAI were identified (Drill and practice programs; demonstrations and tutorials; simulations; instructional games; curriculum-correlated computer programs). The authors provided an evaluation checklist for computer software. Mathison and Lungren concluded, what determines good or bad software in large part is dependent on its ability to meet instructional needs that the teacher had identified. The instructional capabilities of the computer presented “exciting new possibilities for enhancing and expanding content area instruction.”

Morrow (1989) suggested the use of retelling stories as diagnostic tool for evaluating comprehension, sense of story structure, and language complexity. Retelling indicates a reader’s or listener’s assimilation and reconstruction of text information and allows the reader or listener to structure responses according to personal and individual interpretation of the text. In assessing comprehension, students reveal their ability to make inferences as they organize, integrate, and classify information that is implied but not expressed in the text story. In assessing retelling for determining story structure, the evaluator needs to assess the student’s inclusion of setting, theme, plot episodes, and resolution. Sequence allows the evaluator to determine how successful the student was at sequential order of the story. For evaluation to assess language skills, include the number of words the student uses, the number of different words, the pronunciation and syntactic complexity of the retelling. Morrow provided a check sheet of quantitative and qualitative procedures for assessing retelling. This included aspects such as comparing the sequence in which the student had recalled the story with their sequence in the original story; note the assigned level of importance of each unit the student recalled; student retold relevant content and concepts; student used appropriate vocabulary, sentence structure and language conventions; and Student demonstrated the reader’s sense of audience or purpose.

Schadt (1989) described a strategy called literary gift exchange, which attempts to create a connection between the reader and the text they had read. This activity was conducted at the end of the school year as a part of the review of literature that had been studied. The teacher compiled a list of characters from the short stories, poems, and novels read during the school year and each student then wrote his or her name on a slip of paper along with the names of two characters from the list. All the slips of paper were put into a hat and then each student drew a slip of paper from the hat. Students were not allowed to trade slips and were not to reveal the names on the slip they had drawn. They were to get a gift for the classmate on the slip of paper they drew that would be appropriate for one of the literary characters the student had named. Schadt noted that students frequently reread a particular story to study the character and were overheard discussing different aspects of characters they had studied. Some students bought gifts; many made something or found something around the house to use.

Sharp (1989) related an experience using the Language Experience Approach (LEA) and computers with content area materials to teach middle school remedial reading students. The experiment involved six 7<sup>th</sup> grade students in a rural middle school whose reading scores on the Iowa Reading Test scores fell at least 1.5 years below their Project Grade Equivalencies. Students met the teacher for one class period per week where they did silent reading of library books of their own choosing, and worked on group or individual projects. Sharp described the rest of the study particulars and noted that the timing of this process was such that the week the students were reading their summaries daily to the teacher in reading class corresponded to the week they were covering the material in their content class. Sharp finished by listing nine goals that can be reached by incorporating LEA with content materials:

- 1) it motivates remedial students,
- 2) builds self-esteem,
- 3) offers a sense of congruence across the curriculum,
- 4) builds reading vocabulary,
- 5) activates and organizes existing content area knowledge,
- 6) helps students make the transition from narrative to expository textual material,
- 7) develops a body of knowledge And internal criteria against which text can be judged,
- 8) teaches composing and comprehension as reciprocal processes,
- 9) treats the reading process wholistically, not as a series of subskills which can be taught in isolation.

Simons (1989) presented a reading comprehension strategy she helped to develop. Prepare, Structure, Read, and Think (PSRT) is designed to be used with subject area lessons, which require students to learn from expository textbooks. The strategy requires students to recall background material, link it to new ideas, and use graphic overview (a visual representation of text organization) as they read. PSRT is designed to be used both before and after reading, as opposed to Prep (Langer, 1981) and ReQuest (Manzo, 1969) which are mainly pre reading strategies or GRP (Manzo, 1975) GRP (Barron and Stone, 1975), graphic post organizer (Moore and Readence, 1980), and REAP (Eanet, 1978) which are mainly post reading strategies. The four-step PSRT process is described and Simons stated that PSRT is most effective when used with lessons where reading is key to learning the concepts being taught. Teachers who had used this strategy report that it is helpful to them in focusing on planning effective lessons. Students stated they are less frustrated and more successful in their learning. They also say they had a better idea of how to read and what to study. Simons concluded that the techniques student's use in PSRT help them become more active, independent learners.

### **Reading Documents & Graphics**

This research category includes various types of documents and graphics that require students to use skills that they may not have had an opportunity to develop. Each article presents the particulars of the document or graphic and ways that teachers can teach these skills to students.

Fry (1981) discussed graphic literacy, the ability to read and write (or draw) graphs. After discussing research finding, which indicated that generating images facilitates memory and suggesting that graphs can be taught using the Directed Reading Activity, Fry presented taxonomy of graphs, including lineal, quantitative, spatial, pictorial, hypothetical, and omitted graphs. Fry offered uses for graphs, provided illustrations of each kind of graph and suggests that reading teachers take responsibility for teaching graph reading and drawing skills and aid other teachers in developing teaching units utilizing graphing.

Reinking (1986) considered the use of graphic aids with regard to readers' ability to integrate graphics with written information. He pointed out that students' need to be given instructional activities that develop skills such as inference through information coordination of the graphic aid, text, and prior knowledge. Presented the three stages of the Graphic Information Lesson (GIL) as an example of an effective strategy designed to be used as a post reading activity with text that contains one or more graphic

aids. There are three consecutive stages of GIL: determining graphic information, integrating and synthesizing information, and reinforcing and applying graphic information. Using this technique teachers can ask students to elaborate on the relationship between two or more graphic aids and the text. Students may also be asked what additional graphic aids would be useful or make difficult portions of text more understandable. Reinking stated that preliminary observations indicated that the use of GIL heightens interest in graphics and helps student move beyond the literal level of understanding.

Mosenthal and Kirsch (1989a) presented the first in a series of articles addressing the systematic teaching of how to read documents such as forms, schedules, indexes, tables, charts, graphs, labels and listings. The authors believed that little time is given to teaching people to read documents, even though they believed that we spend more time reading documents than any other types of material. They begin with lists, which they refer to as the “Building blocks of documents.” Lists have six distinguishing characteristics: 1) Single set of items and a label- the label tells us what feature or set of features the items have: Things I Need to Buy at the Hardware Store (hammer, saw, screwdriver...). 2) All the items in the list must have a minimum of one shared feature (tools to build a doghouse). 3) Each item must be equivalent (kinds of tools). 4) Each item must be in words, numbers, or pictures: the type of lumber you need to build a doghouse (“framing”, “2 by”, or “2 x 4.”) 5) Well-formed lists can be arrayed either vertically or horizontally. 6) Items on a list may be organized using some convention: a bibliography or an index in a book uses alphabetic order; historical events are normally listed in numerical order by date. The authors then presented a scenario for teaching the concept of lists and their characteristics.

Mosenthal and Kirsch (1989b) begin by presenting TV listings as an example of intersecting lists. Intersecting lists provide a way of representing certain kinds of information better than prose or a combined list. In prose format, a TV listing would consist of a series of sentences describing the name of the program, the channel and the time the show begins. As a combined list, the programs could be listed in alphabetic order by title of the program, grouped by time the program begins, or numerically by channel. As an intersecting list, TV listings would appear as they normally do in the newspaper or a TV supplement: Channels are listed vertically, in numeric order; time the show begins is listed in half hour increments horizontally, and program names appear in boxes that cover the duration of the program. This format facilitates locating information, organizing information by channels, and reducing redundancy since information is listed linearly. Other types of intersecting lists included rate plans for cost of making a phone call (day vs. night; weekday vs. weekend.); Clothing charts (for pants) in catalogues which list available

sizes by waist measurement and length of in-seam. Four characteristics distinguish intersecting lists from other documents: 1) Always contains three simple lists, two of which contain certain information that is redundant with respect to the third (ex. TV guide). 2) The ordering of the information in both rows and columns determines the placement of the items in the intersected list (ex. TV guide). 3) The items in the columns and rows serve as a micro label to the item in the intersecting list. 4) Rows and columns are ordered by some principle (time, day of the week, size).

### **Reading Rate**

Carver (1983) talked about the results of a study that looked at the reading rates of 435 students varying from grade four through college, and supports the theory that individuals typically read at a constant rate, rather than adjusting their rate to the difficulty level of the material. Carver stated it seems questionable for instruction or evaluation of reader ability, to assume that good readers continually vary their reading rate. It seem more accurate to assume that good readers typically read at a constant rate but shift gears to different rates when skimming or studying.

### **Remedial Reading**

Lehr (1981) described three new approaches to remedial reading programs at the secondary level. The elective system was based on the notion that it is not logical to coerce all students into trying to improve their reading skills. Instead, the program offered several, short elective classes that focused on specific aspects of reading such as study skills, reading rate improvement, vocabulary emphasis, or exploring different areas of reading. In Reading Improvement Through Art, a reading teacher and art teacher collaborated on a variety of visual arts activities designed to motivate and stimulate reading through the implementing artistic projects that demand high level of manipulative and aesthetic competence. The Television Reading Program utilized television and its appeal to middle and high school students. Teacher prepared and implemented language arts activities related to popular television shows, use videotaped programs dealing with science, drama, history, and personal awareness, utilizing vocabulary and actual dialogue from the programs.

### **Reading Skills**

Reading skills includes proficiency in critical reading, using context clues, locating information, difficulties presented by textbooks, and the importance of metacognition.

Taylor (1980) investigated the relationship of reading ability and age on children's recall of expository text after reading and to children's sensitivity to text structure. The study compared good and poor sixth grade readers, good fourth grade readers, and adult's memory of an appropriate level short expository passage. Recall was checked immediately after reading and then two-days later. Adult readers were able to remember more of what they had read than any of the other groups; good sixth grade readers were able to remember more than either poor sixth grade readers or good fourth grade readers. The superior recall ability of good sixth grade readers appeared to be related to their greater use of text structure in organizing recall. The results of this study suggest that age and reading ability are related to children's skill in recalling expository material after reading. It appears that following the organization of ideas in expository text is one important factor which facilitates recall for the material and which warrants attention from teachers of upper elementary students.

Memory and Moore (1981) described a classroom activity applicable to all content subjects that is designed to teach students how to skim and to read critically. The teacher selects a controversial topic of interest to the class, one about which the students have limited or superficial knowledge. The teacher then identifies an assortment of articles on the topic, which cover a variety of reading levels and creates several sets of similar difficulty articles for students to use. Memory and Moore then described the procedure for students to follow, and activities after students had finished skimming and scanning.

Stevens (1981) stated that reading a paragraph requires mentally phrasing individual words and putting them into meaningful linguistic units. She reported the results of a study of 10<sup>th</sup> grade students that sought to discover if comprehension improved when slash marks were used to divide text into chunks of meaningful phrases. The results of the study indicated that when information was "chunked" into meaningful units, subjects read significantly better. The difference was significant beyond the .01 level. Stevens cautioned that some studies using chunking had not shown that it aids comprehension, but says that those studies that did indicate improvement were conducted with students who had not fully developed reading skills. This would indicate a limitation for older or more advanced students in some cases.

Brown (1982) described comprehension and study monitoring skills necessary for effective reading and problems that young and poor readers had in employing these tactics. Effective readers are those who had some awareness and control over the cognitive activities they use while reading, who monitors their understanding while reading, and are alert for, and take action when comprehension failure occurs. Reading is intended to be an active process of information gathering and evaluation and effective readers, as

described above, see reading in that manner. Ineffective readers are not aware of the need to do things like plan ahead, monitor their comprehension and check their understanding as they read. Their reading is characterized more as a passive activity and is usually not their preferred method of getting information. The role of the teacher is to instruct their students in the techniques and strategies that will make them successful and to provide opportunities for their student to put into practice these skills in the classroom.

Gambrell and Cleland (1982) presented seven guidelines for functional reading programs that addressed skills tested on minimum competency tests, and which should be considered in designing and implementing more affective reading programs. Functional reading programs should: 1) Allow for the varying learning rates of students. 2) Provide for individual assessment. 3) Provide instruction that is personally relevant to the student. 4) Present students with real-world problem-solving situations. 5) Provide continuous instruction. 6) Involve teacher's sharing functional reading resources. 7) Encourage parents to take advantage of opportunities to apply reading skills in the home.

Davey (1983) stated that poor readers frequently approach a text as if it were a code to crack rather than a message to be understood. They do not: 1) Tend to form good hypotheses about the text's meaning before they begin to read. 2) Spontaneously organize information into mental images while they read. 3) Effectively use their prior knowledge about the topic. 4) Monitor how well they are comprehending as they go along. 5) Seem to have active ways to correct problems with comprehension they encounter. She described an instructional method, in which teachers verbalize their thoughts while reading orally, modeling their thinking about the text, and students practice the technique to enhance their comprehension.

Graves, Cooke, and LaBerge (1983) investigated the effects of previewing difficult short stories in students' comprehension, recall, and attitudes. Four short stories were utilized, previews for the stories, constructed, multiple-choice comprehension tests composed of both factual and inferential questions, directed towards oral recall tasks, short-answer comprehension questions, open-ended attitude questions and an attitude survey. Results on the multiple-choice test indicated that previews significantly ( $p < .03$ ) increased students' comprehension of the stories, improving factual comprehension by 13% and inferential comprehension by 38%. Results with the other comprehension tasks indicated previews significantly ( $p < .05$ ) increased students' recall of the stories and their scores on the short-answer comprehension test. Students recalled twice as many propositions when they received previews, and their scores on the short-

answer test were 40% higher when they received previews. Graves, Cooke, and LaBerge indicated that students generally liked being given previews of stories and found them useful. It appears that giving students previews frees them somewhat from attending to details of what they are reading and enables them to devote more attention to dealing with higher-level matters such as inferences.

Baker and Brown (1984b) examined the relationship between metacognitive skills and effective reading and address two broad areas: reading for meaning (comprehension) and reading for remembering (studying). Reading for meaning involves the metacognitive activity of comprehension monitoring, which entails keeping track of the success with which one's comprehension is proceeding, ensuring that the process continues smoothly, and taking remedial action if necessary. The authors identified three possible types of comprehension failures: 1) Appropriate schemata is not available, 2) Appropriate schemata are available, but the author has not provided enough clues to suggest them, 3) Reader finds a consistent interpretation of the text, but not the one the author intended. Research finding indicated that self-regulation of learning is a key factor in children becoming effective readers. Good comprehenders reread material in an effort to clarify their understanding. The metacognitive aspects of reading to remember include identification of important ideas, testing one's mastery of material, developing effective study strategies, and allocating study time appropriately. Reading to remember involves all the activities of reading for meaning. In addition, the reader must take purposeful action to make the material memorable (ability to concentrate on the main ideas, to introduce deliberate tactics to aid in learning, and the concurrent ability to self-test the effectiveness of the strategy). The essence of this research study is that the reader must be made aware of the active nature of reading and the importance of employing problem-solving, trouble-shooting routines to enhance understanding. With these skills, the student cannot help but become a more effective reader, and they are prerequisites for self-regulation, the ability to monitor and check one's own reading activity.

Hare and Lomax (1985) talked about readers' awareness of subheadings in expository text. Subheading in text have been shown to serve as useful catalysts for generating self-questions about subordinate information or for constructing hierarchical summaries from text. This study attempted to find out whether students were even aware of heading presented in text and whether they used them to assist in comprehension and recall. The authors asked two questions: 1) whether children highlighted subheading as important parts of text, 2) whether children detected inappropriately paired subheading and subtext. Two common topics (rocks and vertebrates) from appropriate grade-level science textbooks were used. All

passages were of about equal length and contained approximately the same number of idea units across the same grade level. The passages were modified in two ways. First, headings were worded to describe topics of subsections. Second, for the vertebrate passage only, each subheading was moved one position backwards so that none of the subheading topics matched their subsections. As would be expected, adults did better than children on subheading awareness task and the higher the grade level the better discrimination was. Several of the students noted the mismatch but indicated that it did not interfere with their comprehension so they did not mention the problem. On the highlighting task, fewer students than adults used highlighting and when they did they marked subheading inconsistently whereas adults tended to mark series of related topics. The finding suggests that subheading awareness among good comprehenders may be a function of experiences with expository text.

Horowitz (1985a) looked at the patterns of text found in both schoolbooks and work contexts. She compared a skilled reader with a taxicab driver - a person who must have a sound knowledge of the roadways in a city, a global representation of the pattern of main and secondary roads, and the flow pattern of streets based on time of day, weather, traffic congestion and other changing factors. Likewise, a reader who knows the text patterns of their textbook such as format, layout of units and chapters, and structure of paragraphs is better able to predict and manage reading assignments. Textbooks tend to be organized around five text patterns and each of these patterns has certain words that clue the reader what is taking place: 1) Temporal order (time) is indicated by words such as first, second, then, and next. 2) Attribution (list structure) is signaled by words such as first, in addition, and furthermore. 3) Adversative (compare and contrast) indicated by words such as however, nevertheless, and on the other hand. 4) Covariance (cause-effect) indicated by words such as the cause, the effect, because, as a result, therefore, and consequently. 5) Response (problem solving) may be signaled by such words as the problem is, the solution is, a question is, or an answer is. Each of these patterns has a specific role in reading of text. Temporal order is vital for narrative and essential in reading history. Timelines, graphs, or charts are often included to illustrate the order of events. Attribution may appear as lists or a series of attributes used in a description. Compare-contrast is used to organize information in a range of subject areas. Cause-effect is vital in reading science and appears in different forms in narrative and history. Problem-solution is found extensively in the social and behavioral sciences.

Horowitz (1985b) in a follow-on article considers the nature of text patterns and the development of reader awareness of these patterns by looking at ways of teaching pattern awareness and processing.

Research concerning the teaching of text patterns has shown that even exposing students to examples of text type can increase their awareness of the special nature of specific patterns in text. The ability of students at working with different text has also been researched and findings indicate that high ability students are better at adding missing elements of text than are low ability students. What is not stated is that high ability students also possess expanded background knowledge upon which to base suppositions and information that they encounter. She cites one research study in which community college students, were also enrolled in a basic reading class because of their low entrance scores, low high school records, or a lack of reading fluency. They were instructed in strategies for recognizing cause-effect patterns and how to process them in a history course and were assigned to one of three treatment programs: reading group, reading/writing group, and control group. The reading group received training in recognizing and marking cause-effect relations expressed explicitly or implicitly in a college history textbook. The reading and writing group received the same training plus additional instruction in writing answers to essay questions. The control group received no special instruction but did receive routine developmental reading instruction. Training consisted of 180 minutes of instruction over six weeks. The results showed that combined reading and writing training was significantly better in influencing essay length than routine reading instruction. It also showed that training in recognizing and using cause-effect patterns can significantly influence the extent to which students elaborate upon ideas in history essays and can improve student ability to produce cause-effect patterns in essay exams.

Hoskins (1986) built on the research reported by Horowitz (1985a, 1985b) concerning the power that teaching of text patterns gave students. She presented five superstructures of text based on Kinneavy's (1969) schematic for discourse forms. The first three (exploratory, informative, and scientific) cover forms of expository writing. The fourth form, persuasive, is encountered in advertising, political documents, legal opinions, editorials, and propaganda. The fifth type, expressive, includes journals, diaries, personal narratives, manifestos, contracts, and constitutions. Hoskins stated that teaching these types of superstructures is a way to help students easily identify the author's purpose. Once the author's major purpose is identified; readers begin to control the text rather than the text controlling the reader.

Alvermann (1987) looked at two factors that influence how and what students learn from their textbooks: text structure and the reader's background knowledge. Text structure refers to the hierarchical arrangement of sentences and paragraphs within a text. Four common patterns include a simple listing of ideas related to a topic, time order, comparison/contrast, and cause/effect (Herber, 1978). Some research

points to the conclusion that the better a text is organized; the better it is remembered (Armbruster & Anderson, 1981). These patterns are not mutually exclusive, and it is not uncommon for a student to encounter a mix of patterns within the same textbook chapter. One help for students are the word clues that textbook authors use to signal the various forms of text structure and Alvermann included a graph showing these words. Another factor that influences students' ability to learn from text is what Alvermann refers to as the four factors of text consideration: structure, coherence, audience appropriateness, and unity. Structure refers to the plan for how ideas are arranged and connected in text. Coherence is the clarity of relationships among ideas both within and across sentences and paragraphs. Audience appropriateness is the match between what the reader already knows and what the author of the text has assumed the reader knows. Unity is the degree to which only relevant information is included to support the author's assumed purpose. Alvermann concluded that based on data reported for a thirteen-year period by the National Assessment of Educational Progress, secondary students lack the necessary skills for restructuring and synthesizing difficult material.

Armbruster & Gudbrandsen (1986) examined how much and what kind of reading comprehension instruction was provided in the student textbooks and teachers' editions of five social studies programs at the fourth and sixth grade levels. They found that direct instruction in skills is rare; reading/study skills and "thinking" skills were primarily taught or developed through practice or application of skills that the students presumably had already acquired. The study also revealed a great deal of confusion about what "reading skills" are and what constitutes a legitimate exercise of those skills.

Beers (1986) stated that reading proficiency skills can be improved and expanded whether a student is enrolled in an average or advanced class. She described a one-semester ninth grade developmental reading class that included speed-reading, study/ test-taking strategies, and rate building skills. Beers presented a list of reading rates in words-per-minute: Very rapid: approximately 500 wpm, Rapid: approximately 350 wpm, Average: approximately 250 wpm, Slow and careful: from 250 wpm down, depending on the material, Skimming: about 800-1,000 wpm (used to get the gist of the article), Scanning: approximately 1,500 wpm (used to find a single piece of information). She reported that when students utilized these strategies they demonstrated a 10% gain in vocabulary, 30% gain in comprehension, 25% gain in total reading, and 85% gain in words read per minute.

Cunningham and Moore (1986) attempted to clarify the confusion surrounding the varying concepts and definitions of what main idea is. They provided operational definitions for nine different

terms used to denote important information in written prose: 1) Gist, 2) Interpretation, 3) Key Word, 4) Selective Summary, 5) Theme, 6) Title, 7) Topic, 8) Topic Issue, 9) Topic Sentence. The role of the teacher is to show their students how to identify the various types of main ideas statements and how to differentiate between information that is important either because of a writer's presentation because of the student's purpose.

Damm and Chan (1986) reviewed a computer program to help students develop better skills in reading. Although it was presented as a speed-reading program, there were several features that made it practical to use for teaching good reading habits. Speed-reading techniques included knowing exactly how to read, looking for phrases, and concentrating on key words. Although the program graphs reader's gross reading rate, actual reading speed, and effective reading rate, there was a feature that allowed the reader to control the speed of material presented and this aspect made it useful in a classroom reading setting. Comprehension skills taught included main idea, reading with a purpose, skimming, pattern and structure, and retention and recall.

Henk and Helfeldt (1987) described how student could develop independence in following written directions and suggest direct instructional strategies to help students what to do when confronted with procedural text. The authors explained that the reason written directions are so difficult for readers to follow is that they have never received any direct instruction in how to read instructions. School tasks center on reading to learn as opposed to reading in the workplace, which focuses more on reading to do. In school, the reader's goal is to learn about something, while in the workplace, reading is done to learn how to do something. They also point out that writers of directions are notorious for overestimating the readers experience, omitting intermediate steps in the process of explaining "how to assemble" instructions, using technical vocabulary, giving more than one directive per sentence, and employing complex syntax. Henk and Helfeldt presented four steps of awareness that are used in direct instruction: 1) Awareness- where students become acquainted with the types of situations in which they encounter written directions. 2) Modeling- teachers must clearly explain what they are thinking as they read each step so that unobservable cognitive processes become more concrete to the student. 3) Guided practice- students take over responsibility for trying to follow the directions while the teacher concentrates on emphasizing important components of the directions such as directional and sequential cues or technical vocabulary. 4) Independent practice gave students an opportunity to try applying what they have learned on their own.

Herber and Nelson-Herber (1987) discussing developing independent learners, presented a set of principles related to their development, and suggested means to apply those principles. They identified three types of activities that are effective in moving students towards greater independence: 1) Refining or fine-tuning what has been learned already, 2) Extending which involves new or different applications of what was learned, and 3) Sharing involves students sharing their understandings of concept through discussion and writing. The application of independent learning involves readers who establish purposes for their reading, connecting what they already know with what they read, making critical judgments about validity, appropriateness, and value, inferring meaning from the information, and applying new ideas to new situations.

Kitchens (1987) looked at ways to get more effort out of remedial readers in high school. He stated that remedial reading students often do not expend sufficient effort on reading. He proposed an approach that focuses on effort and process rather than product called PEPS (Personalized Effort Produces Success). PEPS required students to spend a specified amount of time each week on individualized reading, writing, and language activities outside of class. Students select an activity to work on and are graded on their effort. One thing that PEPS requires is student access to large variety of reading materials to satisfy their interests and ability levels. During the first two weeks, student submit a brief written plan listing the activities they plan to work on and the time and place they will do this work. They turn in a progress report noting the work they did the previous day and the time they started and stopped. They also note any difficulties that slowed them down (difficult vocabulary, lack of background knowledge, complicated sentences, etc.). After 2 weeks, students switch to a weekly report, giving the same information. PEPS help students learn to concentrate on time, effort, and process rather than be concerned about a product. This teaches students to continue to concentrate over the long term and helps them withstand frustration better.

Taber (1987) pointed out some current definitions of literacy, and stated that what is defined as functional literacy differs between social groups, is influenced by the cultures of those groups, and will change within a culture over time. The Education Commission of the States defined literacy as including “not only the ability to literally decipher a simple written passage, but other skills as well: the ability to analyze and summarize, and the ability to interpret a passage inferentially as well as literally” (Action for Excellence (ED 235 588), 1983, p. 17). These other skills consist of the ability to define unfamiliar words

by decoding, context clues, or use of the features of printed materials such as tables of contents, indexes, or bibliographies and the ability to vary reading speed and purpose according to the material being read. Taber concluded that there are many definitions of what constitutes literacy, and while there are some differences between the definitions, all seem to have gone beyond basic reading skills to include comprehension and broader reading competencies. However, she felt that in order to find solutions to the problems of literacy, some common ground between relative and absolute definitions would be helpful.

Whimbey (1987) suggested that being on grade level in reading might not be good enough in today's technological world. Support for this view can be found in *The Reading Report Card* from the National Assessment of Educational Progress (1985), which identified five levels of ability: rudimentary, basic, intermediate, adept, and advanced. "Readers at the advanced level comprehend scientific materials, literary essays, historical documents, and materials similar to those in professional and technical environments." Only 4.9% of the 17-year old students understand such materials. Adept readers are defined as "readers who are able to understand literacy and informational passages, including material about topics they study at school." Only 39% of 17-year olds are reading at this level. According to Whimbey, "being on grade level simply means that a student is keeping up with the rest of their grade level group." Grade-level reading scores are normative data and reflect the average score of students in that grade. Whimbey suggested that higher standards need to be set for reading levels in our schools.

Brozo (1988) described the role of reader's response to understanding in reading, by looking at having students explore their connections to expository text on a feeling and expository level. He emphasized that in order to get through to students we must get them to identify what aspects of their reading excite them or interest them. What feelings and attitudes are they dealing with as they read? What experiences have they had that help them and others understand their feelings and attitudes about what they have read? Brozo showed how one student progressed through several revisions of a written summary on material he had read. Brozo believed that making a personal connection on the part of the reader allowed them to incorporate unique personal experiences, prior knowledge, increased their ability to perceive what they were reading and aided in their interpretation of the material. He stated this gave readers a purpose for creating meaningful written responses to expository text.

Carnes (1988) described a teaching unit for junior high content area classes designed to provide students with effective strategies for reading nonfiction. The unit involved independent reading, research, and writing activities, that culminate in the publication of student-written nonfiction books on topics of the

student's choice. It was based on three assumptions: 1) Students would learn to read non-fiction more effectively if they were involved in writing a non-fiction book modeled after content area textbooks. 2) They would invest time and interest if they chose the topic to research and write about. 3) Writing for a specific audience would create a practical need for the student author to learn research and study skills. The sequential stages of this 20-week unit included: 1) Prewriting, where they established the parameter of the book they were going to write. 2) Research and notetaking on aspects such as key words and concepts, summarizing, and outlining. 3) Writing utilizing the outlining skills they had learned and the creating of topic heading, key concepts, sequencing of information. 4) Revision and editing of material involving both teacher and peer editing was used. 5) Creating structural components such as pictures, graphs, charts, maps, picture captions and a cover. 6) Printing which involved using a computer and printer and was a part of the creation of a final bound book. Carnes described in the summary factors that made the project a success.

Konopak (1988) talked about possible limitations to the use of context for word learning. These included poor reading skills and text complexity. She identified four types of context clues: 1) Definition, 2) Experience, 3) Comparison with a known idea, 4) Synonym, where a previous context clue offers a synonym for an unknown word. She identifies current research finding that relate to context clues:

- 1) The proximity of relevant context to the unknown word- will the reader find this information?
- 2) The clarity of the connection between the context and the word- will the reader make the necessary connection?
- 3) The explicitness of the contextual information- will the reader obtain a reasonably precise meaning?
- 4) The completeness of the contextual information- will the reader obtain a reasonably full understanding of the word?
- 5) The importance of the unknown word to understanding the passage- will the reader even attempt to figure out the word's meaning?
- 6) A reader's prior knowledge of the topic- will the context actually be familiar enough to the reader to be useful?

Konopak recommended that content area teachers be aware of the limitations and provide specific instructions in determining word meaning from difficult text. She cites Vacca and Vacca (1986) who provided a 7-step process for instruction in finding meaning from context:

- 1) Write the word on the board.

- 2) Ask the students what they think the word means.
- 3) Write the text sentence that includes the word on the board.
- 4) Ask the students to see which definition best fits the word when it is used in that sentence and encourage them to support their answers.
- 5) If no definition fits, ask for definitions that may be appropriate for that sentence, using contextual information as an aid.
- 6) Assist students in finding relevant clues in other sentences that relate to the unknown word.
- 7) If the immediate context does not provide a definition, encourage students to use external references such as a text glossary or dictionary to obtain the meaning.

Kress (1989), examining trends in remedial reading instruction, stated that individualized instruction based on individualized diagnosis had a historical basis as the best form of remediation but that this approach is not the predominant method now. The most effective programs are set up to provide remedial activities throughout the school day in all classroom settings. One general approach that had received increased attention, according to the author, is effective teacher questioning techniques that establish a purpose for reading before actual reading begins. Kress provided four guidelines for questions: 1) scale the question difficulty to the cognitive ability level of the student, 2) distribute questions so that all levels of thinking are called for, 3) be sure that the question asked support stated objectives for the lesson, 4) be certain the questions are designed to guide learning and understanding. Kress also pointed out the advantages and disadvantages of computer-assisted instruction.

Mikulecky (1989) pointed out changes in real-world literacy demands and described what teachers can do about it. He stated that the changing nature of the workplace demands literacy standards that some high school graduates are not prepared to meet. More jobs require students to have both literacy and computational skills that they have not learned. He stated that some skills such as problem solving and metacognition are not being taught. Cited are statistics from the National Assessment of Educational Progress (NAEP) performed in the mid 1980s that reported that nearly 100% of 17-year olds were able to read at a basic level. This was defined as being able to: 1) Follow brief written directions, 2) Select words, phrases, or sentences to describe a simple picture, 3) Interpret simple written clues to identify objects, 4) Locate and identify facts from simple informational paragraphs, stories, and news articles, 5) Combine ideas and make inferences based on short, uncomplicated passages. Eighty-four percent could perform at an intermediate level (Average 13-year old or eighth grade student), which meant that in addition to the basic

skills they could also: 1) Search for, locate, and organize information found in relatively lengthy passages. 2) Recognize paraphrases of what had been read. 3) Make inferences and reach generalizations about main ideas and author's purpose from passages dealing with literature, science, and social studies. Less than 40% of 17-year olds reached an adept level, defined as also being able to: 1) Understand complicated literacy and informational passages. 2) Analyze and integrate less familiar material and provide reactions to and explanations of the text as a whole. Less than 5% could perform beyond the adept level, which entailed: 1) Extend and restructure the ideas presented in specialized and complex texts such as scientific material, literacy essays, historical documents, and professional material. 2) Understand links between ideas even when those links were not explicitly stated. 3) Make appropriate generalizations even when texts lacked clear introductions and explanations. Mikulecky stated that the implications for classroom teachers includes training students to gather materials, applications of real-world literacy to problem solving, and he provided a list of course-specific teaching ideas for increasing student's literacy.

Nagy, Anderson, Schommer, Scott, and Stallman (1989) investigated whether the speed with which a word is recognized depends upon the frequency of related words, and which types of related words had such an influence. The authors asked 95 U.S. college undergraduate students to distinguish stem words from nonwords in a lexical decision task. The stem words, 3 sets of 28 pairs, were matched for length and individual frequency, but differed substantially in the frequency of their inflection (the alteration of the form of a word to indicate different grammatical or syntactical relationship), derivational (the process by which new words are formed from existing words by adding affixes), or nonmorphological relatives (words that are not related by inflection or derivation). A word lists provided in article appendix. The researchers found that the frequency of inflectionally and derivationally related words significantly affected speed and accuracy of recognition of stems; however, these effects were conditioned by the likely age of acquisition for each word, and by their part of speech. Simple letter overlap did not have a significant effect on word recognition, but frequency of encountering letter combinations did. The results support the concept of morphologically based word families, that is, the hypothesis that morphological relations between words, derivational as well as inflectional, are represented in the lexicon.

Moore and Arthur (1981) described the main purpose of "Possible Sentences", to enable readers to determine meaning independently in relationships of unfamiliar words in content reading assignments. Students predict relationship between unfamiliar terms they encounter, locate evidence to support their justifications, and not only learn to recognize contextual setting of words but to produce original contextual

settings. The authors described the 4-step procedure: 1) the teacher lists key terms that are defined adequately by the reading passage. 2) Students pair any two words on the list and dictate a sentence using them. The teacher writes the dictated sentence on the board. 3) Students read the passage for the purpose of checking the accuracy of the written statements on the board and validating them. 4) After evaluating and modifying the original sentences, new sentences are generated and challenged. Finally, acceptable statements should be copied into student's notes. Moore and Arthur illustrated the four steps with examples, provided a sample paragraph to demonstrate the procedure, and described two possible pitfalls: 1) teacher need to take care in choosing key terms that can be readily grasped from context. 2) Follow up instruction needs to be provided so that students can clarify and elaborate new word meanings through direct experience.

Sandberg (1981) suggested that questions that help students read actively in any situation could be adapted to fit reading into the history class. She stated that reading history is a little more difficult for most readers because of how it differs from narrative literature. Sandberg presented five general questions and the skills associated with each, that readers can ask to begin reading actively: 1) What is the selection about as a whole, 2) what is the author's message, 3) How does the author say it, 4) do I agree, 5) how important is this to me. Sandberg offers seven questions and examples to help students read historical exposition actively: 1) what is the historical problem, 2) what is the chronology of events, 3) what is the author's hypothesis, 4) what are the author's sources, 5) test the hypothesis, 6) evaluate, 7) how important is this material to me. By reviewing the purposes and skills involved in each question, students discern that reading history actively is an extension of the five general reading questions, and once mastered should enable them to read independently in many situations.

Davidson (1982) described the Group Mapping Activity, an instructional strategy that provided interaction through discussion and required students to produce a map or diagram of relationships or ideas that they had read. An example of some suggestion for prompts that the teacher can use when first introducing the strategy in class to help students learn how to use it, is provided. The Group Mapping Activity helps students recall and retain text information and provided students with a means to generate personal responses of how they interpret what they had read. Students have to interpret the meaning of material in what they read and to recognize relationships, details and form ideas as they map.

Dufflemeyer, Baum, and Merkley (1987) noted that expository text, the predominant form of writing in content textbooks, is generally more difficult for students to comprehend than narrative, which

predominates in basal readers. One frequently cited explanation for the difference is the complexity of the concepts presented. The authors recommended the use of extended anticipation guides as a strategy for helping students build background knowledge for understanding content texts. One weakness of anticipation guides that they cite is that they generally lack a built-in feature for testing one's beliefs. The extended anticipation guide is designed to force students to interact with key propositions that they encounter, and the second part of it resembles a study guide. The uses of both parts of the extended anticipation guide aid in assimilation of information because the two parts work together to make students see connections and test them against what they believe.

### **Reading Strategies**

In the 1980s, studies in this area focused on presenting students with various methods to help them learn better from text.

Meyer, Brandt, and Bluth (1980) reported on a study that investigated ninth-grade students' using a reading strategy focusing on following the organizational structure of the text to determine what is important to remember. Texts were organized with problem/solution or comparison structures that signaled the reader about mastery of material. Results indicated that the use of the structure strategy provided ninth-grade students with a systematic learning and retrieval guide that aided them in comprehension.

Cook and Mayer (1983) looked at various reading strategies for meaningful learning from prose. They stated that these instructional strategies attempt to address two common problems in teaching reading and comprehension skills: 1) The need for a systematic procedure with which to present class materials that induce students to perform certain reading behaviors and provided a way of assessing how well these methods are learned and used. 2) The need for students to be taught certain reading behaviors and practice them individually. In addition, they also need to receive corrective feedback on how they are doing. Strategies discussed included SQ3R (Survey, Question, Read, Recite, and Review), REAP (Read, Encode, Annotate, and Ponder), Structured Overview, DRTA (Directed Reading and Thinking Activity), and ReQuest. Results of various studies suggested that reading strategies affect the encoding process, resulting in learning outcomes that can be measured. Analysis of instructional applications reveals that many strategies can be related to specific cognitive processes. Further research is suggested in areas concerning:

- 1) Techniques influencing the selection process, how readers decide what to pay attention to in a passage.
- 2) Techniques for influencing acquisition, how readers decide how much information will be encoded into

long-term memory. 3) Techniques for influencing the construction process; How readers come to construct the elements in a passage into a coherent structure. 4) Techniques for influencing the integration process; How readers come to integrate the presented information with existing information.

Langer (1987) discussed the Pre-Reading Plan (PReP), a three-step procedure for use before assigning textbook reading in class. Before beginning, the teacher surveys the text and identifies key words, phrases, or pictures to stimulate group discussion. The first step involves the students identifying everything then can think of about the topic, and writing this down on the board in class. In the second step, ask students to identify what made them think of the response they made to the first part of the exercise. This helps them develop an awareness of their network of associations. In the third step, students elaborate based on what they had learning so far. This allows students to refine their thoughts and opinions. The basis of this strategy is to make students aware that they possess some prior knowledge about topic they encounter, whether it is correct or incorrect and is a good example of why teachers should not accept the “I don’t know” response of their students.

McGinley and Denner (1987) described story impressions, a prereading activity that uses story fragments in the form of clue words and phrases to help readers activate schemata by building anticipatory models of the text prior to reading, then allowing the reader to confirm or modify the model as the details of the actual story are encountered. This varies from a typical DRTA lesson in that students are given a more systematic set of clues and they are asked to compose a story of their own after first examining the clues as a predictor of the up-coming story is about. The students then read the author’s story and compare how their stories are similar or different. McGinley and Denner provided several other suggestions of ways to use story impressions in the classroom including as a guide for writing story summaries, as a notetaking strategy, and as a means of generating and answering their own questions about a story.

Richek (1987) outlined five variations of the Directed Reading Thinking Activity (DRTA) that can help students become independent readers of narrative text. She stated that the key to DRTA’s success is that students are active participants in the reading process and that it makes students aware of literary devices such as figurative language, mood, and foreshadowing; subtle clues that enhance involvement in the reading process. She pointed out the effective use of DRTA involves the teacher determining where to establish breaking points in the story for students stop and think about what they had read and make predictions about what is still to come. These stopping points need to be limited, according to Richek, to a maximum of five or six in any story. The first variation of DRTA is Stauffer’s original format where the

teacher asks students to identify information from the story that they used to make their predications and then asks them to justify their answer. In the second variation, students are asked for information from the story used to make their predictions, but are not required to give a justification. In the third variation, which Richek says works well with ESL students; they listen to the text being read rather than reading it themselves. This variation is called Directed Listening Thinking Activity (Stauffer, 1980). A fourth variation is Silent DRTA, where students read without teacher interruption. The teacher hands out the reading selection with marked stopping point and students read, stopping at each point and make individual predictions in writing and then look back over the text to look for any clues they might have missed before proceeding. In the final variation, called DRTA Source, the reader uses two sources in making their predictions: the text and their own background knowledge. Richek concluded that the use of DRTA deepens students understanding of narrative text and provided a strategy for reading independently and enthusiastically.

Swafford and Alvermann (1989) examined the post-secondary research base for content area reading strategies and the extent to which reading research supports the comprehension and vocabulary strategies recommended in content reading methods textbooks. They compared the findings of this study with those of their earlier study (Alvermann and Swafford, 1989) using the same strategies identified in the secondary school study. They reviewed six widely used content area reading methods texts and listed the strategies the authors recommended. This list was narrowed to include only strategies that teachers had reported using most frequently. These included advanced organizer, anticipation guide, Directed Reading Activity (DRA), Directed Reading-thinking Activity (DRTA), graphic organizer, list-group-label lesson, pattern guide, reasoning guide, semantic mapping, structured overview, study guide, three-level guide, and use of text structure. A search of the literature was done for studies that contained one or more of the strategies in their title and involved post-secondary students. The Citation Index to Journals in Education, Resources in Education, and Dissertation Abstracts International through December 1986 were searched. A strategy was considered effective if statistical significance was reached on at least one of the dependent variables. For this current study, they tried to answer four questions: 1) What comprehension and vocabulary strategies received the most research attention? They found that 52% of the 82 studies located involved advanced organizers. Twenty-five percent of the studies cited use of text structure. The remaining strategies in descending order were structured overview, graphic organizer, semantic mapping, study guide, and DRTA. No studies were found that used anticipation guide, DRA, list-group-label lesson,

pattern guide, reasoning guide, or three-level guides. 2) How effective are these strategies? The structured overview was used in 88 percent of the college developmental reading student studies and a majority of these involved the use of expository text. 3) In what ways were the post-secondary and secondary data similar? Both sets of studies showed more effective strategies than ineffective strategies. The most frequently researched strategies were organizers (advanced organizer, semantic mapping, structured overview, graphic organizer) and the use of text structure. Expository text was used almost exclusively especially social science text. Neither data set showed a clear pattern of one strategy being more effective than another is for students of various reading abilities. 4) In what ways were they different? In the secondary study, there was a finding about the ineffectiveness of advanced organizers when used with math text. That finding did not carry over to the post-secondary research where a large number of advance organizer studies were successful when used with math texts. Advanced organizers were found to be effective in 55 percent of the post-secondary studies but only 44 percent of the secondary school studies. At the secondary level, the ratio of effective to ineffective studies for semantic mapping was 5 to 1 and for graphic organizers the ratio was 6 to 2. In the post-secondary study, there was approximately an even number of effective and ineffective studies for the two strategies. Semantic mapping and graphic organizers were more effective for secondary than postsecondary students, although most secondary students were not given instructions for the use of these strategies. The traditional advanced organizer was more effective with post-secondary students than with high school students. A recommendation made was for further study and research on college developmental reading students.

Montague and Tanner (1987) presented reading strategy groups, a model for content area instruction that looked at improving textual understanding through reading strategy instruction and cooperative learning with the goal of actively engaging students in the learning process. They focused on three common reading strategies that contain component activities in the prereading, reading, and post reading stages as seen in Table 3: SQ3R, DRTA, and MULTIPASS. SQ3R (Robinson, 1946) provides students with a systematic strategy for reading text, selecting relevant information and acquiring new information and concepts from text. DRTA (Stauffer, 1975) engages the reader in setting purposes and hypotheses for reading and then reading to verify them. MULTIPASS (Schumaker, Deshler, Alley, Warner, and Denton, 1982) familiarizes the reader with the chapter organization and the main ideas. This had been shown to be effective with low achieving and learning disabled students. These group strategies

**Table 3 How three reading comprehension strategies fit three instructional strategies**

Instructional Stage	SQ3R	DRTA	MULTIPASS
Prereading	Survey	Prepare for reading	Survey Pass
	Question	Preview	
		Establish purpose/predict	
Reading	Read	Read to answer question	Size-up Pass
		Read to confirm prediction	
		Develop comprehension	
Postreading	Recite	Reread	Sort-out Pass

address social, affective, and cognitive aspects of learning during content area instruction by combining direct reading strategy instruction with principles of cooperative learning.

### **Summarizing**

Research in this area looked at how to teach students to condense what they had read into an accurate capsule statement.

Hare and Borchardt (1984), borrowing from previous research done by Brown and Day, designed two versions of a summarization intervention program, one taught inductively and the other taught deductively. The instruction was given to 22 low-income, minority, high school students over three 2-hour sessions. While no significant differences in summarizing process and product were observed between two instructional groups, there was a significant difference from a control group in terms of summarization efficiency and rule usage. These differences were maintained 2 weeks after instruction had ended. Results indicated that students still needed to improve the efficiency of their summarizations, but that they seemed to become more consistent in using a rule for identifying important material in text if the rule was unambiguous in its deployment. Identification of main ideas that appear in the first sentence of a paragraph was much more likely to occur than if the main idea was stated elsewhere in the paragraph or was implied.

Taylor (1984) analyzed the process by which successful writers summarize, pointed out where students may have difficulty, and suggested strategies for helping students summarize both expository and narrative reading materials. In order to summarize, students had to be able to read the material and use appropriate reading strategies based on the type of material (narrative or expository). The process by which successful writers summarize material includes: 1) Reading carefully to identify the structure and content. 2) Checking comprehension. 3) Writing a first draft. 4) Checking draft against the original article. 5) Rewriting the first draft. 6) Checking the second draft against the original article.

Winograd (1984) did a study that examined the possibility that some eighth-grade students' difficulties with the task of summarization may be linked to deficits in strategic skills. Students' introspective awareness of summarization skills, ability to identify important elements in the text, and ability to transform the text into its gist were looked at. Results indicated that most eighth grader students were aware of the task demands of summarization. However, good and poor students differed in what they considered important, in what they included in their summaries, and in how they transformed the original text. Sensitivity to importance of material and efficient use of the transformations were significantly related to the ability to produce summaries. This study suggests that when comprehension difficulties are encountered, teachers should assess the students' use of strategic skills and provide appropriate training if necessary.

Taylor (1985) looked at developing an understanding of factors contributing to children's difficulties summarizing textbook material. She stated that one aspect of this problem appears to be related to the fact that middle school students are experiencing problems understanding the material to begin with. Forty-five 6th grade students were identified as having a mean reading grade level of 7.6 (range 4.1 to 10.6) on the Iowa test of Basic Skills. Two passages from the student Social Studies textbook, not yet covered in class were used. Passage A comprised five pages with 133 idea units; passage B comprised three pages with 65 ideas units. Subjects met with the investigator on two separate occasions, a week apart in groups of eight or nine to read and summarize the two passages. Students were randomly assigned to one of four groups: Two groups read either passage A or B first; they also summarized the passage using either a written free recall or a written probed recall. In the second session, students used the other technique. For the other two groups, they read either passage A or B first, and then summarized it. During their second session, they read and orally summarized the other passage. Results showed that sixth grade students experienced greater difficulty summarizing the material they had read than did more mature

readers. They did not follow the structure of the passages in their summaries, they did not uniformly remember information from all sections of the passage, and they were generally not as sensitive to text structure as were mature readers. Taylor stated that results tend to support the idea that a probing recall procedure, which highlights for students major topics of a social studies passage, may also help them understand and generate main ideas statements for major topics.

Pincus, Geller, and Stover (1986) stated that comprehension of expository text and the ability to summarize are factors in students' success with such materials. Expert readers know text patterns are not random and that an effective method to help them generate schemata is to teach them to summarize predictable but unfamiliar text in a consistent way. They describe a model that induces students to use existing schemata to create new and necessary expectations while providing a technique for explicitly teaching the components of effective summaries. In this case, students were presented with a story that related events out of chronological order. When asked to relate the critical aspects of the story, the students could not. The authors had the students reorganize the information using time-chronology, which did not prove to be a problem for them. Students were then asked to write a brief summary of the story, which produced accurate and coherent synopses of the story. Pincus, Geller, and Stover contended that students need to be taught strategies for attacking reading comprehension when they encounter problems.

Shugarman and Hurst (1986) talked about the use of purposeful paraphrasing as one type of writing activity that can be used across the curriculum to develop and practice reading and writing skills. Paraphrasing involves having students rewrite text in their own words. This requires that students be able to read text for understanding and know how to write concise, concrete statements of the author's original meaning in their own words. There are three types of rephrasing: simple rephrasing, a paraphrasing of a passage; summarizing, used to highlight major points in a longer passage; and elaborating, where the students incorporates previous experiences and prior knowledge and can result in the student constructing a new form of the passage such as creating a cartoon, a graph, or a picture. The authors presented 11 activities that give students practice at doing paraphrasing.

- 1) Give students a short passage, two paraphrases of it and have them discuss the strengths and weaknesses of each.
- 2) Ask students to paraphrase a short passage using teacher written guide questions.

- 3) Give students a longer passage to paraphrase and reduce the number of hints.
- 4) Give students comics, political cartoons, graphs or maps without captions and ask students to write one or two sentence captions.
- 5) Present students with games, directions, and rules and ask them to rewrite them for younger students.
- 6) Pair skilled and less-skilled readers. Ask the less skilled reader to teach the skilled one how to write a paraphrase while the skilled one reads and checks the meanings.
- 7) Divide the class into teams and a panel of experts. Assign text pages to be read and paraphrased by each team. Have the panel decide which paraphrases are the best and why.
- 8) Play a popular song while students read the words on a handout. Have students paraphrase important parts of the song.
- 9) Have students read advertisements and paraphrase only the meaningful information.
- 10) Have students bring relevant text from newspapers and magazines to class. Have them write and share paraphrases of meaning.
- 11) Ask student to develop creative, original stories, charts, or reports. Have other students write paraphrases of this material.

Shugarman and Hurst concluded that using paraphrasing could increase content understanding, learning and student interest while developing reading, content, communication, and creative skills.

Afflerbach (1987) enumerated the results of a study that asked graduate students and doctoral candidates to read diverse content areas and to select main idea statements for text. He concluded that readers often make initial hypotheses about the main idea, sometimes stopping to allow automatic processes to produce a summary of what had been read so far, and used the main idea construction processes of listing, draft and revise, and topic/comment after the text had been read. Techniques such as skimming the text are often used to make an educated guess as to what it is about and then, the reader reads through the text checking the hypothesis, modifying, and verifying it. Expert readers use prior knowledge to make their initial hypotheses, then after reading the text, if the main idea has not emerged automatically, the reader may return to the text to look for related ideas, words, and concepts. They may also skim back over

a paragraph to try to find key elements. Afterwards, expert readers are able to create a rough draft of the text they had read. They may return to the text to look for additional information or to clarify their thoughts and revise their main idea statement. They may also return to text to look for additional comments to complement their text statement. This comment is often a logical application of the topic statement and indicates deeper understanding of the topic.

Hancock (1989) looked at learning using databases. Databases are useful because they put facts at one's fingertips and while they are widely used in the business world, schools have been slower to see the importance of databases. This article showed a variety of ways that teachers at all levels are using databases and discussed how students are responding to using databases and how they can be integrated into the curriculum. The author presented an example of how an Australian school used databases to acquaint students with historical insight into other people and times. The author reported that databases appear to have the ability to motivate students to engage in inquiry in areas of interest to them. One advantage of database systems is that it allows students to order and analyze large amounts of information in ways not available to them before. It can also help student appreciate the limitations of any published information. Hancock listed seven advantages to using databases in the classroom.

- 1) It can quickly sort data in specific ways to assist perusal.
- 2) It can present information in lists and graphically, thus allowing quick scanning.
- 3) Information can be readily reorganized for particular purposes.
- 4) It requires the user to define a search in precise terms.
- 5) It carries out searches rapidly and accurately.
- 6) It can present findings in numerical and graphic forms.
- 7) It can be readily updated so that information is current.

Hayes (1989) described the Guided Reading and Summarizing Procedure (GRASP), a classroom procedure for teaching students how to compose summaries of their reading. GRASP is an adaptation of Manzo's (1975) Guided Reading Procedure (GRP) and leads students through the steps of writing a summary about what they had read: 1) Include only important information. 2) Compress information by combining it. 3) Add information needed to achieve coherence.

## Schema Theory

Tuinman (1980) noted the relationship between constructive comprehension and schemata theory research and reviewed the research behind schema theory. He talked about how readers use schema in developing understanding of a protagonist's motive, which provides a framework for understanding motivation of other characters, and which changes understanding of and memory for events encountered. He gave examples of how schema can be changed based on the reader's point of view, how it affects the reader's emotions and mood and that schema can not only help develop understanding but can also lead to confusion and hinder understanding. He laments the lack of progress in applying those theoretical phenomena to the classroom and about the need for additional in-depth knowledge about how schema works.

Cunningham (1982) described the development of GIST (Generating Interaction between Schemata and Text) and described an experiment in which its effects were tested against a placebo. Previous conducted research had shown that having students write a one-sentence summary following each paragraph they read dramatically increased learning from text. GIST is a strategy that requires students to write one sentence summary of paragraphs of material in their own words. The experiment was conducted with fourth-grade students divided between the experimental group taught GIST and a control group taught a variety of strategies that directed their attention to the word level of a paragraph. Each group read the same 10 paragraphs, wrote summaries, and was tested over the material. The results showed that scores for the GIST strategy were higher in both recognitions of the material and writing composition. The main finding of this experiment was that GIST training improved students' ability to compose accurate summary statements using a systematic approach that did not emphasize explicit rules that students had to remember.

Hayes and Tierney (1982) talked about three possible explanations of the function analogies, which are often used to introduce unfamiliar information to readers: 1) to activate specific analogous knowledge, 2) to activate generally related knowledge, or 3) to supply information which readers use to fashion their own comparisons. The experiment consisted of five groups of between 19 and 21 high school students who read one of five possible combinations of narratives: 1) A baseball passage and an instructional passage describing a cricket game, with analogies. 2) An unrelated passage and an instructional passage describing a cricket game, with analogies. 3) A baseball passage and an instructional passage describing a cricket game without analogies. 4) An unrelated passage and an instructional passage describing a cricket game, without

analogies. 5) Two unrelated passages. Hayes and Tierney's findings suggested that if students were given any information about the unfamiliar topic, their performance was better on written recall tasks and well as on prediction and discrimination tasks. They stated, a major determinate in learning unfamiliar material was prior knowledge.

Rumelhart (1982) introduced the idea of schemata to those readers who are unfamiliar with the concept, and showed why attention had been paid to it. The author explains the origins of the term and provided background information showing that schemata are the fundamental elements upon which all information processing depends. He discussed how the central function of schemata is in constructing an interpretation of an objects, event or situation (i.e. comprehension), and then presented some major features of schemata. An example is provided to help the reader further understand what the author had been explaining.

Crafton (1983) reported the results of a study showing that natural reading experiences allow readers to construct a background schemata that can be used to comprehend other discourses. She found that reading two articles on the same topic improved students' comprehension on the second article. Students generated more inferences, used more outside information and personal involvement, and focused more on higher-level information than did students who read two unrelated articles. Just as with graphic organizers, allowing students to be involved in the process of selecting material to read can also appears to make for more effective learning.

Andersson and Barnitz (1984) examined how background knowledge and cross-cultural schemata influenced reading comprehension and offered some guidelines for developing comprehension of culturally different students. They found that both story structure and content differences affected students' comprehension. Culturally familiar material was remembered better and in more detail than materials from a different culture. Non-native English speakers also experienced more difficulty with both vocabulary and story line for culturally different material than material about their native culture. Strategies suggested included: 1) Using pre-reading activities when introducing culturally different material. 2) Teacher providing meaningful context for the material that students encounter. 3) Cross-cultural vocabulary needs to be taught in context so there is a link between the words that the concepts they apply to. 4) Evaluation should balance the student's familiarity and exposure to new, culturally different concepts with their current schema structure.

Anderson and Pearson (1984) looked at one aspect of comprehension that they felt was particularly important to reading comprehension: how the reader's schemata, the knowledge already stored in memory, functions in the process of interpreting new information and allowing it to enter and become a part of stored knowledge. Anderson and Pearson concluded that available data supports the ideas that the reader's schema is a structure that facilitates systematic retrieval of text information from memory and permits reconstruction of elements that were not learned or had been forgotten. Future research needs to focus on problems experienced by poor readers with respect to what they lack in comprehension skills. This includes gaps in their knowledge, understanding of the relationship among the facts they do not know, and how to make inferences from information they encounter to create a coherent picture.

Adams and Collins (1985) argued that schema theory provides a structure strong enough to support the interactions among different levels of processing in reading. They presented a general description of schema-theoretic model, the way it works, and examined some extensions of the models to the study of reading. A fundamental assumption of a schema-theoretic approach is that spoken or written text does not, in itself, carry meaning. Text only provides directions for the listener or reader as to how to retrieve or construct the intended meaning from previously acquired knowledge. Words in text evoke in the reader associated- concepts, past interrelationships, and potential interrelationships. Organization of text helps the reader or listener select among complex concepts. The goal of schema theory is to specify the interface between reader and the text and to specify how knowledge is organized to support the interaction.

Anderson (1985) looked at the role of reader's schema in comprehension, learning, and memory. He pointed out that schema theory highlights the fact that often, more than one interpretation of a text is possible and that schema depends upon the reader's cultural background. Comprehension depends upon the student activating or constructing a schema that provides a coherent explanation of things mentioned in text or that they encounter. Reading is conceived as an interactive process that takes place on multiple levels more or less simultaneously. He points out five implications for classroom instruction and designs of instructional materials: 1) Publishers should include teaching suggestions in manuals designed to help children activate relevant knowledge before reading. 2) Teachers' manuals accompanying basal programs and content area texts ought to include suggestions for building prerequisite knowledge when it cannot be safely presupposed. 3) Publishers should feature lesson activities that will lead children to meaningfully integrate what they already know with what is presented on the printed page. 4) Publishers should employ devices that will highlight the structure of text material. 5) Teachers should be aware that minority

children may fail to comprehend school reading material because their schemata does not match those of the majority culture.

Bean, Singer and Cowan (1985) described a schema-theoretic view of how analogies enhance students' prior knowledge and reviewed recent studies using analogies to assist students' comprehension of science text. The three-step procedure entails analysis of the reading assignment for important concepts; creating appropriate analogies in a complete or skeletal guide; and instructing students in the use of analogies as reading and retrieval cues. They found that analogical study guides were most effective for students with below average comprehension on previous class tests, and that there were no significant differences in the scores of students above 70 percent on the previous test with or without analogies. The analogical guide provided a bridge from a familiar concept (ex: the structure and related function of a factory) to the structure of a cell and its related operations.

Jones (1988) proposed possible causes for the lack of good reading and study skills among secondary school students. She identified research studies that point to elementary students' inability to understand main ideas because of difficulty transferring the skill learned from doing basal reader worksheets. This difficulty retaining information arises from the fact that information is presented in a way disconnected from their own experiences. Jones cited Armbruster and Gudbrandsen (1986) who stated that a lack of direct instruction on how to read and study for content combined with the confusing instructions in some elementary textbooks, frustrates students' attempts to understand what they read. Jones presented the four-stage ERICA system (Effective Reading in Content Areas) which is well suited to helping social studies students organize, comprehend, and remember large amounts of textbook knowledge. The four-stages are 1) preparing for reading, 2) thinking through information, 3) extracting and organizing information, and 4) translating information. She noted that research had shown that information presented in a visual array is often easier for students to remember than that presented in text. She suggests graphic organizers, outlines, Venn diagrams, use of semantic mapping strategies and matrixes. In addition, Jones references Langer's research (1986) which showed that having students write about what they had read further aids in comprehension.

Miccinati (1988) talked about mapping, a notetaking procedure for use after students read a selection or before they write. Mapping requires students to represent ideas in a diagram rather than as outline. Students need to make decisions about what information to include or exclude, also they had to analyze, evaluate, and reason critically. All this involves making meaning of what was read. Brown (1982,

p.29) points out that making meaning involves: 1) Clarifying the purpose of reading, 2) Identifying the important aspects of a message, 3) Focusing attention on the major content rather than the trivia, 4) Monitoring the on-going activities to determine whether comprehension is occurring, 5) Engaging in self-questioning, 6) Taking corrective action. Miccinati presented examples of various types of mappings (linear, sunburst, flowcharts, and leaning tree).

The idea of “concept definition” (CD) instruction was discussed by Schwartz (1988). CD instruction organizes conceptual information into categories (what is it?), properties (what is it like?), and illustrations (what are some examples) can be applied to content area reading. A lesson and activities are presented which develop strategies for combining new text information with prior knowledge and for self-monitoring independent vocabulary learning. Concept definitions concentrates on showing students that organization and structure can aid memory. It is much easier to remember a series of playing cards drawn from a deck if they are organized by suit, rather than in random order. According to Schwartz, the goal of concept definition instruction is to help student become more strategic at developing and refining their vocabulary knowledge.

### **Text Structure**

Meyer and Rice (1984) provided an overview of ways that the structure of text can be described. It included a brief historical review of contributions from a number of disciplines; a review of the more commonly used descriptive systems in reading research, and a discussion of the issues of current concern to researchers in the area. Meyer and Rice concluded that models of the structure of text are crucial to research on reading comprehension. Both the development and effective use of these models are dependent on the goals of particular research investigations. Knowledge gained about the structure of text has made it possible to predict which ideas will be recalled and how long subjects will need to study text that is, it permits theorizing about how readers process text.

### **Thinking Skills**

Research on thinking skills focused on developing student’s ability to use various method of thinking to solve problems, make decisions, and develop critical evaluation abilities.

Brown (1980) talked about the issue of metacognitive development and how it might relate to reading. Metacognitive development refers to developing effective thinking skills in a wide range of learning situations, including reading. The goal of reading is to achieve understanding of text. Depending

on the reader's purpose for reading, the reader needs to vary the strategies utilized in order to achieve comprehension. Reading difficult, technical text requires increase attention and concentration as well as other strategies in order to comprehend. Reading a text written below a person's reading level is easier than reading one written at or above reading level. Brown reviews the types of reading strategies that good readers must use to ensure comprehension and discussed research results concerning reading comprehension. She pointed out that adequate research is lacking which directly addresses metacognitive aspects of reading comprehension and studying, examination of children's ability to retain essential ideas or written and spoken communication, their ability to understand instructions and distinguish between situations in which memorization is needed and not needed.

Beyer (1983) examined three features that are the foundation of instruction in thinking skills: 1) the learning environment, and how it influences student thinking 2) the instructional strategies and methods used- systematic, direct, integrated, and developmental and 3) the coordination and structure of skill teaching throughout the entire curriculum. The goal is to equip students with thinking tools they need in order to learn. When students are taught a skill at the time that skill is needed, learning is enhanced. Teaching thinking skills need to be done within the content classroom, not in isolation.

Brooks, Fusco, and Grennon (1983) talked about the Cognitive Levels Matching Project, which trained teachers to guide students' skill acquisition and problem-solving processes by assessing students' cognitive levels and adapting their teaching materials accordingly. Background research was discussed and parallel demonstrated between Epstein's Brain Growth Spurts and Piaget's Stages of Cognitive Development. The program's goals were for teachers to develop a) an understanding of the process of cognitive development, b) provide a method of assessing the cognitive abilities of students and c) introduce taxonomic models for analyzing and restructuring educational experiences and curriculum.

Beyer (1984) identified five obstacles to effective teaching of thinking skills: 1) Lack of consensus among teachers about which skills to teach. 2) Lack of knowledge among teachers about teaching thinking skills. 3) Not providing the kind of instruction that research suggests is most productive in developing good thinkers. 4) Teaching too many skills in too little time. 5) Testing that inhibits students' thinking skills. Beyer states, he will write an article in the April issue of (Phi Delta Kappa) Kappan, describing specific ways to overcome these obstacles.

Perkins (1984) stated that schools could promote creative thinking by focusing on aesthetics, purpose, objectivity, and by encouraging students to work at the edge of their competence. He talked about how education falls short in encouraging creativity and pointed out subject areas that encourage creativity. Finally, Perkins presented four examples of assignments that challenge students to use their creative ability to produce a written product such as an analysis, a prediction with argument, a classification system and a plan.

Sternberg (1985) described the mismatches and problem areas between what is required for critical thinking in adults and what is being taught in school program intended to develop critical thinking. He listed 10 ways that they differ:

- 1) In everyday world, the first and sometimes most difficult problem is to recognize that a problem exists,
- 2) In everyday problem solving, it is often harder to figure out just what the problem is than to figure out how to solve it,
- 3) Everyday problems tend to be ill structured,
- 4) In everyday problem solving, it is not usually clear just what information will be needed to solve the problem, nor is it always clear where the requisite information can be found,
- 5) The solutions to everyday problems depend on and interact with the contexts in which the problems are presented,
- 6) Everyday problems generally have no one right solution and even the criteria for what constitutes a best solution are often not clear,
- 7) The solutions of everyday problems depend at least as much on informal knowledge as on formal knowledge,
- 8) Solutions to important everyday problems had consequences that matter,
- 9) Everyday problems solving often occurs in groups,
- 10) Everyday problems can be complicated, messy, and stubbornly persistent.

Unks (1985) looked at whether critical thinking skills were being taught in the social studies classroom. He contended that social studies teachers are not trained properly and therefore had difficulty

distinguishing statement of facts from statements of opinion. and are therefore not effective at teaching their students to think critically. The 1971 National Council for the Social Studies publication "Selected Items for the Testing of Study Skills and Critical Thinking" was used and twenty-seven statements were randomly selected along with 13 statements of fact and opinion. In addition, 3 clearly "false facts" were included. Respondents were asked to complete some personal information data and then were asked to indicate for each of the 48 statements whether it was "fact," "mostly fact," "mostly opinion," or "opinion." Of the 346 potential respondents, 293 were received back. The three "false fact" statements were eliminated and the categories "mostly fact" and "most opinion" were used to test the ability of the teachers to unequivocally distinguish between fact and opinion. The results showed only 51.87 % of the respondents could distinguish fact from opinion correctly. When the "mostly opinion" and "opinion" categories were combined the results showed that nearly 40% could not distinguish fact from opinion. Ten of the 40 statements were fact, and when these were separated out, 89.76% of teachers could distinguish these statements as facts. When the "false fact" statements were looked at, those respondents who had identified at least half of the 40 statement correctly rated the "false facts" as either "fact" or "mostly fact." These who did not identify at least half of the statements correctly rated them as opinion statements. No significant relationship was found between years of teaching, sex, age, size of college attended, or highest degree earned. Teachers who had majored in traditional social studies subjects were significantly better at distinguishing fact from opinion than were those who had majored in other subjects (read as "Coach"- Yes, Physical Education majors were specifically identified as being the worst at identifying fact from opinion). Same thing applied for "part-time" social studies teachers. Those who taught a full social studies load were better at distinguishing fact from opinion than those who did not. This study points to inadequate preparedness on the part of teachers, not students and teachers are the ones who need more training before trying to teach critical thinking.

Josel (1986) look at a Silent Directed Thinking Activity, using an abridged version of Edgar Allan Poe's "The Cask of Amontillado" in an eighth-grade remedial class. This modification involves self-correcting (students work at their own pace, writing out their predictions at designated intervals throughout the story). Josel recommended that hypothesis clues be given periodically throughout the story to assist in student comprehension. The teacher conducted a prereading exercise to ensure the important vocabulary that students would encounter was understood. The concept of 'revenge' was brainstormed so that an overarching concept to guide reading would be in place. Students then read the story, stopping at

indicated intervals to make and revise predictions. After completing the story, the teacher read the story in its entirety so students could get a better overall picture. Afterwards, in small groups, each student had a chance to present, explain, and defend their hypothesis. A follow-up writing activity asked students to choose one of three “what if” statements so they could create their own ending to the story. The abridged story, with prompts and the writing exercise are included in the article.

Beyer (1988) suggested basic principles to guide the construction of an integrated sequential guide for thinking skills instruction throughout the K-12 curriculum. He identified three levels of thinking skills that are repeatedly used in most academic subjects: 1) Thinking strategies that relate to problem solving, decision-making, and conceptualization. 2) Critical thinking skills that involve distinguishing between facts and opinions, determining relevant and irrelevant information, detecting bias, and identifying logical fallacies. 3) Information processing skills such as interpretation, extrapolation, application synthesis, evaluation, and inferential reasoning. Beyer stated that a well-structured thinking skills scope and sequence identifies the skills and strategies to be learned, arranges them in the order in which they are to be introduced, practiced, generalized, and elaborated, and keys them to various subjects in which they are to be taught. Strategies should emphasize introducing and reinforcing cognitive operations such as information processing, problem solving, critical thinking, and decision-making.

Brandt (1988) conducted an interview with author Art Costa, who asserts that the teaching of either content or thinking skills in isolation is unproductive. He recommended selecting content for its relationship to thought processes, and stated that while there is little empirical evidence to support teachers modeling thinking behaviors (questioning strategies) and the teaching of thinking in the classroom, he is encouraged by what teachers are saying about how they notice differences in the way their students are responding and developing better organizational skills. He called for a change in the ways we assess achievement in schools that would place less emphasis on low-level knowledge and more emphasis on thinking. Costa stated that when teachers do teach thinking skills, their student’s standardized tests scores usually go up. One way to do this is to look at how effective their students are at solving problems they encounter in school. Teachers should answer questions such as: How well do they apply what they have learned? How well do they comprehend what they are reading? Do they follow directions well? Do they strive for accuracy? Is their language precise? He also observed that administrators who model intelligent behavior thereby creating a climate for thinking.

McTighe and Lyman (1988) describe cueing thinking, an approach that presented 6 thinking tools in the classroom in a practical format that is enjoyable to students. 1) Think-Pair-Share. 2) Questioning/Discussion Strategies Bookmark. 3) Thinking Matrix. 4) Ready Reading Reference. 5) Problem-Solving Strategies Wheel. 6) Cognitive Mapping. The authors attributed the effectiveness of these strategies to four factors: 1) They act as an aid to memory. 2) They provide a common frame of reference that can carry over from one subject to another. 3) These tools are ready to use and provide an incentive to act. 4) Once incorporated into active use, these strategies form memories of ways to think and can be drawn upon as needed.

Clarke, Rath, and Gilbert (1989) described “inductive towers,” a visual medium for inductive thinking in secondary classrooms. They stated teachers can use inductive towers to show how theories are formed in the social sciences. On the first level, it is a graphic representation of inductive thinking with some factual elements as a base. The second level is made up of statements interpreting related facts. The third level contains asserting generalizations based on interpretations, and a fourth level asserting hypothetical cause/effect relationships or a value position. Clarke, Rath, and Gilbert explained how students build inductive towers to practice inductive thinking, analyze information, or organize information gathering in a research project. A four-step process is described. 1) Search and scan a record of experiences for propositions they identify as meaningful factors. 2) Link two or more facts that share a meaning and create a new proposition that expresses that meaning. 3) Link two or more interpretive transformations and create a new proposition that asserts a knowledge claim (generalization, principle, or rule). 4) Link knowledge claims and create a new proposition that expresses a cause/effect relationship, value position, or prediction (theory or value statement).

### **Vocabulary**

Research about ways to teach vocabulary, the importance of learning vocabulary, and its impact on learning included the following.

Mason (1981) reviewed the past use of high interest-low vocabulary books and discussed directions for future use of these items. High-interest-low vocabulary books were designed to meet the needs of remedial reading students by providing material of interest to adolescents written on an intermediate grade level. These frequently took the form of “junior classics” “Big Little Books” and “Classic Comics” which are rewritten works of classical literature with an emphasis on making the difficulty level much easier. After

World War II, an effort was made by some publishing companies to produce reading materials that were on a simpler reading level. This effort increased dramatically when Title I came into effect in the 1960s. Mason outlines limitations that these books had and concluded by making recommendations for the future, including writing books that are not driven by the use of a readability formula but simulates the natural language development patterns of the reader. This type of writing involved a more detailed analysis of language patterns of children and adolescents at all levels. Simpler words make for easier reading, but not necessarily shorter sentences.

Dupuis and Snyder (1983) presented a systematic approach to teaching vocabulary as an essential part of concept development in the content classroom. Teachers need to keep in mind that it is unwise to assume that all students had the same cumulative and easily remembered vocabulary. They recommended that content teachers need to identify critical vocabulary on which instruction will focus and then divide words that students must know into 3 groups: new words that students have never dealt with before; previously taught words that may not be in the student's active vocabulary; and words or phrases with multiple meanings or special content in a subject.

Carney, Anderson, Blackburn, and Blessing (1984) found that preteaching vocabulary terms to fifth-grader students had a significant facilitative effect on their acquisition and retention of social studies content. The most pertinent finding was the students who were pre-taught key concept vocabulary scored statistically significantly higher ( $p < .05$ ) on tests of both immediate and long-term comprehension of social studies material than students who had not engaged in the preteaching activities. They provided an instructional sequence for teachers to follow in pre teaching concept vocabulary was outlined.

Eeds and Cockrum (1985) reported the results of a classroom-based study comparing the effectiveness of three methods of teaching word meaning. One method (Teacher Interaction) taught target words by helping students expand an already existing conceptual network; the second (Dictionary) had students pair the words to be learned with dictionary definitions; and the third (Control) had students read the words in a meaningful context of a junior novel. During this two-week study, 85 words from a novel were identified as possible target words. Students took the pretest and based on their scores were randomly assigned to one of the three treatment groups. After the first week, all the students took a posttest over the first 40 word they had learned. Three weeks later, the same test was given to check long-

term retention. The teacher interaction group had the best retention, followed by the Dictionary and Control groups. A suggested sequence of steps for presentation of new vocabulary is described.

McKeown, Beck, Omanson, and Pople (1985) described a study designed to identify the relative contribution of the nature of instruction and the frequency of encounters in bringing about word knowledge proficiency in fourth-grade children. Students received one of three types of instruction: 1) traditional instruction requiring only associations between words and definitions, 2) rich instruction presenting elaborated word meanings and diverse contexts, 3) extended/rich instruction, which added activities to extend use of learned words beyond the classroom. Frequency was manipulated by providing either 12 or 4 encounters with each word. Outcomes were measured on tasks of definition knowledge, fluency of access to word meanings, context interpretation, and story comprehension. Results obtained by McKeown, Beck, Omanson, and Pople indicated high frequency of word exposure yielded better results on all measures. Extended/rich instruction showed an advantage over rich instruction in fluency of access and story comprehension, while rich instruction showed an advantage over traditional in context interpretation and story comprehension. Instruction based only on definitional associations is sufficient to affect word knowledge and that instruction that affects word definition knowledge will not necessarily affect comprehension.

Nagy, Herman, and Anderson (1985) examined whether eighth grade students acquired measurable knowledge about unfamiliar words while reading natural text. Fifty-seven eighth grade students of average and above average reading ability read either an expository or a narrative text about 1,000 words in length. After reading, subjects completed two vocabulary assessment tasks on 15 target words from each passage (the unread passage served as a control measure, an individual interview and a multiple-choice test both designed to tap partial word knowledge of word meanings). Results of within subject, hierarchical regression analysis showed a small but statistically significant gain in word knowledge from context. This suggests that incidental learning from context accounts for a substantial partition of the vocabulary growth that occurs during the school years. Additionally, it indicated that good readers had a higher likelihood of learning word meaning from context than poor readers. The number of words from the unread text that both groups knew (about half) seems to indicate that their vocabularies contain large numbers of partially known words. This would suggest that the most effective way to produce large-scale vocabulary growth is through the process of students actually reading.

Anders and Bos (1986) explained semantic feature analysis, a technique that helps students learn new vocabulary by seeing how words are alike and how they are different. Semantic feature analysis suggests that knowledge is hierarchically organized and that teaching students relationships between and among prior knowledge and new concepts will help students better learn these new concepts and integrate them into their cognitive structures. The teacher begins by identifying big concepts (superordinates) as well as details (subordinates). A relationship chart is then created with important ideas along one axis and important vocabulary along the other. These are given to each student, and a discussion is conducted so that students can identify the relationship between superordinates and subordinate items. After completing the chart, students read the assignment to confirm their predictions. Following the reading assignment, students review the relationship chart, changing any of the relationships if necessary. Anders and Bos stated, semantic feature analysis activates and instantiates prior knowledge; relates superordinate and subordinate concepts hierarchically; and employs predicting, confirming, and integrating strategies.

Blachowicz (1986) described six strategies for teaching vocabulary that are alternatives to a vocabulary notebook: 1) exclusion brainstorming, 2) knowledge rating, 3) connect two, 4) semantic features analysis and semantic gradients, 5) concept ladder, and 6) predict-o-gram. These strategies are designed to actively engage students in creating semantic connections between what is already known and new vocabulary and encourages them to use new words in contextual situations. Exclusion brainstorming and knowledge rating are techniques for activating what students already know about something. Connect two; semantic feature analysis, semantic gradients, concept ladder and predict-o-gram are techniques to making preliminary connections. All of these techniques result in a graphic representation of information about words, what is known, and what is not known. They highlight the importance of vocabulary and help students develop a strategy for paying attention to and hypothesizing about words.

Carr and Wixson (1986) proposed four guidelines to help educators evaluate vocabulary instruction: 1) Instruction should help students relate new vocabulary to their background knowledge. 2) Instruction should help students develop elaborated word knowledge. 3) Instruction should provide for active student involvement. 4) Instruction should develop students' strategies for acquiring new vocabulary independently. The use of theoretically sound guidelines for evaluating vocabulary instruction provides not only for improvement in reading comprehension but in effective teaching as well. Factors such as integration of vocabulary with background knowledge, developing elaborated word knowledge, active

student involvement in learning, and encouraging students towards independence in learning are all outcomes of this technique. Instruction is improved because of the planning efforts of the teacher.

Graves and Prens (1986) pointed out the different word learning tasks students face, and described different levels of word knowledge. Three word learning tasks include: 1) learning to read words in their oral vocabulary; 2) learning to read words which are neither in their oral or reading vocabulary but for which they had an available concept; and 3) learning to read words for which they do not even have an available concept. To further complicate this process, the authors identified three levels of word knowledge that students possess: 1) an unknown word is just that, unknown; 2) acquainted word is one whose definition is recognized but only with some deliberate attention; and 3) established, one whose meaning is easily, rapidly, and automatically recognized. They presented three types of cost involved in instruction: 1) out of class time for the teacher to prepare the instruction; 2) in class time when students and teacher work together; and 3) in class time when students work without the aid of the teacher. Words that students have in their oral vocabulary can be taught relatively quickly by writing them on the board or overhead and pronouncing them for the students. Words that students had a concept of can be looked up in a dictionary or the teacher can teach them directly. The dictionary method is relatively time and labor intensive for the student while teaching them directly requires more teacher preparation time and less student defining time and thus more time available to study and learn the vocabulary. Teaching new or difficult concepts is more time intensive for both students and teacher. It may require defining and giving essential attributes; distinguishing new concepts, their similarities and differences to concepts that the student either knows or will learn; providing students with examples and non-examples and explaining why they are examples or non-examples. The authors concluded that there is no best way to teach vocabulary. There are costs and benefits to each method and evaluation needs to be made as to what the overall goal of the instruction is and what time constraints need to be observed, along with the benefits students will derive from the instruction.

Haggard (1986) presented the Vocabulary Self-collection Strategy, which differs from traditional instruction through its use of student generated word lists and its emphasis on students' personal experience and world knowledge. In content area subjects, students' attention is focused towards locating words and terms that will assist them in acquiring content knowledge, using groups to identify related words, and then combining words from each group to compile a class list. The use of VSS can also be applied to vocabulary self-collection that can arise from encountering concepts and new words that require students to increase

their vocabulary knowledge in order to improve their comprehension. Haggard noted five motivators for students to learn new vocabulary: 1) internal motivation, 2) written texts, 3) older students develop systematic, personalized strategies for word learning, 4) words that label or define experiences are learned more quickly and easily, 5) collecting words increases a person's sensitivity to new words and enjoyment in word learning. VSS appears to stimulate students to increase effort to learn vocabulary because of the element of student choice in creating the list of words to learn. Additionally, the elements of enthusiasm and interest help develop independent learning behaviors which help students build and expand upon word knowledge they already possess.

Ruddell (1986) described vocabulary learning as a process model and criteria for evaluating instructional strategies. He begins by stating that one factor which is critical to student's success in comprehension is the reservoir of concepts and labels that allow for interaction with written and oral language. The goal is to develop an understanding of the interactive nature of the reading process with an emphasis on vocabulary learning, and to formulate criteria based on this understanding, to evaluate approaches to vocabulary development. Reading is an interactive process that requires the reader to respond to features in text. A diagram of the model of the interactive reading process is presented which addresses factors in the reader's environment, reader's knowledge and utilization, and procedural knowledge. Ruddell concluded that establishing motivation and desire to acquire new vocabulary is at the heart of vocabulary acquisition. Students must understand how new word knowledge will be used and the academic and personal value of it, if long-term acquisition of vocabulary knowledge is to be achieved.

Schatz and Baldwin (1986) reported on three studies conducted to determine the extent to which context helps students infer the meaning of unknown words. In experiment one, students in grades 10 and 11 were randomly assigned to either a context or no-context condition. The no context group read low-frequency words in isolation. The context group read the same words embedded in passages taken from novels. Experiment two was a repeat-measures study in which 39 students in grade 11 read sets of words in isolation and in passages taken from four different content areas. Experiment three was a systematic replication of Experiment one in which subjects were required to write definitions for the low frequency words instead of choosing the definitions in a multiple-choice format. In none of the three experiments was there any statistically significant effect due to context:  $t(99) = .552, p > .10$ ;  $F(1, 38) = .227, p > .10$ ; and  $t(83) = -.29, p > .10$ , respectively. This indicated that context had little effect on high school students' ability to infer the meaning of unfamiliar words and instructional strategies that prioritize context clues

should be reexamined.

Stahl (1986) commented on three principles that characterize effective vocabulary instruction: contextual and definitional information, active processing, and multiple exposures. The first principle addresses the relationship of the word with other words but also being able to interpret meaning in a particular context. The second principle addresses associational, comprehension, and generational processing. Associational processing is when a student links a word with one of its synonyms. Comprehension processing is where the student demonstrates an understanding of a word by application such as classifying the word or fitting the word into a sentence blank. Generational processing involves taking an association and generating a novel product such as using the word in a new manner. The third principle looked at how repeated exposure to a word in various contexts can increase overall comprehension. Stahl stated that research had shown that teaching some words directly can substantially improve text comprehension, if the words are learned well. To teach words well, one needs to include definitional and contextual information, involve students in active processing, and give multiple exposures to students. It also involves making choices as to which words are most important for the students to learn, and what methods works best for conducting instruction.

Stahl and Fairbanks (1986) reported a meta-analysis of studies concerning the effects of vocabulary instruction on the learning of word meanings and on comprehension. Studies were identified from a computer search of the ERIC document service, past reviews and bibliographies. To be included, studies had to meet two criteria. First, the study had to use one of two types of control groups. Either a no-exposure control in which the group did not get exposure of any type to the target words prior to the posttest, or a no-instruction group where students are normally given the target words paired with their definitions and told to study them any way they would like. Second, it had to provide the statistical information needed to derive an effect size. This analysis was done to examine two questions: 1) Does vocabulary instruction have a significant effect on children's comprehension of text? 2) What types of vocabulary instruction are most effective? Results indicated, for the first question, that a mean effect size of .97 could be attributed to vocabulary instruction for comprehension of passages containing taught words and a .30 for global measures of comprehension, both of which are significantly different from zero. For the second question, it was suggested that the most effective vocabulary teaching technique included both definitional and contextual information in their programs, involved students in deeper processing, and give students more than one exposure to the to-be-learned words (see Stahl, 1986). Stahl and Fairbanks

additionally noted the mnemonic keyword method, which uses concrete keywords that sound like the target word to form an interactive image for linking the target word to its definition, was found to have reliable effects on recall of definitions and sentence comprehension.

Drum and Konopak (1987) described how people acquire and subsequently distinguish various meanings for words encountered in context. They list four sources for interpreting the meaning of a word: 1) situational considerations indicate the learner's purpose and provided a guide for further instruction to attain some specific goals. 2) Topic domain delineates the content structure of a text in that domain as well as the pertinent concepts. 3) Prior knowledge factors, tied to situational considerations, indicate a continuum of knowledge, so that repeated exposure to a variety of contexts can produce incremental gains. 4) Linguistic context includes cues within the word itself as well as throughout the text as a whole.

Duin and Graves (1987) investigated intensive vocabulary instruction as a prewriting technique. Three methods were used to teach vocabulary to students prior to having them write an expository essay: intensive vocabulary and writing instruction, intensive vocabulary instruction alone, and traditional vocabulary instruction. The study used 80 seventh-grade students taught 13 target words over 6 days. Dependent measures included vocabulary knowledge as measured on a multiple-choice pre-and posttests, the number of target words used in the pre- and posttests essays, quality of writing on the pre-and posttest essays was measured by two types of writing scales and attitude as reported on attitude inventories. Results indicated the vocabulary and writing group consistently outperformed the other two groups, and the vocabulary alone group consistently outperformed the traditional vocabulary group. Enthusiasm for learning and using new words also varied between the groups in the same relative manner. Duin and Graves stated that the central implication is that teaching a related set of words to students before they write an essay in which the words might be used can improve the quality of their essays.

Nagy and Herman (1987) looked at the breadth and depth of vocabulary knowledge and the implications for vocabulary acquisition and instruction. The authors estimated that the average schoolchild is exposed to 10,000 different words a year, further emphasizing the importance to teaching vocabulary as a part of teaching content, particularly in subjects like science and social studies, which are written using specialized terminology. However, they also point out that explicit vocabulary instruction alone cannot produce substantial gains in vocabulary knowledge. Word learning is not memorizing synonyms or short definitions, but must consist of learning to label concepts that are embedded in larger schemata. Instruction

in vocabulary skills must be teamed with exposure to reading, where students will have the opportunity to encounter words repeatedly being used in more than one context. Other sources from which students learn new vocabulary include the speech of peers and parents, classroom lectures and discussions, free reading and television. They also point out that good readers, who encounter an unfamiliar word, try to use context clues to derive the meaning. They will refine its definition over repeated exposure to the word in other contexts until the word becomes understood. This ability to use context clues improves with exposure gained from reading. Other characteristics include connections between student's prior knowledge and the new word, exposure to meaningful context, and active involvement on the part of the student.

Sternberg (1987) presented three basic facts about vocabulary: 1) "there is no disagreement that the typical adult has in their vocabulary tens of thousands of words", 2) "One's level of vocabulary is highly predictive, ... or one's level of reading comprehension", 3) "Vocabulary is probably the best single indicator of a person's overall level of intelligence." From this, he presented a thesis that most vocabulary is learned from context and consists of three basic ingredients: 1) the knowledge-acquisition process, 2) contextual cues, and 3) moderating variables, which explain it. Sternberg then presented three processes of knowledge acquisition: 1) selective encoding (separating relevant from irrelevant information for the purpose of formulating a definition. 2) Selective combination- combining relevant cues into a workable definition. 3) Selective Comparison- a process by which new information about a word is related to old information already stored in memory. He talked about ways contextual cues provide the basis upon which prior knowledge acquisition works:

- 1) temporal cues- cues regarding the duration or frequency of X.
- 2) Spatial cues- cues regarding the location of X.
- 3) Value cues- cues regarding the worth or desirability of X.
- 4) Stative description cues- cues regarding properties of X.
- 5) Functional descriptive cues- cues regarding possible purposes of X.
- 6) Causal/Enablement cues- cues regarding possible causes of or enabling conditions of X.
- 7) Class membership cues- cues regarding one of more classes to which X belongs.
- 8) Equivalence cues- cues regarding the meaning of X, or contrasts to the meaning of X.

Sternberg also noted six moderating variables that make it either easier or harder to figure out the meaning of a word: 1) the number of occurrences of the unknown word. 2) Variability of contexts in which multiple occurrences of the unknown word appear. 3) Importance of the unknown word to understanding the context in which it is embedded. 4) Helpfulness of surrounding context in understanding the meaning of the unknown word. 5) Density of unknown words. 6) Usefulness of previously known information in cue utilization.

Research results indicated that training in any of the three aspects of decontextualization resulted in a significant gain in ability to figure out the meaning of new words. Sternberg concluded by presenting four caveats to the use of decontextualization. 1) Teaching vocabulary using context is probably not going to result in gains that are rapid or as large as other methods. 2) Decontextualization skills are appropriate for secondary students and the general adult population, but not for highly verbal adult subjects. 3) A vocabulary-building skills program must motivate the students by showing them the relevance of skills being taught. 4) It needs to be theory based, not based on intuitions.

Duin and Graves (1988) described a strategy for teaching vocabulary as writing prompt. The strategy involves choosing words that center on a common topic and using examples that clarify word meanings, linking them to students' experiences. Follow-up activities are arranged so that networks of meanings are established among the words and matching activities to aid the student in acquiring new meanings for words, and out of class activities that encourage greater use and recognition of new words. A sample vocabulary study-unit is presented. The authors tested the effectiveness on three seventh-grade classes: One class was taught the vocabulary technique as described, a second class was taught just the vocabulary instruction portion without the writing assignments, and the third received traditional vocabulary instruction involving writing the definitions and completing open-ended sentences which used the words. Results of a final multiple-choice test and students' performance on an essay test showed that both forms of intensive vocabulary instruction were more effective than the traditional vocabulary instruction method. Duin and Graves indicated that students who received intensive vocabulary and did the writing assignments learned 97% of the words and used an average of 7 of the 13 words taught in their essay. Those students who received just the intensive vocabulary training learned 92% of the words and used an average of 5 of the 13 words in their essay. Students taught using the traditional vocabulary method learned 75% of the words and used an average of less than one of the words learned in their essay.

Hargis, Terharr-Yonkers, Williams, and Reed (1988) looked at the number of repetitions of vocabulary words necessary for word recognition by mildly handicapped students. The authors stated that efficient reading occurs when almost all the words encountered are firmly fixed in long-term memory. One of the factors identified in research that causes learning disabled students difficulty is the insufficient practice these students get in learning to recognize words, when they are required to use regular reading materials. Seventeen students ranging in age from 8 years 7 months to 13 years 9 months were taught words with which they were unfamiliar. Decodable words are those having a complete sound-to-letter correspondence. Non-decodable words contain letter sequences with sounds that are different from the sounds most associated with them. Sixteen words were identified: four with high imagery and decodable, four were high imagery and non-decodable, four were low imagery and decodable and four were low imagery and were non-decodable. The words were divided into 2 subsets, one presented using flashcards in isolation and the other presented in context in a story. The student being able to identify the word three consecutive times when presented on a flashcard determined mastery of the word. The authors determined that mildly handicapped students need an average of 46 repetitions in context for a word to be recognizable on a word recognition test. They also found that low imagery words required significantly more repetitions and that high imagery words are as learnable in isolation as in context. Hargis, Terharr-Yonkers, Williams, and Reed contended that these findings support the idea that repetition is extremely important in learning to recognize words.

Jenkins, Matlock and Slocum (1989) examined the effects of teaching individual word meanings and derived word meaning from context using two approaches to vocabulary instruction. One strategy emphasized direct teaching of the individual meanings for a set of unfamiliar words. The second strategy emphasized teaching students to derive word meaning from sentence context, rather than teaching specific meanings. Each strategy was implemented with low, medium, and high amounts of practice, allowing comparison across levels of implementation as well as between treatments. Jenkins, Matlock and Slocum concluded that instruction in individual word meanings effectively teaches specific word meanings, training in derived meaning from context improves students' ability to derive word meanings. More practice on individual meanings led to higher levels of mastery of the particular words taught. Instruction in derived meanings was effective with medium and high amounts of practice, but not with less practice.

White, Power, and White (1989) discussed two questions 1) whether it was worthwhile to spend time teaching children in the middle grades to derive the meaning of words through morphological analysis

(breaking unfamiliar words into parts) and 2) How many new words will they be able to understand using morphological knowledge? These questions were addressed in two studies. Study one investigated the prevalence, at various reading levels, of words with one of four frequent prefixes, the proportion of these words that could result in “misleading analysis,” and the proportion that exhibited spelling and pronunciation changes in suffixation. In the second study, they examined students’ knowledge of prefixes, suffixes, and root words. A stage model of morphological analysis was proposed and used to derive estimates of the number of prefixed words that third- and fourth-grade students would be expected to analyze correctly in a year’s time, given certain assumptions about reading, root knowledge, and affix knowledge. The resulting estimates support the practice of morphological teaching at Grade 4 and above, provided that the instruction is (based on knowledge of frequently occurring affixes, and strategic and contextualized, preparing students to use morphological cues and to deal with unanalyzable words. White, Power, and White stated this helps to explain the rapid growth in vocabulary that occurs during the elementary years.

## Chapter 5—The 1990s

The purpose of this study was to identify the research related to methodologies of teaching content area reading reported in major research journals and research reports during the period between 1970 and 1999.

Chapter 1 presented the introduction, provided a statement of the problem, the purpose of the study, need for the study, basic assumptions, delimitations and limitations, definition of terms, procedures, and a statement of the organization of the study.

Chapter 2 dealt with a historical overview of major influences in reading instruction, and a review of the early history of content area reading leading up to the increase of interest in content area reading in the 1970s.

Chapter 3 discussed the relevant research reported in content area textbooks that were published in professional journals during the 1970s.

Chapter 4 looked at the relevant research reported in content area textbooks that were published in professional journals during the 1980s.

This chapter deals with the relevant research reported in content area textbooks that were published in professional journals during the 1990s.

In the early 1990s, resistance to incorporating content area reading instruction into classroom instruction became an issue because of changes taking place in preservice teacher education programs. While many established secondary teachers still felt that teaching reading was not their job, but was the responsibility of elementary school teachers, teachers coming out of teacher train programs began using new learning strategies that were designed to aid students in learning and comprehension. Roe, Stoodts, and Burns (1991); Vacca and Vacca (1999); and Daniels and Zemelman (2004) and others all go into detail concerning the importance of students mastering very specific reading skills in order to learn successfully. They believed that students needed to practice vocabulary-building strategies such as scaffolding, brainstorming, and collaborating to enhance learning in order to improve their reading skills, speed, and level of comprehension. Students need to practice skills. Students needed to incorporate skill strengths, be taught how to work cooperatively, to use Think-Alouds and Question-and-Answer Relationships to increase their comprehension of material. They also needed to learn that the writing patterns used in the social studies are of five primary types (cause-and-effect, definition or explanation, chronological order, compare

and contrast, and question-and-answer) and the ability to recognize the patterns will help the students to learn the material more easily. The integration of trade books into the curriculum is also a major emphasis of these authors.

## **CURRICULUM**

### **Alternative Assessment**

One issue that arose was an attempt to find alternative ways, other than standardized testing, to measure student mastery of content material.

Abruscato (1993) talked about early results and tentative implications from the Vermont Portfolio Project, which had evaluated the progress of fourth and eighth grade students in reading and mathematics using assessment samples of student products. The results suggested that improvement is still needed in both subjects. The project emphasized alternative assessment and came about from the need of determining the most appropriate strategies for assessing the performance of students and schools since many teachers felt that standardized tests had serious limitations. Portfolios contained:

- 1) a table of contents.
- 2) a "best piece".
- 3) a letter, a poem, short story, play, or personal narrative.
- 4) a personal response to a cultural, media, or sports exhibit/event, or a book, current issue, math problem, or scientific phenomenon.
- 5) one piece from any curriculum area other than English or language arts (fourth grade) and three prose pieces from any curriculum area other than English or language arts (eighth grade).
- 6) a piece produced in response to the uniform writing assessment, as well as related outlines, drafts, etc.

The portfolio system was implemented in 1991-1992 school year, and was assessed using five criteria: purpose, organization, details, voice/tone, and usage/mechanics/grammar. The assessment report done at the end of that time showed that eighth grade girls write better than eighth grade boys do and that level of parental education was closely and positively related to student's writing achievement. Some additional facts included: 1) 71% of the students who watched no television were in the upper range, whereas only 52% of those who watched four or more hours per day were in the upper range, 2) Students' leisure reading habits also correlated with their writing performance. Sixty-five percent of students who read at least once a week for pleasure reached the upper range, whereas only 37% of those who read once a

year or less for pleasure scored in the upper range. 3) Math assessment dealt with four criteria related to problem solving and three with the ability to communicate results. 1) Students understand problems, but they need much more work in building their repertoire of approaches and strategies. 2) Most problems are still right-answer driven, and few students pause after solving a problem to ask themselves, so what. 3) Only 17% of fourth graders and 6% of eighth graders used mathematical language appropriately most of the time. 4) Only 5% of fourth graders and 7% of eighth graders demonstrated accurate and appropriate use of mathematical representation. Abruscato noted that many factors will influence the projects future direction including availability of resources and development of teacher support for the portfolio assessment process.

Worthen (1993) described how alternative assessment differs from more traditional assessment forms and outlined the factors (demands for accountability, negative consequences of high-stakes testing, and increasing criticisms of standardized tests) that have cause the recent interest with using alternative assessment. Worthen began by pointing out that the terms “direct assessment”, “authentic assessment”, “performance assessment”, and “alternative assessment” all exhibit two central features: 1) All are viewed as alternatives to traditional multiple-choice, standardized assessment tests, 2) All refer to direct examination of student performance on significant tasks that are relevant to life outside of school. Also identified were some major issues involving alternative assessment, including:

- Conceptual Clarity: There is a lack of uniform usage of one term for alternatives to standardized testing.
- Mechanisms for Self-Criticism: There is a lack of disagreement among proponents of alternative assessment, which has led to some concern about the one-sidedness of this topic. A well-informed majority of teachers who endorse the use of alternative assessment is necessary for its success.
- Educator Support: The question is, to what extent teachers might go to “ensure” that their students score well on the alternative assessment and how well teachers are prepared in the relevant assessment skills.
- Technical Quality and Truthfulness: There is little agreement about just what the standards and rules of evidence should be and what technical specifications and criteria should be used to judge the quality of the assessments.
- Standardization of Assessment Judgments: Since all students do not progress equally and following the same progression of learning, use of scoring rubrics removes subjective assessment as one of the traditional roles educators use to assess progress which can vary from student to student.
- Ability to Assess Complex Thinking Skills: Can we be sure that we are measuring reasoning ability, problem-solving skills, or other higher-order skills just because we use some alternative forms of

assessment?

-Acceptability to Stakeholders: There are three possible outcomes of going to alternative assessment:

- 1- The public supports the implementation of alternative assessment and it is successful.
- 2- The public supports the implementation of alternative assessment that subsequently fails.
- 3- The public rejects alternative assessment at the outset. (Most likely, in those cases where

accountability-oriented stakeholders felt that alternative assessment measures would not provide them with readily manageable information)

-Appropriateness of High-Stakes Assessment: There are three questions that need answered:

1- Does alternative assessment provide sufficient standardization to defend high-stakes decisions based on such measures?

2) Will ethnic minorities score better on alternative assessments than on traditional measures, or more poorly?

3) Will the inevitable legal challenges aimed at high-stakes decisions based on alternative assessments be more difficult to defend because the validity of such measures may be less apparent to psychometricians and thus less convincing for the courts?

-Feasibility: Is alternative assessment feasible for large-scale efforts to assess students' performance? -

Continuity and Integration Across the Educational System: Why is it necessary to have one or the other (traditional vs. alternative assessment)? If alternative assessment is more equitable for assessing instructional achievement in the classroom, why not use it to assess that portion of the educational system. If traditional tests are more efficient and can inexpensively collect assessment data for large groups of students that need to be reported to district, state, and national organizations for apprising student performance, why not uses those measures also?

-Use of Technology: What role will technology play in alternative assessment? This question has not yet been answered.

-Avoidance of Monopolies: There is not a universally recognized system of alternative assessments that can be used. This results in each educational system having to develop their own form and type of alternative assessment. The advantage of this is that local assessment measures are tailored to local curriculum, a criticism that has been leveled against professional testing companies who produce the traditional assessment texts. The other side is that evaluation of alternative assessment based on local curriculum makes it difficult to compare students in the larger arena of college admissions and scholastic achievement.

Worthen concluded that these issues need to be addressed before alternative assessment can be seen as a viable alternative to traditional assessment that is currently in place. Conceptual clarity—the lack of uniform usage of one term for alternatives to standardized testing.

Wagner, Brock, and Agnew (1994) discussed developing literacy portfolios in teacher education courses. They describe their initial experiences using portfolio assessment in sections of a language arts methods course. The purpose for the portfolio was to document students' understanding of themselves and allow them to demonstrate evidence of their literacy functioning in the areas of: 1) earliest memories about learning to read and write. 2) reading for different purposes. 3) writing for different purposes. 4) using all stages of the writing process 5) mastery of a word processing system. 6) oral interpretation of children's literature. 7) significant literacy role models in their own or others' experiences. 8) talking and listening for different purposes. Students' interpreted data in the above listed areas to show a) awareness of the dimensions of their own literacy, b) describe their roles as teachers of literacy, and c) projected their own further literacy goals. Wagner, Brock, and Agnew described the procedure followed during the course as students assembled their portfolio. They listed 4 results of using this portfolio projects: 1) Allowed them to get to know their students better- why they wanted to become teachers, their personal experiences, their developing views of language, learning, and teaching. 2) Provided a way of integrating course content, process learning, and instructional strategies simultaneously. 3) By participating, students became more aware of a form of portfolio assessment. 4) Provided students with opportunities to engage in reflective thinking, to interact with their peers, to make informed decisions, and to set personal learning goals.

### **Curriculum Issues**

Curriculum issues also were an item of interest in the 1990s. Some research focused on specific programs that seemed to offer more student oriented classroom learning such as cooperative learning or a reading program that presented improved comprehension, some looked at evaluating what teachers were actually doing in the classroom, and some looked at use of materials both textbooks and other types of materials such as trade books.

Alvermann, O'Brien, and Dillon (1990) looked at what middle school teachers were doing in class when they reported they were engaged in having a classroom discussion. The authors observed 24 middle school teachers in the Southeastern U.S. over a period of two semesters as they conducted discussions of content reading assignments. Teachers were asked to define and describe a good discussion. Five teachers were videotaped and interviewed as they watched a videotape of a discussion in their classroom. They found

that the teachers' purpose appeared to influence the type of discussion they conducted and that their actual discussion seldom resembled their expressed definitions of a good discussion. When their purpose was to define terms, give information, or review for a test, the discussion consisted mainly of lecture/recitation or recitation. Worksheets and textbooks were frequently found in this type of discussions as well. When the purpose was to facilitate comprehension, the discussion was more likely to be open forum. Materials used here consisted of videotapes, films, and notes. Although most teachers could provide a good definition of a discussion, actual discussions seldom resembled those definitions.

Davis (1990b) described the Thematic Experience Approach, which is designed to build on positive experiences that enlarged the high school dropout's perspective while building self-esteem, background knowledge, and reading ability. Ideas for thematic units were brainstormed focused on topics of high interest to teenagers and appropriate learning experiences suggested. Each teacher was asked to structure reading materials around the theme. Materials used included fiction, nonfiction, and functional reading. Described is a sample unit dealing with legal rights as presented in a history class, a futures class, and two language arts classes. First, prior student knowledge was activated by providing them with a short news article about a legal question to be read before a class discussion. The language arts classes concentrated on reading legal articles from news magazines, nonfiction pamphlets about the law, and practical reading such as sample leases, tax returns, and loan applications. The students also read *Twelve Angry Men*, which showed how one juror swayed an entire jury into his way of thinking. In history class, the student studied Constitutional rights of American citizens and they had an opportunity to observe law school students practicing their courtroom techniques. The futures class spent the semester discussing possible limitations of the U.S. Constitution in light of rapid advances in technology. A simulation was used as one part of the class where students considered the legal problems of a trial between six clones, one of whom had committed a murder. The legal difficulty was how to identify the guilty one without punishing the innocent ones. Davis believed that this type of learning experiences would benefit unmotivated teenagers, some of whom may be in the typical high school population.

Sinatra, Beaudry, Stahl-Gemake and Guastello (1990) discussed combining visual literacy, text understanding, and writing for culturally diverse students. Visual literacy is a construct that examines the influence of the visual processing system upon the acquisition of verbal literacy. Described is how to use photo essays and different types of semantic maps with culturally mixed middle school students. Students were assigned to study a culturally and historically significant area of their city. They were given donated

cameras and sent out in pairs to document portions of the area. These photos were then converted into storyboard format, and students organized a story line as they went along. Some students presented their story in a sequential manner (A day in the life of our principal), some used a thematic approach (problem areas in the city), and some classified photos into similar related topics (types of architecture in the city). Essays were written that verbalized what was shown on their storyboards. Sinatra, Beaudry, Stahl-Gemake and Guastello stated that they felt there was significant learning that took place because of this experiment.

Alvermann and Moore (1991) looked at reading practices in grades 7 through 12. They stated that subject-matter specialization is a central difference between elementary and secondary schooling. Unlike the child-centered environment and self-contained structure of elementary school, secondary schools are characteristically departmentalized according to subject matter specialties. Secondary teachers' goals are bound to the contents and skills related to their disciplines, whereas elementary teachers focused on basic literacy and numeracy skills. The authors examined six secondary reading methods textbooks and compiled a list of learning-from-text strategies that the authors of these textbooks recommended using with secondary students. Added to this list were new strategies found in chapters 20 and 21 of the first volume of *Handbook of Reading Research* (Pearson, et al., 1984); chapter 3 through 8 in *Landscapes: A State-of-the-Art Assessment of Reading Comprehension Research, 1974-1984* (Crismore, 1985); and chapter 28 of the *Handbook of Research of Teaching* (Wittrock, 1986). The following databases were searched for studies involving one or more strategies on the compiled list: *Citations Index of Journals in Education*, *Resources in Education*, and *Dissertation Abstracts International*. They compiled answers to five questions for each study they looked at: 1) Was the strategy effective, ineffective, or mixed? 2) Was the experimental treatment involving the strategy added onto, rather than incorporated into, the normal classroom routine? 3) Did the experimenter, rather than the classroom teacher, introduce the treatment? 4) Was the text used in the experiment borrowed from another source or constructed specifically for the experiment rather than selected from among the texts routinely used in the class? 5) Was the strategy's effectiveness tested without first providing students with instruction in its use? Alvermann and Moore's results are compiled into two tables- one focusing on teaching strategies and the other focused on learning strategies.

#### Teaching Strategies-

In 62 percent of the studies, a statistically significant difference was found that favored a teaching strategy group over a control or comparison group.

In 27 percent of the studies, no facilitative effects of the studies were found.

In 12 percent of the studies, mixed results were reported.

Overall results of research on teaching strategies suggest moderate support for these strategies when they are used with secondary students in situations similar to those described in the experimental conditions. Teaching strategies had their greatest effect when students are actively involved in manipulating conceptual relationships and integrating new information with old knowledge.

Learning Strategies-

61 percent of the studies found statistically significant differences that favored learning strategy group over a control or comparison group.

26 percent of the studies found no facilitative effects of the studies.

12 percent of the studies reported mixed results.

Overall the results of the research, with few exceptions, suggests that there is moderate support for these strategies when they are used by secondary school students in situations similar to those described in the experimental conditions under which they were tested. Learning-strategies instruction is generally most effective when it is direct and long term, although there is some evidence that shorter periods of instruction may be just as effective.

The conclusions that Alvermann and Moore arrived at suggest a limitation to generalizing research studies results to general classroom situations:

65 percent of the studies tested the effectiveness of a strategy under conditions that were part of neither the regular curriculum nor the classroom routine.

62 percent of the studies the experimenter, rather than the regular classroom teacher, introduced the intervention.

76 percent of the studies on teaching and learning strategies, the text used in the experiment was either borrowed from another source or written specifically for the experiment. i.e., the text was not the one routinely used in the class.

50 percent of the studies, students received neither instruction nor practice in how to use the strategy under investigation prior to the start of the experiment.

Beck, McKeown, Sinatra, and Loxterman (1991) looked at the using a cognitive processing perspective to revise a fifth grade social text and to describe the effects of those revisions and demonstrate their effects empirically. Four segments of text from a history text about the period leading to the American Revolution and their revised counterparts were presented to 85 students, 45 fourth- and 40 fifth-

grade students. The original text materials were presented to the fifth-grade students in November; the revised material was presented to the fourth-grade students in May of the same school year. Students were presented with the text materials in individual sessions with an examiner and were asked to recall what they had read and to answer questions on the material. Material for the experiment included a sequence of four passages drawn directly from a fifth-grade social studies textbook (Silver, Burdett, 1984). The general goals of the revised text was to create a passage that would assist the reader in connecting pieces of text information, combining that information with knowledge to develop a coherent text representation. The revised text was based on a causal sequence of events leading to the revolution, and presented the information in such a way as to expose the reasoning that connects a cause to an event and an event to a consequence. Beck, McKeown, Sinatra, and Loxterman's findings point to the fact that students who used the revised text were able to better recall material and answer more questions correctly than students using the original text. They concluded that a text-processing approach to comprehension was a viable solution.

Gehlert (1991) described an "Out-patient" reading class that can be created to assist older high school students with problems they encounter with reading, and does not entail them having to sign up for a daily reading class. Outpatient reading is an individualized 1:1 ratio program that can accommodate all reading abilities and utilizes a reading teacher to run the session and the support of content teachers to release students who need help. Students are scheduled on a recurring basis (two to four times a month) and during the meeting with the reading teacher, they evaluated and talked about the student's progress. The student is required to read 20 minutes or more daily at home a book, magazine, newspaper article, or essay chosen by the student. Students are also asked to keep a brief journal of their daily readings. Other activities included: 1) using a word processor to write a brief response to material read. 2) Students and teacher compose a brief description and evaluation of the student's effort. 3) Some work may be done on experience-based vocabulary words. 4) Some work may be done on learning strategies or specific content area study skills. 5) When students finish reading a book they use a word processor to type a short review consisting of a one- paragraph plot summary and a one paragraph personal reaction to the book. Gehlert stated that most high school remedial readers needed to develop fluency with different types of reading material before they can address reading problems in specific content areas.

Haas (1991) stated that the social studies in the primary and elementary school are often rationalized as providing a foundation in content for junior and senior high students. Five selected primary (1<sup>st</sup> through 4<sup>th</sup> grade) social studies series (Laidlaw, Heath, Silver Burdett, Scott, Foresman, and Follett)

published between 1983 and 1985 were examined for history and social science concepts presented, and analyzed by discipline for presence and sequencing across series. Four specific questions were addressed: 1) Are concepts from all the academic disciplines represented in the primary textbooks? 2) Are the concepts foundational to the academic disciplines that form the knowledge foundation of the social studies? 3) What are the most frequently appearing concepts from history and the social sciences presented in the primary textbooks? 4) Is there an agreement on which concepts to include and the sequence of the concepts in the selected texts? A set of agreed upon social studies concepts was created and the researcher read the text of each book and recorded all the social science and history concepts that are named. The number of occurrences of each concept was not annotated. Concepts were not combined or grouped together based upon a common root definition except for singular and plurals of words. Concepts were grouped into the academic disciplines of anthropology, economics, geography, history, political science, and sociology. Concepts identified in more than one discipline were recorded for all disciplines in which they occurred. Concepts were classified into those that are fundamental to the discipline and those that are not fundamental. Data analysis showed the total number and percent of concepts in textbooks by publisher and discipline (Table 1); number and percent of concepts in textbooks which authorities identified as fundamental by publisher and discipline (Table 2); and most frequent concepts presented for Geography, Economics, and Political Science (Tables 3 through 5). These represented the three largest disciplines covered by the textbooks (49%, 22% and 15% respectively). Haas concluded that there is not a lot of agreement among the textbook publishers as to what to include in textbooks for grades 1 through 4. Of the 48 most frequently appearing concepts, only 15 appeared at least once in all five series. Economics and political science concepts are more likely to appear in all five series than geography concepts. Publishers also do not agree on grade placement for presentation of disciplines. Haas concluded that the assumption that social studies books combine the academic disciplines is not supported by this study. She also noted that data from this study does not address the quality of the presentation of concepts. There appears to be a lack of reinforcement of learning between grades, which is considered a serious problem. Haas summarized the study with two findings: 1) There is an absence of a unified curriculum theory or philosophy among the publishers of the texts. 2) There is an absence of the use of psychological theories of learning in the primary textbooks.

Neal and Moore (1991) provided a rationale for incorporating picture books into the secondary school curriculum. The authors describe the selection of appropriate picture books for use with older

students and provided sample-teaching strategies in the areas of English, social studies, and art. Five points underlie his belief that picture books are appropriate supplementary materials for use with secondary students: 1) Themes of many picture books are universal and appeal to all age groups. 2) Some of the best picture books have been missed when students were younger or may have been published since that time. 3) Many issues raised demand a maturity level that young children do not possess. In addition, many books can be read on different levels by different age groups. 4) The short format facilitates incorporating picture books into lessons. 5) Our visually oriented society has conditioned students to employ pictures as comprehension aids. Talked about various types of picture books: wordless picture books, near-wordless picture books (illustrations and a few words), standard picture books (words occupy 1-25% of the page, picture storybooks (pictures and text are equally important; text is narrative, and informational picture books (Subject oriented books written in either expository or narrative style). Lists of suggested titles are included.

Brophy (1992) summarized 25 years of teaching research, highlighting changing implications and developmental continuities. He begins by discussing school effects research, the 7 characteristics of schools that elicit good achievement. These included:

- 1) strong academic leadership,
- 2) a safe and orderly school climate;
- 3) positive teacher attitudes towards students and expectations regarding their ability to master the curriculum;
- 4) an emphasis on instruction in the curriculum (not just filling time or on non-academic activities);
- 5) careful monitoring of progress towards goals through student testing and staff evaluation programs;
- 6) strong parental involvement;
- 7) consistent emphasis on the importance of academic achievement, including praise and public recognition for student accomplishments.

Next, he looked at teacher effectiveness research, which had three major conclusions:

- 1) teachers make a difference- some teachers reliably elicit greater gains than others because of differences in how they teach.
- 2) Differences in achievement gains occur in part because of differences in exposure to academic content and opportunities to learn. Teachers who elicit greater gains: a) Placed more emphasis on developing mastery of the curriculum, in establishing expectations for students, and defining their own roles. b)

Allocate most of the available time for activities designed to foster such mastery. c) Are effective organizers and managers who make their classrooms efficient learning environments, minimizing time spent getting organized or making transitions, and maximize student engagement in on-going academic activities. 3) Teachers who elicit greater achievement gains do not merely maximize “time on task” they spend a great deal of time actively instructing their students. In reviewing research on good subject-matter teaching, Brophy listed the following common elements of successful programs:

- 1) The curriculum is designed to equip students with knowledge, skills, values, and dispositions useful both inside and outside school.
- 2) Instructional goals underscore developing student expertise within an application context and with emphasis on conceptual understanding and self-regulated use of skills.
- 3) The curriculum balances breadth with depth by addressing limited content but developing this content sufficiently to foster understanding.
- 4) The content is organized around a limited set of powerful ideas (key understandings and principles).
- 5) The teacher’s role is not just to present information but also to scaffold and respond to students’ learning.
- 6) The students’ role is not just to absorb or copy but also to actively make sense and construct meaning.
- 7) Activities and assignments feature authentic tasks that call for problem solving or critical thinking, not just memory and reproduction.
- 8) Higher-order thinking skills are not taught as a separate skills curriculum. They are developed in the process of teaching subject-matter knowledge within the application contexts that call for students to relate what they are learning in their lives outside of school by thinking critically or creatively about it or by using it to solve problems or make decisions.
- 9) The teacher creates a social environment in the classroom that could be described as a learning community where dialogue promotes understanding.

Brophy described holistic skills instructions in the content areas of reading, writing, mathematics, science, and social studies, which demand more from teachers and students.

Danielson (1992) stated that there is documentation that using picture books with students of all ages, and reading abilities had been successful. They act as motivators, they provided opportunities to integrate reading and writing and for vocabulary development. She provided a listing of picture books to

use with older students under the following headings: Dialect and character development, jargon and lingo, parts of speech, and writing. Some headings also contain extra activities and there is a brief listing of sources of activities using picture books.

Both Sanacore (1990) and Wilson (1988) recommend using trade books because they provided a causal relationship between concepts and off the reader a greater opportunity to answer their own questions through reading. The authors designed a literature-based unit on Asian countries with the idea that using real books in the social studies could provide a relevant, interesting, and intellectually provocative way for the students to acquire new attitudes towards and understanding of the world around them. They indicated that two published resources were helpful in finding resources that they could use: "Children's Choice" a preference listed published in every October issue of *The Reading Teacher*, and "Notable Children's Trade Books in the field of Social Studies" published in every April/May issue of *Social Education*. Students were asked to brainstorm what they knew about China and this helped focus the initial lessons by identifying misconceptions about culture, geography, people, and government. They also used Think Sheets, a piece of paper with three columns headed "My Questions" "My Ideas" and "Text Ideas." This strategy also addressed prior knowledge and helped foster concept development. Students selected and read books from a reading list after which they created either a character chart or a paradigm. A character chart is a visual representation of individual characters in a story, either by selecting photographs from a magazine or newspaper or by illustrations drawn by the student. The paradigm involves creating a new product based on the author's ideas and thoughts and the reader's experiences and interests, using a poster board showing how student's hobbies and interest related to events in the story. To test the efficacy of their unit, the authors assessed learning of the 12.5-hour unit using three measures: 1) An 88 item multiple-choice test to measure concept acquisition. 2) The Estes Reading Attitude Assessment (1981) to assess student reading attitudes. 3) Students rank ordered the nine subjects composing the sixth grade curriculum in terms of enjoyment and importance. Each measure was administered 4 weeks prior to the unit as pre-test and within 1 week of completing the unit as a posttest. Results of Analysis of Covariance for the multiple choice test revealed significant gains for the experimental group,  $F(1, 39) = 14.31, p < .001$ . ANCOVA for the reading attitude assessment resulted in no significant differences  $F(1, 39) = 0.157, p = .694$ , between groups. Students also did not change their subject preference ratings between pre and posttest. Results indicated that students acquire more concepts and a greater understanding of those concepts through literature and literature based instruction than through a traditional approach.

Kletzien and Hushion (1992) described a reading program that they implemented which incorporated self-selected reading, journal response, and mini-lessons about comprehension strategies, authors, and writers' craft. It was designed to help students develop more purpose in reading, a greater sense of their own efficacy, and a broader understanding of reading strategies, as well as to provide a context that supported and values what the students themselves chose to read. Three underlying strands were identified: 1) The reader constructs meaning based on interaction with the text. 2) High school students know how to do basic reading but are unable to apply higher-level thinking and analytical skills to what they read. 3) All language processes are interrelated and that writing is as important a tool to learning as it is for giving evidence of what has been learned. Twenty-six students (11 9<sup>th</sup> graders and 15 10<sup>th</sup> graders) were identified. One day a week they participated in reading workshops where a mini-lesson was taught, students read for 30 minutes, and then wrote for the final 10 minutes about what they had read. Three sample mini-lessons are presented. To determine if the reading workshop had changes student's attitude towards reading, a survey was developed (survey is figure 3 in the article) and administered at the beginning and end of the school year. The September survey indicated that most of the 26 students considered themselves to be fairly good readers, they did not read much in their spare time, they understood assignments in English and science, social studies ranked lower. They indicated that they would like to be better readers and they thought reading was important. Almost all responded that they would rather choose their own books to read than read one that a teacher assigned. Comparison of the May survey results were disappointing, because student's attitudes towards reading did not show a significant change over the year. Open-ended question gave further insight. In the September survey, students reported reading average of four books the previous year. In May, the average was six books. In September, 4 students were unable to name a book that they had read, but in May, all students listed at least one book that they had read and enjoyed. In September, 10 students were not able to identify a favorite author, but in May, only six students did not have a favorite author. In September, students reported spending an average of 2.75 hours a week reading. In May, the figure was 3.0 hours per week. Kletzien and Hushion felt that the reading workshop is a viable way to get reluctant readers more involved. They stated that many programs focused on factual recall and do not encourage students to move beyond this level. A workshop that centers on self-selected literature, reading strategies, and higher level thinking processes can help students interact more personally and deeply with their reading and develop greater understanding.

Dempster (1993) urged educators to separate important from unimportant information in content areas so that teaching can focus on what is essential. He stated that an analysis of what is in the typical content textbook reflects that, at best, teachers can provide student with a fleeting exposure to a vast amount of material if they look to the textbook as a guide for what they ought to teach. Indications are that the number of elaborations included in most content textbooks actually diverts attention away from the crucial point of the lesson. In order for elaborations to promote classroom learning, it appears they must meet at least four necessary but not always sufficient conditions. They must be personally meaningful. If a student lacks sufficient domain-specific knowledge to comprehend the elaboration, no benefit will be gained. The elaboration must be relevant and should not digress too far from the point that the teacher or textbook wishes to cover. The elaboration must be precise. It should be logically or causally connected to the main point so the learner can either reconstruct or infer the main idea. Elaborations are likely to be effective only to the extent that they encourage processing that is complementary to the processing invited by the material to be learned. Dempster mentions three implications for curriculum: 1) Many of the elaborations found in textbooks and provided by teachers are of little value and some actually hinder student learning. 2) Exposing students to information can actively interfere with acquisition and retention of other information. 3) One indispensable key to effective learning is distributed practice. Dempster stated that rather than reviewing the curriculum looking for whole topic to eliminate, educators should consider taking a close look at the composition of each instructional unit, with an eye on eliminating elaborations that do not serve a purpose.

Jackson (1993) presented seven strategies to support a culturally responsive pedagogy. This article asks teachers to review common strategies that are currently employed in literacy instruction from a culturally sensitive perspective. The seven strategies are: 1) Build trust. 2) Become culturally literate. 3) Build a repertoire of instructional strategies. 4) Use effective questioning techniques. 5) Provide effective feedback. 6) Analyze instructional materials for cultural sensitivity (accurate portrayal of the perspectives, attitudes, and feelings of the groups being studied; inclusion of strong ethnic characters in fictional works; ethnic materials devoid of racist concepts, clichés, phrases, or words. Historically accurate factual material. 7) Establish positive home-school relations. Ask parents what they perceive to be the students strengths, weaknesses, and interests.

Kakela (1993) described a vocational interactive reading project designed to guide vocational

teachers as they integrate literacy practices into their subjects. While much had been written about incorporating literacy practices in tradition content area classes, few articles have addressed this practice in vocational classes, although the principles are the same. Teaching technical subjects such as those found in a vocational education setting involves teachers looking at a unique set of learning situations. In the vocational education setting, work-place literacy plays in role in the content of the classes being taught. Research points to at least three kinds of reading exist at the work site: 1) Reading to do- reading information to accomplish a specific task that can be forgotten once the task is completed. 2) Reading to learn- reading for information that needs to be remembered for the job. 3) Reading to assess- examining material to assess its usefulness for some job-specific purpose (Mikulecky, 1982). The inservice training program described followed a standard training pattern for other types of content classroom teachers: training on elements of before reading thinking (KWL, SQ3R, Anticipation Guides),; vocabulary instruction (using graphic organizers, and semantic mapping); thinking during reading (checking for understanding, verifying predictions, asking questions); and thinking after reading (reviewing, organizing, summarizing, and evaluating). Some teachers needed only feedback or someone to talk to, some needed assistance, but only at the right time and place, some needed additional prodding. After three years of training and implementation, a review of the effectiveness of the program revealed many of the suggestions were being implemented in the classroom and that students and teachers generally felt comfortable with the learning environment. Three general principles of staff development were evident and Kakela recommended these for anyone when developing collaborative relationships with content area colleagues: 1) Change in teaching is a process that requires risk taking and reflection. Inservice alone does not change teachers' way of doing things. It takes devising a plan, trying it, examination of how it went, revision, try it a new way, and enter the cycle again. 2) Each teacher experiences the process of change differently. Some find it easy and others difficult. 3) There is diversity in staff development learning just as there is diversity in student learning. In-service and long-term commitment to change through follow-up and support results in instructional changes over time.

Sanacore (1993) suggests ways in which teachers, supervisors, and administrators can cooperatively support literature-based practices across the curriculum. He discussed the following aspects as being important to successful implementation: a positive professional attitude, structured workshops, improving student attitudes, improved thematic units, improved team teaching, and ways to measure success. A graph showing some comparisons of textbooks and literature-based materials is provided. Sanacore stated that

cooperation is the key and all of the factors listed contribute to promoting students' long-term reading habit. Teachers should be provided encouragement to develop innovations themselves, and not be dictated to.

Fielding and Pearson (1994) reported that a successful reading instruction program requires 1) ample time for actual text reading; 2) teacher –directed comprehension strategy instruction; 3) opportunities for peer and collaborative learning; and 4) time for discussing what has been read. One of the most surprising findings of classroom research of the 1970s and 80s was the small amount of time children spent actually reading texts. Estimates ranged from seven to 15 minutes per day (Anderson et al, 1985). Children traditionally spent more time working on reading skills via workbook assignments that applying the reading skills they had learned in reading connected texts. The author's stated that reading time involving text is important for two reasons: 1) because of the chance to apply skills and strategies important to proficient reading- including comprehension and 2) reading results in the acquisition of new knowledge. Research in the 1970s and 80s consistently revealed a strong reciprocal relationship between prior knowledge and reading comprehension ability. In response to research concerning the amount of time teachers spend on actual comprehension instruction conducted by Durkin (1978-1979), research studies in the 1980 focused on how to teach comprehensions strategies directly. It also showed that the following aspects of comprehension could be taught:

- using background knowledge to make inferences or set purpose (Steffensen, Joag-Dev & Anderson, 1979).
- getting main ideas (Baumann, 1984).
- identifying the sources of information needed to answer questions (Raphael, 1984).
- using the structure of expository texts to help students understand what they are reading (Armbruster, 1984).

In some studies, less able readers taught a comprehension strategy were indistinguishable from readers that are more able who were not taught the strategy directly. Results of this type of research also provided lesson about how instruction needed to be presented: 1) strategies should be as much as possible like the ones that actual readers use when they comprehend successfully. 2) instruction should focus on flexible application of strategies rather than rigid sequence of steps. 3) Teachers should demonstrate how to apply each strategy- what it is, how it is carried out, and when and why it should be used. 4) The need for a period in which the teacher and students practice the strategy together. 5) Students must be taught, reminded, and given time to practice comprehension strategies while reading everyday texts.

Fielding and Pearson stated that research during this time also focused on the significance of cooperative learning and the positive social and cognitive benefits of this type of learning. They concluded that some research finding from this period focused on leaning formats where teachers initiates a question in class, students respond, and the teacher evaluates the response before moving on to another question.

Eeds and Wells (1989) found that students engaged in a variety of activities important to understanding while participation in literature study groups: 1) Using a whole range of responses from literal to critical and evaluative. 2) Clarifying basic meaning of text when there is confusion or disagreements. 3) Using the opinions of others, including classmates and teachers, to help clarify their own thinking about text. Eeds and Wells also concluded that to develop independent, motivated, lifelong readers, a substantial part of children's reading instructional time must be devoted to self-selected materials within a student's reach.

Rosenshine and Meister (1994) reviewed sixteen quantitative research studies done on reciprocal teaching. Reciprocal teaching (Palincsar and Brown, 1984) is an instructional procedure designed to teach students cognitive strategies like summarization, question generation, clarification, and prediction that might lead to improved reading comprehension. They found that careful scaffolding of strategies presented in small steps, providing opportunities for students to practice the use these techniques, providing feedback and correction were extremely important. It seemed to work well with students who had poor reading skills and has been adapted to use in social studies classrooms in middle school with students who are learning disabled or learning English as a second language. In those research studies where a standardized test was used to measure learning, the reciprocal teaching treatment was significantly superior to the control treatment (effect size of .32). When experimenter-developed comprehension tests were used, students in the reciprocal teaching treatment had scores that were significantly superior to those of the control group (median effect size of .88). Rosenshine and Meister indicated that results were similar whether the type of experimenter-developed test was short-answer or tests that asked students to summarize passages. While the research generally supports the efficiency of reciprocal teaching, it also indicated a need for further research into cognitive strategy instruction. They noted that the two most effective strategies appear to be question generation and summarization.

Sullivan (1994) talked about three good juvenile books with fictional characters that act as symbolic models in literacy. What literacy models in juvenile fiction can be used to stimulate discussion of reading attitudes and difficulties, and lead to development of positive viewpoints. She presented three Newberry

Award-winning books: *Maniac Magee* (Jerry Spinelli, 1990), *Sign of the Beaver* (Elizabeth Speare, 1983), and *Dacey's Song* (Cynthia Voigt, 1982). Each of these books provided readers the opportunity to identify with characters who are competent readers, as well as to view others who suffer from embarrassment and loss of self-esteem due to their reading difficulties or illiteracy. *Maniac Magee* is about a homeless boy hero who demonstrates athletic ability but also teaches an older man how to read. In *Sign of the Beaver*, Matt teaches a reluctant Native American boy, to read at the request of the boy's grandfather. In *Dacey's Song*, two characters struggle with illiteracy: Maybeth, Dacey's younger elementary school sister, and Millie, an older shopkeeper for whom Dacey works after school. Dacey and her younger brother search for ways to help Maybeth read.

Tredway (1995) presented a tangible way to engage students to develop both ethics and critical thinking both actively and cooperatively. The Socratic seminar is a form of structured discourse about ideas and moral dilemmas. It balances two traditional purposes of education: cultivation of common values and the worth of free inquiry. A Socratic seminar consists of a 50-80 minute period, once a week. Student groups of 25 or less read a common text prior to or during the seminar, and they respond to questions the teacher asks about what they have read. One underlying principle is that when students actively and cooperatively develop knowledge, understanding, and ethical attitudes, they are more apt to retain those attributes than if they had received them passively. Students learn how to paraphrase, defer, and take turns as well as deal with frustration when waiting. Many of the decisions they make require choices among competing values. The teacher acts as a facilitator and participant in the discussion, acting to draw students out and ensure that students adhere to and respect the processes of the seminar. Tredway felt that this type of learning approach can alter the instructional climate of the school and create learning situations that require students to engage in higher-level thinking and be more involved in their own learning.

Rose and Fernlund (1997) identified and outlined key considerations that should influence the selection of instructional technology. They provided specific questions to ask about hardware, multimedia use, computer assisted instruction, Multimedia use and creation, and the Internet. They also considered specific applications (and limitations) of these technologies with regard to purposes of the social studies, specific social studies themes, standards, and objectives. Rose and Fernlund concluded that while technology-based products and skillfully designed websites may exhibit outstanding technical qualities, they might not contribute to quality learning in the social studies. They recommended that applicability should evaluate the extent to which the content, organization, and activities relate 1) to the purposes of social

studies, 2) to one or more of the ten NCSS curriculum themes, and 3) to factors that are essential to powerful teaching and learning in the social studies. These included: Does the technology-based product help promote meaningful social studies? Does the technology-based product help promote social studies that are integrative? Does the technology-based product help promote value based social studies instruction? Does the technology-based product help in planning social studies instruction that is challenging? Does the technology-based product help in designing learning activities that actively engage students in significant social studies content?

Alexander and Jetton (2000) discussed past and current research addressing the themes of context, text and learner knowledge, strategic processing and motivations. They explored how the very nature of text-based learning can be transformed. They proposed three recommendations for the *Handbook of Reading Research* Volume IV. First, they expect that knowledge of text-based learning in alternative, nonlinear environments would be greatly expanded. Second, there would be far more research on the developmental nature learning from text. Finally, that not only will knowledge of text-based learning be reported but also the impact that beliefs of researchers, teachers, and students play in the nature of the process.

### **Testing**

Testing became an increasingly controversial issue as educators debated the merits of standardized testing versus alternative forms of assessment. A particular area of concern was the use of standardized tests to evaluate learners who may have reading or comprehension difficulties.

Lewandowski and Martens (1990) who discussed selecting and evaluating standardized reading tests. Standardized reading tests usually assess a variety of general achievement areas in reading (group tests) or attempt to describe specific reading skills in greater detail (individually administered tests). Group tests generally are poor at describing children at the high and low ends of the distribution because they contain few items that are very easy or very difficult. They also cannot reflect effectiveness of a particular reading curriculum because they are general in content coverage, but they allow comparison of student performance against large national samples by age, grade, or locale, according to the authors. Individual tests use standardized samples that are much smaller, but they can identify relative strengths and weaknesses and are therefore useful for targeting individual reading instruction or monitoring individual progress. Lewandowski and Martens provided the following precautions in considering a test. Check any potential test for content relevance (what reading aspects are being assessed), test content (does the test sample what is being taught), content validity (number of items assessing a particular reading component), technical

aspects such as reliability, test norming procedures. They presented an example of a test selection checklist, which they stated will give a better sense of the usefulness of results obtained.

Sternberg's (1991) main thesis is that typical aptitude and achievement tests provide only a narrow measure of student aptitudes and achievements. Test scores provide not only an incomplete but also a distorted view of student performance. He presents the following comparison between standardized tests and tests administered in the classroom setting:

<u>Standardized Tests</u>	<u>School/everyday life</u>
1. Passages are short.	Passages are moderate to long.
2. Learning from reading is massed.	Learning from reading is distributed.
3. Recall is immediate.	Recall is delayed.
4. Recall is entirely intentional.	Recall is largely incidental.
5. Comprehension is based on a single type of question, usually multiple choice.	Comprehension is based on multiple types of assessment.
6. The reasoning in the passage is very tight.	The reasoning in the passages is variable and often loose.
7. Assessment measures evaluation of arguments.	Assessment measures construction as well as evaluation of arguments.
8. Reading passages tend to be emotionally neutral.	Reading passages tend to be emotionally charged.
9. Reading passages are often unmotivating and boring.	Reading passages are often motivating and interesting.
10. Reading situations minimize distractions.	Reading situations contain distractions.
11. Evaluations are for a single purposes.	Evaluations are for multiple purposes.
12. Students do the reading because they have to.	Students often (but not always) do the reading because they want to.

Sternberg stated that this demonstrates that reading tests are at variance with their demands with the demands of reading as it actually occurs in everyday life, and these sources of variance render the

reading tests considerably less valid as measures of real-world reading behavior than most people have wanted to believe. “The constraints are so different that we need to be extremely cautious in generalizing from reading test performance to reading outside of the reading test situation.”

## **LEARNING**

### **Background Knowledge**

The emphasis on activating a student’s background knowledge as a precursor for introducing new materials continued in the 1990s. Studies continued to emphasize the advantages in depth and scope of learning when background knowledge is tapped.

Cooter and Chilcoat (1990) described a method of creating a link between what students know (background knowledge) and what they need to know while studying history. They presented content-focused melodrama, dramatic renderings of historical text, which uses sensational actions, emotions and sometimes-stereotypic characterizations to present a message about history. The intent is to build understanding of expository text rather than to entertain. The structure of a melodrama follows a prescribed course.

Act I: Introduction of the characters, topic, theme, and conflict. The characteristics of the characters are both exaggerated and stereotypic. Act II: Development of the situation that emphasizes the continuing conflict among the principal characters. Act III: Development of a climatic situation. Act IV: Development of a happy ending, or what could be a happy ending if certain moral, social, economic, or political conditions are met. A typical program is described. Cooter and Chilcoat presented the following benefits of content-focused melodrama: 1) Development of cultural literacy and reduction of prejudice. 2) Learner responsibility and collaboration. 3) Supportive role of the teacher. 4) Creative outlet and affective behaviors. 5) Reading and writing connection. Students must engage in reading and writing including skimming, prediction and verification, and research strategies and composing a script.

Guzzetti, Snyder, and Glass (1992) described the influence of students’ inaccurate prior knowledge on their learning and offer recommendations for effective instruction strategies to eradicate misconceptions. They stated that students often had incomplete or inaccurate prior knowledge that interferes with their ability to learn scientific concepts. These misconceptions have been shown to be extremely resistant to change, even after instruction. They provide an annotated list of 23 studies of how text or text based instructional strategies affect students’ misconceptions in science, listing the study and the strategies tested.

They stated that one problem encountered is that many of the studies produced conflicting results, which leave the relative effectiveness of the strategies tested in question. They undertook a metaanalysis designed to integrate the findings from these 23 studies. Metaanalysis involves calculating the differences between the experimental group mean and the control or comparison group mean, divided by the standard deviation of the control group. This figure is called the effect size and represents the difference between the experimental and control groups in standard deviation units. Individual effect sizes are then collapsed across the studies, resulting in an average effect. A positive effect size indicates the experimental strategy was more effective than the comparison, while a negative effect size indicates the opposite. An analysis of the results from the 23 studies indicated that some instructional strategies were shown to be more effective than others in eradicating misconceptions. Types of strategies shown to be most effective were: 1) Augmented activation activity, which consists of some method of activating the students' prior knowledge of a concept, supplemented by information to cause dissatisfaction with a current belief or correct a misconception. (average effect = .85). 2) Refutational text, a passage that describes the misconception and then refutes it. (average effect = .22). 3) Nonrefutational text, what is normally found in most textbooks (average effect = 0.009). 4) Discussion webs are a type of structured discussion consisting of researcher-led interactions with small groups of students using a graphic aid to form positions around a central question. The purpose is to highlight inconsistencies in the students' thinking and to identify instances in which their thinking was not supported by evidence from the text. (average effect size = .51) Guzzetti, Snyder, and Glass concluded that results from their study agree with observations by other reviewers that teachers can promote conceptual change by using instructional approaches that create dissatisfaction with a misconception.

McKeown, Beck, Sinatra, and Loxterman (1992) examined comprehension of students provided with relevant background knowledge and then tested on two versions of a fifth grade social studies textbook. This study built on a previous one they had conducted in which fifth grade students were exposed to either an original textbook section leading up to the Revolutionary war or a revised text (Beck, McKeown, Sinatra, Loxterman, 1991). In the present study, background knowledge was provided to all students through a crafted experimenter-led presentation. Students were then assigned to one of two text conditions: the original text material from a fifth-grade social studies textbook or the revised version to the text. The research question was whether providing relevant background knowledge before reading would compensate for the less coherent text, or whether an advantage would still be demonstrated for the

coherent text. The subjects were 48 fifth graders from an elementary school in a middle class small public school district in the northern U.S. Subjects were rank-ordered based on their reading comprehension test scores on the Metropolitan Achievement Test. Every other student in the distribution was assigned to one of the two groups for the text conditions (original text  $M = 66.46$ ,  $SD = 23.52$ ; revised groups  $M = 66.42$ ,  $SD = 23.62$ ). Findings showed that students who read the revised text recalled significantly more material [ $F(1, 46) = 7.59$ ,  $p < .01$ ] and answered more questions correctly [ $F(1, 46) = 6.08$ ,  $p < .05$ ]. This finding replicates the finding of Beck et al (1991) which suggested that extensive prior knowledge did not compensate for lack of text coherence. After investigating minor differences in raw scores for the original text between the Beck et al study and this one, McKeown, Beck, Sinatra, and Loxterman concluded that even though all students received prior knowledge instruction before reading, the organization of the original text made them less able to exploit the advantages provided by that information. The combined results suggest that the notion of sequenced content as background, at least for social studies text as they are now written, is a fallacy, and also emphasized on the importance of the role the teacher plays in mediating learning from the social studies text.

Neal and Langer (1992) provided Mediated Instruction of Text as a framework of teaching options for content area instruction. Mediated instruction entails actively seeking to match learner background to text's information and organization. It also entails guiding students in constructing meaning from text and providing opportunities for students to respond to and think about ideas presented in textbooks. These actions reflect the teacher's role as a catalyst for promoting interaction between students and textbook information. Reading instruction in the content areas requires flexibility for planning based on difference in the content field material and a clear view of how to help students learn from text. According to Neal and Langer, MIT suggests an instructional goal for each phase and identifies basic comprehension process, which ensures that that goal is achieved. It uses a variety of instructional strategies that give the teacher a choice of which strategies to use and it delineates the teacher's responsibility during each phase of reading. It offers more than a single set of instructional activities and gave teachers access to many possible strategies for each phase of reading instruction.

Symons and Pressley (1993) researched the impact of prior knowledge on locating information in textbooks, quoting a study by Guthrie and Mosenthal (*Educational Psychologist*, 22, 279-297, 1987) which listed three components that seemed especially likely to be affected by prior knowledge: 1) Prior knowledge might affect category selection by directing attention to appropriate sections of the text. 2)

Prior knowledge might facilitate information extraction by mediating judgments of importance in light of the search goal. 3) Prior knowledge of material being searched may reduce working memory demands and thus facilitate integration, which involves holding the goal of the search and previously inspected information in working memory. Undergraduates enrolled in a full-year introductory psychology course searched an introductory psychology textbook not used in their course to locate answers to questions related to Fall- or Spring-term course content. The study consisted of 36 students at the beginning of the fall term (September), 26 at the beginning of the spring term (January), and 27 after the course had ended (May). Each student was given 10 questions, five explicitly stated from material in the fall term and five from the spring term. Forty pilot students were given the questions without the benefit of search, one month after finishing the course in the previous year. These students answered a mean of 0.20 fall term questions and 0.28 spring-term questions. This showed that students were very unlikely to know the answers to the questions without searching the book. Each student was tested individually, and was to locate the answer to the question using the book and then state the answer out loud. Questions were presented one at a time in random order, both orally by the experimenter and visually on a typed index card available to the student throughout the search. Students were allowed 8 minutes to search for answers. Ten pilot students from the introductory psychology course generated 95% of the correct answers within the time limits. Search sequences were recorded including page numbers of the text skimmed, and inspections of the table of contents, index, and glossary. Search efficiency varied with the state of prior knowledge: Searches for Fall- and Spring-term contents was more efficient after the fall and spring terms respectively. In particular, once the search was narrowed to a specific portion of the text, greater prior knowledge was associated with greater likelihood of recognizing the answer when it was encountered. No group differences in search were found in a textbook for which there were no systematic group differences in prior knowledge. Symons and Pressley stated that results indicated that January and May students were more successful than September students at locating the correct information for fall-term. May students were more successful than January or September students at locating the correct answers for the spring-term content material.

Adams (1995) used "Romeo and Juliet" to show how high school teachers can teach complex literary texts in nontracked classrooms by building background knowledge and teaching self-monitoring strategies. Explained strategies such as text previews, story impressions, prereading plan, thinking aloud, self-questioning based on story grammar, and reciprocal teaching. Reading a difficult text makes students

expend most of their energy trying to process the text and leaves little energy for understanding what they are reading. Text previewing helps students understand concepts, vocabulary, and story structure so they can build higher levels of understanding. Story impressions are a prereading strategy that capitalizes on background knowledge to improve comprehension. The teacher prepares a list of key words that indicate plot, setting, and character and students are asked to read the words and make prediction about the story. They then read the assigned story and compare their predicted version with the author's version. Another method is teaching students to self-monitoring their reading for comprehension. Techniques such as thinking aloud help students to become more aware of what they are reading. Another technique is self-questioning strategies such as story grammar, where the student uses prior experience with story format to make predictions and recall story based on the elements they encounter. The idea is to have students form questions based on story grammar as they read so that the structure of the story helps them understand it. A second technique is teaching students to summarize, question, and predict while reading. Adams stated the significance of allowing less able students to learn from modeled behavior by readers that are more able or the teacher should not be overlooked. The more varied the grouping in the classroom, the more likely it is that someone in the group can be of assistance when the group is engaged in problem solving.

Pearson and Santa (1995) presented a learning approach that incorporates students' background knowledge, and utilized organizational skills, metacognition, discussion, and writing to prepare them to investigate their own learning and experiment with study skills. Pearson began by demonstrating to her students an example of how activating background knowledge could improve their understanding of a passage. Next, she demonstrated the benefit of studying organized information such as keywords that are arranged in categorical groups. Pearson introduced the students to the novel *To Kill a Mockingbird*, by first providing them with biographical information to be used as background material. For the first article (Eleanor Roosevelt), she provided no background information or any pre-reading activities. Students were to read the article, which was then collected, and then write down all the information they could recall about what they had read. The students wrote personal reactions to this learning activity in their journals. For the second article (Franklin D. Roosevelt), students brainstormed what they already knew or thought they knew. After brainstorming, they read the article independently, the article was collected, and they wrote down everything they could remember and then recorded their personal reactions in their journals. The third article, about the Great Depression was preceded by brainstorming again. Then the students skimmed the article and added any new information to the list of prereading ideas. When they finished

reading the article, they highlighted major points and wrote study questions from those points. Again, they evaluated the procedure in their journals. For the fourth article, Black America during the Great Depression, students again brainstormed for existing knowledge, then read the article and highlighted main ideas. They then organized the main ideas into a concept map and then wrote about their experience in their journals. For the final article, a biography of Harper Lee, students skimmed the article and then read it again, highlighting the main points. They then had the choice of either writing study questions or creating a concept map. When they finished, they grouped into twos or threes and talked about the article along with their study questions or concept maps. Finally, they wrote an evaluation in their journals. According to Pearson and Santa, the benefit of this approach was that students could evaluate what strategies worked best for them and developed an understanding about how the strategies contributed to enhancing their background knowledge and how it could be used to better understand what they were reading. They found that most students recalled more information when they had an opportunity to both organize the information they encountered and to discuss with others what they had learned.

### **Cooperative Learning**

Research into ways of using cooperative learning in the classroom continued in the 1990s with an emphasis on the building of social connections as a part of the learning process/

Cohen (1990) described the factors necessary for the proper implementation of cooperative learning in the classroom. Stanford University's Program for Complex Instruction, a cooperative learning program for grades 2 through 5 in which students worked together at learning centers is described. Each groups worked on separate problem-solving tasks and this method has been used successfully in a school population that had large numbers of non-English-speaking students. Cohen stated that in order to implement cooperative learning there needs are three key requirements to be successful: 1) the development of new curriculum materials; 2) the ability to treat status problems arising in small groups; and 3) the availability of collegiality and strong organizational support. She begins by pointing out that conventional classroom learning activities and curricular materials such as worksheets or textbook tasks, which are usually assigned to individual students, will not work effectively when assigned for a group to do. "If the task asks for right or wrong answers, comes with step-by-step instructions, and requires only conventional academic skills, groups will rapidly figure out that one person can do the job better and more quickly than the group." Group interaction has been shown to be the factor that allows all members of the group to learn. Students must be challenged to use spatial and visual abilities and reason skills. Those

students who are less capable can, and will, receive assistance from their peers. Group participation requires that all members of the group contribute to the product. This prevents better students from taking over control of the groups and allows less capable students to feel they have made a worthwhile contribution. This is one of the biggest challenges for the teacher in using cooperative learning in the classroom setting. Ability status problems need to be handled so that all members of the group are included in the group effort. One way to do this is to emphasize skills other than reading ability and writing skills that are necessary for the group to be successful. Activities need to be designed that incorporate these other skills and talents that are present in the classroom. Cohen concluded that cooperative learning is a complex instructional approach that requires the teacher to understand how their role in the classroom changes when they delegate authority to a group of students. A realistic expectation for teachers is the goal of developing one new cooperative learning unit per year. Support is necessary from peers and from school administration.

Strother (1990) looked at what works and factors that can lead to failure in a cooperative learning environment. She identified several “basic ingredients” needed for a successful experience in cooperative learning. 1) Students must develop the motivation and be provided with the opportunity to help one another learn. 2) Students must develop the feeling that they are responsible for and accountable to the group (as well as to themselves) for doing their best. 3) Students must acquire the social skills necessary for effective cooperative work. She said that Slavin (1989a) had identified a number of elements that contribute to successful cooperative learning: 1) Students must be rewarded for performance based on the group’s average performance on assessments. 2) Doing a good job of teaching before students start to work in groups. 3) Setting expectations for effective group behavior and recognizing groups that engage in such behavior. 4) Holding groups together long enough to develop some cohesiveness and group spirit (about 1 month). 5) Rewarding students for doing better than they have done in the past, so all students can make a substantial contribution to the success of the group. Johnson and Johnson at the Cooperative Learning Center at University of Minnesota list five ingredients for a successful experience: 1) Positive interdependence (a sink-or-swim-together feeling), usually initiated by pursuit of group goals. 2) Individual accountability, which is established along with the group goal. 3) Cooperative skills (Communication, trust building, leadership, and conflict resolution) need to be carefully taught in the cooperative context. 4) Monitoring by the teacher of the task-related behaviors in the group and of group members’ interactive skills. 5) Face-to-face, on-task, verbal interaction, with everyone in the group contributing, listening,

elaborating, arguing, and resolving. The following were listed as factors that can lead to failure due to inadequate training of teachers:

- 1) Poor preparation by students in the procedures and skills required for success.
- 2) If student do not possess the social skills necessary for successful group work.
- 3) Conflict resolution and dealing with classmates who do not participate.
- 4) Using groups that are too large (More than 5 students).
- 5) Using tasks that yield single right answers.
- 6) Lack of commitment by students, teachers, and administrators. Strother stated that adequate training and experience with cooperative learning for teachers is a critical factor in the success of a program.

Slavin (1991) presented a synthesis of research on cooperative learning. Cooperative learning strategies all involve having students work in small groups or teams to help one another learn academic material. It supplements instruction and gives students an opportunity to discuss information or practice skills originally presented by a teacher. Slavin presented and discussed four principle types of Student Team Learning (Student Team-Achievement Divisions- STAD; Teams-Games Tournaments- TGT; Team Assisted Individualization – TAI; and Cooperative Integrated Reading and Composition- CICR). He then presented other cooperative learning strategies (Jigsaw, Learning Together, and Group Investigation). He stated that cooperative learning methods are among the most extensively evaluated alternative to traditional instruction and included academic achievement, intergroup relations, and self-esteem. Slavin concluded that there is usefulness in using cooperative learning activities in the classroom: improves student achievement at various grade levels and subjects, intergroup relations, rich relationships between mainstreamed and normal-progress students, and student self-esteem.

Mickel (1993) described a way of using cooperative learning in teaching content reading. The essence of cooperative learning is that students must feel that they need each other in order to carry out a group-learning task. Mickel presented the following example of a cooperative learning experience built on reading new content area material. Divide the class into small groups. Place an above-average student with a below-average student and 2 average students in each group. Designate the pages in the textbook to be used for this activity. Next, assign a number (1, 2, 3, 4) to each student in the group without regard to ability. Then assign a learning task that corresponds to the student's number. Student #1 is responsible for teaching new vocabulary words to everyone. Student #2 reads all the new material aloud to the small group while the others follow along. Student #3 is to ask questions of the group after oral reading.

Student #4 directs the group through a follow-up activity, which the teacher had designed to reinforce the main concepts (Specific and general). Third, after completion, return to a single large group, review the small group activities. The member of each small group responsible for new vocabulary, reports which new words they knew and did not know. Finally, the teacher selects an evaluative activity to assess the students' mastery of the objectives for this lesson. The final means of evaluation is checking the students' mastery of the information by giving a traditional test. This 5-step cooperative learning activity can take from 1 to 5 days depending on the ability of the students and the difficulty of the material.

Swafford (1995) described how cooperative learning was used to facilitate social interaction during group work in a content area-reading course at a university. She focused on three aspects: teaching interpersonal skills, individual accountability, and group processing because she felt that they would contribute substantially to the success of group work. For interpersonal skills, she presented three case scenarios that reflect the problems that most students encounter when working in a group: the under participant, the over participant, and the non-participant. The class was divided into groups and each group was given one of the case scenarios for discussion and brainstorming for possible solutions. Students were required to dramatize the scenario and presented one of the solutions. The class then talked about the problem and how the group solved the problem. A second aspect of effective cooperative learning group work is requiring students to be individually accountable for parts of the group project. To show this, students were required to bring in rough drafts of ideas to class on the first day of project planning and individual student participation in an oral presentation was required. For the third part, group processing, after the presentation, each student reflected on the best parts of the presentation and how the presentation could have been improved. Finally, students were required to critique their own work and the work of the other group members. About halfway through each class, 5 minutes is set aside for each student to reflect and write a response to the following questions: What am I doing well in my group? What do I want to improve? What is my group doing well? What does my group need to improve? Group member then share their responses and the group sets goals to guide work for the remainder of the period. Swafford stated that student reaction was overwhelmingly positive and their comments focused around three central ideas: enhancing learning, facilitating peer interaction, and fostering individual accountability. These concepts reflect what Swafford felt are the benefits of social interaction for the development of cognitive, learning, and knowledge as they explore concepts and solve problems together.

## Questioning Strategies

The use of various types of questioning strategies was also an area of interest in the 1990s including student-generated questions.

Gillespie (1990) summarized selective research in the area of student-generated questions by responding to questions posed by secondary pre-service teachers in content area reading classes. She noted that student-generated questions makes reading an active process and forces the reader to focus attention on the reading material. Forty-eight preservice teachers in content area reading classes were asked the question: "What questions would you like answered before employing student-generated questioning in your classroom?" The following questions, asked by the preservice teachers were addressed:

- 1) Can all students be taught to generate questions?
- 2) Must students be taught to generate their own questions?
- 3) How can student-generated questions be taught?
- 4) What should I do as a teacher?
- 5) Can students be taught to ask higher-level questions?
- 6) Does the student-generated questioning technique increase motivation?
- 7) Why does student-generated questioning work?
- 8) Are students or teachers' questions better for comprehension?
- 9) What are the effects for poor readers?
- 10) How does student questioning compare with other study methods?
- 11) Which is better- student-generated prereading or post reading questions?

She also presented are 10 conclusions based on research on student-generated questioning.

- 1) All students can be taught the student-generated questioning technique, with low verbal ability students apparently receiving the greatest benefit.
- 2) Allowing students to take an active role in their own learning should increase their motivation to read.
- 3) Student questioning appears to work because it encourages the reader to focus attention on the reading material and it clarifies the material. It also allows the students to set purposes for reading.
- 4) Although there is conflicting evidence, a majority of the studies seem to support the notion that student-generated questioning does facilitate comprehension.
- 5) The general consensus is that if students are to ask good questions, they must receive instruction.

- 6) There is not sufficient evidence to state with any degree of certainty, whether or not generating prequestions is better than generating post questions.
- 7) From the research conducted, it would appear that higher-level questions can be taught to elementary students. No research was found that indicated whether this was also true at the secondary level.
- 8) There are many ways to teach students to generate their own questions. They can be taught individually, in groups, or as a class.
- 9) Transfer of student-generated questions to content area materials can occur if it is taught. It is unlikely that transfer will automatically occur.
- 10) In order to teach students to generate questions, the teacher must understand the types of questions, teach students the types, teach the students how to generate questions, allow practice, and teach them to transfer the material to content area subjects.

Menke and Pressley (1994) describe a questioning intervention, elaborated interrogation, to enhance learning from text. The authors stated that many times students in the classroom fail to activate and use prior knowledge spontaneously, even though information they possess may make text more comprehensible and memorable. The use of questioning to promote learning is a well-documented educational practice. The use of elaborative interrogation (asking “why” questions) had been shown to greatly improve participants memory of passage content. One speculation as to why this is so is that elaborative interrogation stimulates prior knowledge that assists in organizing and retrieving information (Bransford & Johnson, 1973). The only caveat is that why questions must be constructed to orient the learner to prior knowledge that supports the facts they need to learn, otherwise, why questions will not facilitate learning. Menke and Pressley contended that this gave students another strategy for effective studying in that it increases the activation of student possessed prior knowledge.

Crapse (1995) described how to help students construct meaning through their own questions. Instead of directing questions to students and having them give you answers, have student develop their own questions for discussion during group time. Students write questions that they do not know the answer to, but in which they are genuinely interested. Questions are solicited from students and written on the board or an overhead and then the class selects the most interesting questions for class discussion. Discussion takes place in groups of four or five and takes about 20 minutes. Then students are given chart paper and colored markers and students work on answering these questions. This interaction allows student to investigate problems in a text, to share impressions about literary content, in many cases, they

are able to reach meaningful conclusions. Students are given the opportunity to share their insights and solutions to problems, and to find connections between characters they read about and their own feelings. Crapse concluded that if the students are stuck, the teacher can interject some insight as a means of generating more connections between students and text.

### **Study Skills**

The emphasis on teaching students how to study more effectively was also seen in the 1990s. Davis (1990a) explained how teaching study skills using real content area materials were accomplished in an eighth-grade remedial reading class. She pointed out the traditional approaches emphasize the teaching of study skills in reading classes and the emphasis of study strategies in content area classes. The students studied were the 20 lowest readers of 160 students in eighth grade. There were also five mainstreamed learning-disabled students. The author agreed to spend two class periods per week teaching students study strategies and the classroom teacher agreed to a 2-week intensive study skills class using science materials. It was agreed that materials used to teach skills would match content material to be taught. Four useable components were employed in the study: person variables, goal variables, task variables, and strategy variables. Person variable- an awareness of self as a reader and an awareness of the reading process. Goal variable- identifies one subject in which the student would like to improve their grade (within one grade letter of their last grade). Practical ideas for achieving their goal (doing homework, asking questions in class, studying for tests and a third aspect, the signing of a contract between student, parents, and content teacher. Task variable- to help the students to analyze criterion tasks in science and social studies and to learn strategies that would accomplish those tasks. Strategic variable- choosing appropriate strategies and monitoring their effectiveness (Surveying text material, taking notes, memorization techniques, and improving study habits). Davis found that students improved both the self-reporting of study habits and improvement in their grades in social studies (65%) and science (100%). These results were attributed to additional study time and/or the learning of effective study strategies. She recommended that this type of class be available to students earlier in their educational experience.

## **READING**

### **Attitudes Towards Reading**

Student's attitudes towards the reading process and some of the techniques students use to avoid reading or doing work in school are addressed. Also addressed were at-risk readers, the link between

attitude about reading and comprehension of materials, and the need to develop a positive attitude about life long learning. Several studies found that students did not really lose their love for reading so much as they found that the format of secondary content area textbook was not conducive to encouraging some students to learn about materials found in their textbooks.

Brozo (1990) described observations of a high school classroom and subsequent interviews with poor readers in the class to uncover their attitudes towards reading, coping strategies, and ways of avoiding being held accountable for reading and hiding out in the secondary content classroom. He argued that teachers who focus on effective instruction from only their own perspectives fail to appreciate the needs of unsuccessful readers and may reinforce students' reading failure. Behaviors that poor readers use included:

- 1) Apple polishing- manipulating the teacher by creating positive perceptions outside the classroom like walking the teacher to her car.
- 2) Sitting right up front in order to give the impression of attentiveness. (teacher always picks on someone sitting at the back of the room),
- 3) Exploiting alternatives to reading: using non-print sources, listening well, and talking with others.

Brozo and a research assistant observed an 11<sup>th</sup> grade history class in a large suburban high school in the Midwest, twice a week for one semester. Notes were taken on a classroom-seating chart so that observed behaviors could be documented, but to avoid biasing their observations, neither observer knew who the low-level readers were. At the end of the semester, the three poorest readers were identified using reading test scores and teacher information. The observation data was then analyzed for the three students and the students were interviewed and asked to respond to the behaviors observed in the classroom. Each student was interviewed three times for approximately 30 minutes per session. The most common strategy used was avoiding eye contact with the teacher. The next most frequent behavior was to engage in disruptive behavior. Research has shown that teachers are less likely to seek academic contact with disruptive students. Five other strategies were identified:

- 1) becoming a good listener (students learned to pay attention to the teacher when necessary).
- 2) Rely on better students or good reader to get an assignment, find their place in the book or getting directions to complete an assignment.
- 3) Seek help from friends to include getting help with homework.
- 4) Forget to bring books and other material needed for oral reading to class. Students reported that teachers usually would call on another student instead of asking them to read from a neighbor's book.
- 5) Use manipulative techniques in and out of class to gain teachers' positive perceptions.

Brozo concluded with recommendations for improving teacher interaction with poor readers.

- 1) Develop a personal rapport with less able readers.
- 2) Become more aware of behaviors and biases.
- 3) Teach poor, passive readers to monitor

their own performance. 4) Adapt instruction to low-ability students. 5) Refer students to and cooperate with the reading specialist.

Coley and Hoffman (1990) described a program for at-risk sixth grade students designed to address their learned helplessness and enable them to view themselves as competent, capable learners. They stated that research findings showed that even with IQ factored out, self-concept and school achievement correlate significantly. They conducted a case study involving sixth-grade students classified as “at-risk” who had received remedial reading help in a resource room or special education resource instruction for a minimum of 2 years. The program was developed around three elements that would provide structure and give students some control over their own learning: question response cues, double entry/response journals, and self-evaluation. Question response cues are graphic stimuli that represent different types of questions. The goal is to give students a thinking frame that enabled them to have some control over their learning (example provided). Double entry/response journals were created by dividing a journal page into 2 sections. On the left two-thirds, the student create a graphic organizer, list key words or phrases, or replicate a cooperative learning group’s most important comments. The right one-third of the page is for reflection and response to work on the left side of the page. The teacher can also use it for responding or making comments to students. Self-evaluation gave the students a chance to take more control of their own learning. Students respond each week to three question: “What kind of a thinker were you this week?” “What was the best thing you did this week?” and “What do you hope to do next week?” Results obtained from the Waetjen Self-Concept as a Learner Scale administered six months apart (September and March) showed that all six students viewed themselves more positively as learners in March than in September. Coley and Hoffman concluded that a program can be designed that increase self-concept for learners and enhances comprehension, although none of the three components can be identified as more important than any of the others.

Eldredge (1990) reviewed the Learning and Study Strategies Inventory- High School Version (LASSI-HS), a student self-reporting assessment tool designed to measure how students study and learn, and how they felt about studying and learning. The first five scales focus on attitude, motivation, management of time, school anxiety, and concentration. The second 5 scales focus on thinking that students use to process information, directing their attention, comprehending expository material, reviewing and retaining information, and preparing for tests. The inventory contains 76 items, each keyed to one of the ten scales composing the inventory. Students are asked to mark one of the following

responses for each question: a) Not at all like me, b) Not very much like me, c) Somewhat like me, d) Fairly much like me, e) Very much like me. The LASSI-HS was normed from a sample of 2,616 high school students in a midsize city in the southwestern U.S. Norms were developed for 9<sup>th</sup> grade (n=857), 10<sup>th</sup> grade (n=500), 11<sup>th</sup> grade (n=575), and 12<sup>th</sup> grade (n=604). Noted strengths of the inventory- its focus on processes of learning rather than the products; its usefulness for low-achieving students; and its focus on issues related to motivation. Eldredge noted that there was a lack of evidence of reliability and validity that results from the LASSI-HS being an adaptation of the Learning and Study Strategies Inventory (college). It was modified using high school level vocabulary and reflects learning tasks and demands of the high school environment. The authors of the test (Weinstein and Palmer) claimed that the same conceptual framework underlies both tests and both instruments contain the same scales and almost the same number of parallel items. Weinstein and Palmer cited a test- retest reliability of .88 over a 3-4 week interval and an internal validity from .68 to .85 but did not document whether these result are derived from the LASSI or LASSI-HS. Eldridge noted that assuming the validity and reliability of the LASSI-HS based upon statistics for the LASSI is considered unwise.

Sanacore (1990) looked at what social studies teachers can do to promote the lifelong reading habit. Several suggestions were presented: 1) Include literature as part of the instructional program. Using literature such as historical fiction, diaries, biographies and autobiographies increases the potential for enjoying reading and for considering it as a lifelong activity. 2) Using a wide variety of materials during class time such as newspapers, anthologies, paperbacks, magazines provided diversity. 3) Read aloud to student regularly can promote interest by acquainting students with a wide variety of materials and provides a model of good reading habits. 4) Avoid conditions that dissuade students from reading. It is stated that book reports do more for killing a young person's interest in reading than to promote it. Alternative activities suggested included a computer date with a book, which includes characteristics about the book and a previous reader. Book a trip asks students to identify where they would like to travel, then to research a place and make an oral report using visuals to support their information. Sanacore provided a brief list of books that can be read aloud in social studies classes.

Vacca and Padak (1990) investigated who is at risk in reading. Slavin (1989b) had identified "risk factor" to define those students who would in all probability not graduate from high school. Among the factors listed are low achievement, retention in grade, behavior problems, poor attendance, low socioeconomic status, and attendance at schools with large numbers of poor students. Students who are at-

risk in reading tend to be those who failed to learn to read effectively, they tend to read to “get through” an assignment, they also felt they had no control over their ineffective reading skills. They do not view themselves as competent readers, and fail to value reading as a source of information and enjoyment. If they have strategies, they are limited or are applied ineffectively or inappropriately. Vacca and Padak concluded that teachers had little control over factors such as a student’s past educational experiences, socioeconomic status or financial resources available. Other factors are within the span of teacher influence and can be addressed as part of the program in the classroom.

Alexander and Cobb (1992) argued that, because of the strong relationship between attitude and comprehension, teachers should assess students’ attitudes towards reading. Attitude assessment can be either reactive (student is aware of the assessment process) or nonreactive, such as observation in the classroom, where the student is not aware of the assessment. The authors caution that the value of reactive attitude assessment depends on many different things- the validity and reliability of the assessment, the manner in which it was administered, even the honesty of student responses. Nonreactive assessment has the problems of time restraints that may limit what the observer get to see. Another consideration is how the examiner defines attitude. Alexander and Cobb noted the importance of attitude towards content school subjects, which may be related to grades or achievement in those subjects. They listed several needs in attitude assessment at the middle, secondary, and community college level: 1) Innovative techniques—ways to clarify how student-teacher interactions affect getting honest student responses on self-report measures. 2) Qualitative research—needs studies that use participant-observer techniques. 3) Stability of attitude over time—needs more longitudinal studies. 4) Instrument development—need better reliability and validity on present instruments. 5) Authentic measures—need measures that involve students in the assessment process. They also provided is a list of available attitude assessment instruments, by focus, and a list of sources for more information.

Sanacore (1992) talked about ways that teachers can encourage the lifetime reading habit. Independent reading is one way of promoting lifetime literacy and schools need to use in class time to encourage the reading habit. Providing a classroom environment that contains a variety of materials for students to reading such as newspapers, magazines and books. Sanacore stated that allocating 5 weeks of class time over a year allows students and teachers 35 weeks for instructional activities, and quizzes. Another method suggested is doing a book talk to motivate individuals to want to know more about a book. Sanacore concluded by presenting an example of book-pairing, suggested pairs of young-adult literature

with an adult reading counterpart. Three examples provided are Irene Hunt's *Across Five Aprils* with Ernest Hemingway's *For Whom the Bell Tolls*; Mildred Taylor's *Roll of Thunder, Hear My Cry* with Harper Lee's *To Kill a Mockingbird*; and Sue Ellen Bridger's *Home Before Dark* with John Steinbeck's *Grapes of Wrath*.

Smith (1992) looked at the connection between reader-response and textbook reading. Reader-response theory stresses meaning, "meaning is not in the text, but is derived from the interaction between the content and structure of the author's message and the experiences and prior knowledge of the reader" (Chase and Hynd, 1987, p.531). Smith asked a group of college age remedial reading students to fill out a questionnaire (provided) addressing issues such as textbook format and writing styles. One student said he did not like reading because it took up too much time. Another, stated he never really read much until his senior year of high school, then he realized how far behind he was. In contrasting high school and college reading, one student said he skipped over or skimmed the material and just took good notes in class. "It worked in high school, but it doesn't work in college." Another emphasized she read college books slowly, and sometimes twice, whereas in high school she read everything once, and if she did not get it the first time, she did not care. When asked what stopped them from understanding what they read, students identified many factors. The large amount of information under headings and subheadings of a textbook make it difficult to know what to concentrate on. Excessive amounts of dates, examples, and name references distracted from identifying main ideas so that students did not know what was most important, the examples, the dates, the name references, or the main ideas. Another problem was technical language, when simpler words could have easily been used to express the same thing. Textbooks are universally viewed as boring (attributed to the length of the reading passages, impersonal writing style was also identified as a factor in boredom, reading was boring because much of what they read did not appear on tests, even when they thought it was important. Many students skip over diagrams, graphs, charts, pictures, boldface and italic print, examples, headings and subheadings, footnotes and name references, and specialized vocabulary. The students stated that "this stuff" could be left out of the chapter without affecting the author's main point. Using these points to modify the course outline, Smith revised his approach and found that students made additional strides at moving from passive readers to active readers.

Blintz (1993) investigated the personal, home, and school reading contexts of resistant secondary school readers as they move through grades 6 to 11, He explored students' implicit resistance to reading school-assigned materials as an explanation for why students' interest in school reading declines after elementary school. According to Chall (1983) in an analysis of literacy trends based on National

Association of Educational Progress test results over the previous decade (1970-1979), “although students demonstrate gains in reading during the early years, these gains seem to taper off in the middle and upper grades, and seem to decline during the high school years.” Blintz designed a research study with four selected high schools that reflected rural, small town, suburban, and urban settings. Eleven students from each high school were randomly selected, using analysis of results from the Iowa Reading Test (1987). Each student reflecting one of three patterns of reading achievement scores: 1) four students in each set demonstrated increasing reading achievement from grades 6 to 10; 2) four demonstrated decreased scores; and 3) three demonstrated stable scores. Data collection involved open-ended, tape-recorded interviews with each of the students, one of their parents and at least one teacher. The focus of the interviews was to reconstruct retrospective accounts of the student in-school and out-of-school reading experiences. All interviews were transcribed and used to write individual student autobiographies. These first person accounts were mailed to the student who was invited to read the autobiography, write critical comments and then return the edited copy. Blintz indicated, three portraits emerged from this portion: avid, passive, and reluctant readers. Two factors were most responsible for a student having a love of reading: 1) the presence of positive role models for reading and 2) a wide variety of materials and seeking out a variety of reading resources. He listed the following characteristics of passive readers:

- They did not actively seeking out opportunities to read or experiencing little pleasure at reading.
- They read primarily at school, infrequently at home.
- At school, they read to comply with teacher-assigned tasks and to be accepted by their peers.
- They believed reading was a linear, non-stop process, and they experienced difficulty monitoring their own comprehension.
- They lacked fix-up and look-back strategies and had difficulty making intertextual connections and relating stories to personal experience.

Reluctant readers ranged from those who read poorly to those who read well but would not or at least actively avoid reading, whenever possible. They had long instructional histories of reading difficulty and reading failure. They appeared apathetic, withdrawn, disinterested, and unmotivated about school, participating in class mostly by answering questions on assigned readings.

After investigating the student profiles more carefully, Blintz noted that students systematically use a wide variety of reading strategies depending on the nature and purpose of reading itself: 1) Predicting important sections of the text, reading only those sections. 2) Predicting teacher made test questions. 3)

Skimming chapters, attending mostly to information in italics and bold print. 4) Reading only the first sentence of each paragraph. 5) Reading selected chapters and the book jacket to complete a book report.

Blintz found:

- 1) Indicators that questioned the assumption that many secondary readers lack interest in reading. Students lose interest in school reading but do not appear to lose interest in reading per se.
- 2) Indicators that questioned teacher's assumptions that reading is an integral part of content area courses and that student's value and read content textbooks. Students reported that content reading assignments were not meaningful or relevant to their personal lives. It requires little more than routinized identification and memorization of isolated facts from texts.
- 3) Indicators that questioned the assumption that the reading strategies students use in school are similar to those used outside of school. In school, students use a variety of shortcut strategies because they were little interested in the assigned material.
- 4) Often student reading strategies are assessed as functional or dysfunctional. Every reading strategy is functional in the sense that it allows the particular student to systematically circumvent, subvert, or put up with what they perceive to be unsatisfying reading experiences. Much of the expressed dislike seems to focus on the student's inability to have a voice in the reading curriculum.
- 5) Indicators that questioned the efficacy of using labels such as avid, passive, and reluctant reader. Readers can be classified differently in different content subjects and vary both in school and outside of school in their reading abilities and demonstrated skills.
- 6) Reading instruction must be based on a proficient model of reading that focuses less on student deficiencies and more on student strengths. Blintz concluded that the decline in reading is a complex problem, with simple causes and no simple solutions. Educators need to identify current beliefs about reading curriculum, assessment, and schooling and reflect on how these beliefs drive reading instruction in the classroom.

### **Assess Reading Ability**

Kibby (1993) presented what reading teachers should know about reading proficiency in order to assess reading ability. Data that is currently being published about reading proficiency of students in high school indicates that reading levels have been dropping for some time. Kibby says that is not the case, available data for contrasting past and present reading abilities displays no downward spiral of reading scores, but warrants the conclusion that reading proficiency of today's students meets or exceeds that of

students from any other era. Kibby sought to present a review of sources, conclusions and limitations of the data trends in reading ability in America between 1840 and 1990. Three sources of data are available for evaluating reading in the past and present:

1. **Then and now studies.** Before the establishment of National Assessment of Educational Progress (NAEP) in 1968, no systematic national assessment of educational progress existed in the U.S. Then and now studies compare data from school populations using the same standardized test administered in the past to test a present day population. Though a few Then and Now studies are technically sound, most suffer technical limitations that weaken their data, findings, and conclusions:

- a) Subjects of then and now studies have often not been representative of a defined population.
- b) When subjects of then and now studies have been representative, they often are not comparable due to demographic changes:
  - 1) age- there have been major changes in school starting dates and retention rates in the past 50-90 years.
  - 2) race/ethnicity- there have been significant increases in the percentage of the population that is a minority or whose first language is not English.
  - 3) educational levels- more students today are remaining in school and are completing more grades than decades ago.
- c) Tests used in Then and now studies were designed for the Then students and contain items that are often outdated for now students:
  - 1) Test items relating to farming and rural issues.
  - 2) Test items dealing with the League of Nations or the TVA.
  - 3) Prices off commodities mentioned in passages are outdated and distracting.
  - 4) Chores are mentioned in test items that are outdated and distracting such as bringing in milk from the porch.
- d) Many early Then and Now studies used weak statistical analysis.
  - 1) Reports of analysis of 20 then and now studies done between 1845 and 1976 provided no evidence to support a conclusion of declining reading ability in the U.S.

2. **Trends from test restandardization data.** These are studies undertaken by publisher of standardized tests in order to revise a currently used, but aging, achievement test. To link test norms, both the old and new test are administered to a group of students representing the population to be tested. By

comparing the scores of the current students on the two tests, it is possible to examine change over time. Another method is to renorm a test by administering it to a new group of students. By comparing old and new norms, trends can also be ascertained.

a) Data from test restandardization studies between the 1950s and 1990s support three varying conclusions:

1) Some studies find gains in reading by students in Grades 1-12 from the 1950s to 1980s. (Iowa Test of Basic Skills, SCAT Tests, the Metropolitan Achievement Test)

2) Other studies find significant gains between the 1950s and the 1980s in reading by students in Grades 1-8, but a slight decrease by students in Grades 9-12. (Gates Reading Survey/Gates-MacGinitie Reading Test, the Comprehensive test of Basic Skills, and the Stanford Achievement tests.

3) Some studies find steady or increased achievement by student in Grades 1-8 from the 1950s to the 1980s, but for students in Grades 9-12, scores increase only until the mid 1960s and then decrease until the 1980s. (Restandardization studies of for the Iowa Tests of Educational Development and the Sequential Tests of Educational Progress).

In sum, test restandardization studies find no significant decrease in reading achievement for students in Grades 1-8 after 1950; in fact, they find a modest increase. For students in Grades 9-12, the data are mixed.

3. **National Assessment of Educational Progress (NAEP).** NAEP Reading has been administered to 9-, 13- and 17-year old students in six national assessments (1971, 1975, 1980, 1984, 1988, and 1990)\* (\* as of this article). Scores on the test, which any particular student only takes a portion of the entire test, are reported as proficiency levels ranging from zero to 500. The essence of the range is restricted to 150-350 and divided into 5 ranges, and a student at a given proficiency is able to do certain tasks.

150 or rudimentary, comprehend simple, discrete reading tasks.

200 or basic, locate and identify facts in simple texts, combine ideas, and make inferences.

250 or intermediate, interrelate ideas and make generalizations.

300 or adept, understand complicated information.

350 or advanced, learn from specialized reading materials.

a) Results of the NAEP from 1971 to 1990 show:

1) The scores of 17 year olds have increased from each assessment to the next, but only the 1990 score is significantly higher than the 1971 score.

2) For 13 year olds, an upward progression from 1971 to 1980 was followed by a downward progression from 1980 to 1990, but none of these fluctuations was statistically significant.

3) For 9 year olds, there was a significant increase in reading scores from 1971 to 1980, followed by a significant decrease in scores from 1980 to 1990.

Resulting in differences between 1971 and 1990 that are not significant. Kibby concluded that one reason why people believe reading ability had decreased is an interesting finding in George Gallup's national opinion surveys about schools and education, which has appeared in *Phi Delta Kappan* magazine for the last 25 years. In every survey, Gallup had found that parents give their own child's public school one grade, usually quite high (e.g. B+), but at the same time give public schools in general a full grade lower (e.g. C+).

### **Attention To Reading Task**

Research on attention to the reading task centered on what skills and strategies good readers use that poor readers do not. Additional areas of research included finding reading material that portrayed minorities and ethnic groups in a more favorable light for the purpose of both accurately representing these groups and providing students who are members of these groups with positive role models and how motivation contributes to engagement in reading.

Wade, Schraw, Buxton, and Hayes (1993) looked at the effects of interest on readers' use of strategies and recall of information, focusing on the following questions: 1) Do skilled readers consider interesting information easier to remember, this requiring less attention? 2) If so, do they still devote extra attention to interesting information, whether it is important or not? 3) Is the kind of attention they devote to interesting information the same kind they devote to important, difficult-to-learn information? In this research study, the authors hypothesized that readers would spend more time and effort on important, uninteresting parts of text because those parts were hard to learn. They would devote less time and effort to important interesting information because it was relatively easy to recall. In addition, they would allocate the least amount of time and effort to unimportant information, whether it was interesting or not. The first experiment investigated the duration of attention and recall of skilled college readers for information that varied in interest and importance. The second experiment was an interview study in which verbal-report data was collected about all three components of selective attention strategies (will, effort, and duration).

-Do skilled readers take into consideration the variables of interest, importance, and difficulty as they plan

and carry out their strategies?

-Are they purposeful and aware of what they do when they read different kinds of information in text?

-Do readers reread, memorize, or relate what they are reading to earlier text information and to their own background knowledge?

The subjects in experiment #1 were 43 college students from an introductory education course at a large public university. Information was collected concerning their background knowledge and interest relevant to the content of the experimental passage. On a 7-point scale, the mean background knowledge was 2.06 with a SD of .93; for interest the mean was 2.80, SD was 1.51. Results indicated that information that had been rated as interesting was recalled better than uninteresting information. Information rated interesting but unimportant was the most memorable. In contrast, important but interesting information was the least memorable. Students spent twice as much time on important but uninteresting material as they did on high interest/high importance or low interest/low importance portions of text. This supports the idea that the mature reader first discriminates between important/unimportant information then allocates extra attention to the important information that it requires. Unimportant, interesting information appears to attract reader's attention in spite of the fact that it is neither important nor difficult to remember. Experiment #2, conducted one academic year later, consisted of 30 college students enrolled in the same introductory education course, who read the same text as the students in experiment #1. Students were individually tested and interviewed to determine how they characterized four selected passages from the readings. They were asked to identify those factors that helped them categorize the difficulty and interest level of each passage, and what strategies they used to evaluate and interpret the passage. Results confirm the finding of experiment 1. Readers seem to use the criteria of importance and difficulty to guide their decision about how to allocate time and effort. They judged important factual details to be both important and difficult to learn because they were highly factual, dense with information and uninteresting. They were also aware of spending relatively little time on main ideas and boring details. However, most students were unaware of the time spent reading unimportant but interesting details. Surprise and the interest the information elicited seemed to be the motivating factors. Wade, Schraw, Buxton, and Hayes listed two implications of this research for textbook writers: 1) The emphasis ought to be away from making text more interesting to making important information more interesting. 2) It suggests that text can be made more comprehensible by including appropriate amounts of background knowledge and by focusing on text coherence as a way to create interest.

Sylwester (1994) looked at how emotions affect learning. He stated that research had shown that far more neural fibers project from our brain's emotional center into logical/rational centers than the reverse, so emotions are often more powerful determinant of our behavior than our brain's logical/rational processes. Emotions allow students to quickly respond to issues and by-pass conscious deliberations. Reason may override our emotions especially as we mature, but rarely does it change our real feelings about an issue. This explained the attraction that some writers had for weaving stories that "hook" the reader but may have little or no "substance" as far as the merits of the material goes (romance stories, or pulp fiction). Sylwester discussed the neurological processes that interact such as the brain stem, the limbic system and the cerebral cortex. Several generalizations can be made with classroom applications: 1) Emotions exist and are not learned in the same ways we learn a telephone number or our address and we cannot easily change them. 2) Schools should focus more on metacognitive activities that encourage students to talk about their emotions, listen to their classmates' feelings, and think about the motivations of people who enter their curricular world. 3) Activities that emphasize social interaction and that engage the entire body tend to provide the most emotional support. 4) Memories are contextual. Activities such as simulations, role-playing, and cooperative learning may provide important contextual memory prompts that will help students recall the information during closely related events in the real world. Emotionally stressful school environments are counterproductive because they can reduce students' ability to learn. Self-esteem and a sense of control over one's environment are important in managing stress. Sylwester concluded that we needed to consider the suggestion of John Dewey that we need to educate the whole child.

June (1995) presented the idea that if one is to offer multicultural literature in class, in order to reach members of minority ethnic groups and subcultures, its characters and situations need to appeal to the reader. In 1992, while a graduate student at the University of Chicago, Raymond June had the opportunity to record student reactions to a multicultural textbook. For two-weeks, he observed three classes of 10<sup>th</sup> grade students (most were African-American, two were Asian-American, and one was White). While initially enthusiastic about the focus of the text, when it came to actually reading stories from the book, interest declined dramatically. Students failed to bring their book to class or even take the book out of their book bags. Class discussions lagged because students had not done their reading assignments. Student apathy appeared to be focused on the reading process, not on the content of the book. Interviews with students confirmed these observations. June believed that many students are ambivalent to reading itself and that the solution to this situation is to help groups of students to share critical responses to literature.

The teacher must first choose literature that will draw the group together and then work out approaches that are socially appropriate for those learners.

Guthrie and Wigfield (2000) talked about engaging students to read and its consequences with particular focus on how children's motivation contributes to engagement. They also discussed how various instructional processes could facilitate reading engagement and motivation. Based on their investigation they recommended further research in four areas: 1) Richer characterizations of engaged and motivated readers from more extensive interviews and observational studies. 2) The need for contextualized observations or measures that would be most responsive to classroom, environmental, or interpersonal events. 3) The need for empirical investigation of the emerging reading engagement model. 4) The need to use multiple methodologies to understand and portray schools that are winning the battle against disengagement from reading, both qualitative and quantitative.

### **Comprehension**

Stewart and Cross (1991) explored the effects of marginal glossing on college students' comprehension and retention. Marginal glosses involve writing amplifying or observational thoughts either directly on the pages to be read or on a separate sheet of paper. They are keyed to specific text passages by arrows or brackets that direct the reader's attention from the glosses to the text and vice versa. Stewart and Cross conducted two studies. Study 1 attempted to determine whether marginal glosses result in better retention of intentional and incidental information. Study 2 focused on whether marginal glosses had a differential effect on comprehension and retention when prior academic performance and success were used as a grouping criterion. The subjects were 28 first-year undergraduates, 53 second-year, 22 third-year, 13 fourth-year, and 5 post baccalaureate students seeking teacher certification. They ranged in age from 18 to 51 and had GPA ranging from 1.5 to 4.0. Students were assigned to six course sections of 20 students each. All sections had nearly equivalent attendance, test scores, and no significant GPA differences or age differences. Two sections were given a marginal gloss. Instructors modeled its use and discussed the purpose behind reading the article and using the gloss. Two other sections received no gloss but did discuss the purpose behind reading the article. The remaining two sections did not participate because they were a few days behind on the syllabus. On the day of the article, students took an unexpected 25-item test on the article before any discussion. The test consisted of multiple-choice and true/false items, some tested information and inferences targeted by the marginal glosses and others which tested by incidental learning. Questions at the end asked students if they had read the article and if they had used marginal gloss. The

same instrument was used again 4 weeks later as a delayed retention interval test. Test-retest reliability was .65 for all subjects. Sixty-six students read the article on time and took both the immediate and delayed retention interval tests. Thirty-four used marginal gloss and 32 either did not use it or were in the control group. The results indicated that students who used marginal glosses showed better initial learning of both intentional and incidental material. On the delayed posttest, these higher scores were maintained only for intentional learning. The second study was conducted at the end of the semester. Its purpose was to test the effects of marginal glosses on comprehension and retention. The authors postulated that marginal gloss would have little effect on test scores of high achieving students, and that they would help lower-achieving students. Marginal gloss was modeled to three sections of the class in conjunction with the final article covered. The other three sections formed the control group. The final exam was 20 multiple choice and true/false items and several short answer questions. When the whole class was considered, there were no significant differences between experimental and control groups on incidental learning items, intentional learning items, or total score. When GPA was used to form subgroups, the low GPA group (26 students with GPA's from 1.5 to 2.4), showed a significant difference in intentional learning items, and no significant difference on incidental learning or total score. The middle GPA group (59 students with GPA's from 2.5 to 3.2) and high GPA group (5 students with GPA's from 3.3 to 4.0) showed no significant differences. Stewart and Cross concluded that although marginal glossing is a frequently recommended study strategy, its usefulness might be limited and further research is needed to determine whether marginal gloss worked and under what circumstances.

### **Purpose for Reading/Writing.**

Research in this area presented various strategies such as journal writing and the connection between using reading and writing.

Dowd and Sinatra (1990) presented a variety of computer software program that teachers can use to integrate the learning and application of text structures in ways that encourage students to become readers and writers. They provided good background material on narrative, expository, persuasive and descriptive text structure, their characteristics and objectives for each. The computer programs they presented are interesting to study from the viewpoint of what was available at the time of this article and what they could and could not do, but had little other educational relevance.

The International Reading Association's Reading / Language in Secondary Schools Subcommittee (1990a) looked at a reading-writing connection in the content areas. They stated that since so many

content classes are text driven, teachers might dramatically increase learning by adding reading-writing strategies to their teaching methods. Citing Readence, Bean, and Baldwin's (1989b), the authors suggest the use of:

- 1) "Possible sentences" to help students to learn content material.
- 2) Visually display key vocabulary that is adequately defined in the passage context. Pronounce each word,
- 3) Using key vocabulary, individual students or groups predict sentences that may appear in the lesson.
- 4) Students read the lesson to verify sentences they have written.
- 5) Sentences are evaluated for accuracy, refining or correcting of errors.
- 6) New and improved sentence are generated if needed.

-The use of Learning logs where students write about their classroom learning experiences and clarify their thinking as they explain concepts in their own words.

-Freewriting, where no restrictions are placed on the writer's thinking. The purpose is for students to generate a flow of words and thoughts without concern for polished phrases, mechanics, or structure.

-Dialogue journals resemble a letter or memo written by the student to the teacher, and emphasize a communication flow between the two.

-RAFT is an assignment usually from a viewpoint other than the student's, to an audience other than the teacher, and in a form other than the standard theme. (See Holston and Santa, 1985). The members of the committee suggested it as a way for the teacher to summarize a unit of study.

-Opinion-proof is an organizational system that helps students learn to support an argument with evidence. It is similar in nature to a double-entry journal with the left one-third of the paper labeled "Opinion" where the student writes their opinion about a topic of study. The right-hand column labeled "Proof" is used to list information obtained from reading that helps them support their opinion. After reading, the students write a persuasive paragraph or essay about the lesson.

Hancock (1993) talked about the use of character journals as a way of initiating involvement and identification through literature. A list of suggested young adult literature, a list of suggestions for teachers utilizing character journals and a student guideline for a character journal are provided. A character journal is a written diary kept by the reader as they assume the role of the main character. Readers maintain an on-going journal by writing about one episode. The reader writes in the first-person voice of the character, sharing his or her thoughts and feelings in response to the unfolding events of the book. A character journal encourages adolescents to read quality literature, to assume the role of the main character, to compose

written responses that reflect a deeper personal involvement in the reading process, and to gain insight into their own identities. It provided a reflective opportunity for the reader to think, to judge, and to weigh the actions, emotions, and reactions of the character against his/her own emerging identity. Hancock provided four criteria used to select appropriate young adult literature: 1) The age of the main character must be similar to the age of the reader. 2) The main character must be strongly portrayed and evidence growing maturity as the book unfolds. 3) The plot must unfold through highly emotional events in which the reader can become involved. 4) The text must be written in the third person so that conversion to the first-person voice of the character is original. Reading and character journal writing occur as a part of the classroom instruction period. Hancock stated that one of the goals of reading is to instill the enjoyment of the reading process in students. She believed that the character journal may be a vital tool for reaching students and getting them involved in reading.

Bean (1998) talked about the impact of having college students in a content area reading and writing course engage in dialogue journal writing. In addition, Bean asked his students to write autobiographical accounts of their literacy experiences spanning early, middle, and later stages. He argues based on comments made by some students that college professors need to expand on past practices by engaging their students in reading and discussion of young adult literature to enhance concept learning in core content areas. This needs to be carried over by these students (teachers) to their content classrooms. From journal dialogues with students, Bean noted a common theme that appeared was the consistent declining interest in reading that accompanies entrance to the middle and secondary grades. This can be attributed in part to a loss of individual choice about what books to read, the demand of reading for a grade, and the rewards and penalties that go with it. Many students continue to look for literature that is of interest to them whether it is fictional stories, comic books or some type of adult novel. A second area of focus is on students dealing with social and emotional issues that are not adequately addressed in school related literature. Thirdly, content area concepts are presented in a fashion that does not make good connections between what students are reading and learning from textbooks and the world outside of the classroom. Bean offered several recommendations for incorporating young adult literature into the curriculum and provided some suggested literature for use in the classroom. One suggestion is that teachers need to select appropriate young adult literature as a focus for students to analyze an issue. Bean recommended the use of discussion format and study guide questions to focus students or a more student-guided structure such as literature-circles, a small student-led discussion group that provides a means of

empowering students to participate and engage in meaningful research and discussion. Second, time needs to be set aside for artistic and creative response to books. Bean suggests that this need not be limited to in-school texts since students frequently read other materials than that assigned. Third, the use of multicultural literature to look at issues of racism and aimed at reducing prejudicial attitudes and discrimination. Bean concluded that without a reassessment and alteration of past practices in the classroom "we are doomed to repeat the past and forge literacy histories very similar to our own."

### **Readability**

Readability research looked at assessing the difficulty level of materials that student encounter, primarily in content textbooks.

Fry (1990) presented a readability formula suitable for passages from 40 to 99 words (provided they contain at least three sentences). It can also be used for passages between 100 and 300 words long. The new formula is based heavily on the work of Edgar Dale and Joseph O'Rourke and their book *The Living Word Vocabulary*. This book gave a grade level for 43,000 different items, probably 99% of all the words used below grade 13, according to Fry. It also gave grade levels by various meanings of words. To use the formula you must look up each key word by its particular meaning in the passage. The average level of the three hardest key words is the first input into the formula. The second factor is sentence difficulty, which can be obtained for each sentence from a chart provided. The chart is based on the median sentence difficulty of the Fry Readability Graph (Fry, 1977). The grade levels of all sentences in the short passage are averaged. Then the Sentence Difficulty and Key Word Difficulty are averaged to give a Readability Grade Level. Correlation validity between the Short Passage Readability Formula and the regular formula is .82 of all passages used and .95 if passages at Grade 15 are removed. Fry claimed the Short Passage Readability Formula is useful for judging difficulty level of passages from grade 4 through grade 12.

Schumm (1992a) asks the question: How difficult are textbooks? She stated that Diane Kinder, Bill Bursuck, and Michael Epstein of the Educational Research and Services Center at Northern Illinois University had examined widely used social studies textbooks to see just how tough they are. They selected 10 American history textbooks published since 1985. To ensure uniformity of content, only chapters on the post-World War II era were checked. Analysis consisted of examining readability level, global cohesion (test organization), local cohesion (pronoun references), location and type of questions included, and vocabulary density. The readability of the books varied from grade level 9 to 15 (the mean was 10.9). The books also varied in respect to clarity of pronoun reference and number and type of questions included.

Only one textbook included questions at the beginning of the chapter to help activate prior knowledge. All the chapters analyzed included subheadings to promote global cohesion and most offered introductions and summaries, although the quality of the introductions and summaries was questionable in some texts. Schumm stated that one area of consistency was the introduction of technical vocabulary. All the textbooks introduced approximately one new word per page and all highlighted key vocabulary. Variability among textbooks prompted Schumm to recommend teachers closely scrutinize textbooks before adoption. Teachers might consider an analysis of their assigned textbook- particularly an analysis of text features that might enhance comprehension. This would sensitize teachers to weaknesses in the textbook that might pose problems for students.

### **Reading Comprehension**

Reading comprehension research focused on issues such as the impact of cultural schema, teaching students how to interact with text, and the effectiveness of predicting and self-question as aids to comprehension

Pritchard (1990) examined how cultural schemata influence students' reported strategies and their reading comprehension. Sixty proficient 11<sup>th</sup> grade readers- 30 from the U.S. and 30 from the Pacific island nation of Palau- read culturally familiar and unfamiliar passages in their own language. Students were asked to give verbal reports of their reading strategies as they read, and to retell the passage after the reading. The author compiled taxonomy of 22 processing strategies in five categories 1) developing awareness, 2) accepting ambiguity, 3) establishing intrasentential ties, 4) establishing intersentential ties, and 5) using background knowledge. Students were found to use strategies in categories 1 and 3 significantly more often for the culturally unfamiliar than for the culturally familiar passages and strategies in categories 4 and 5 significantly more often for the culturally familiar than unfamiliar passage. Americans used a wider range of strategies than the Palauans. An examination of the individual protocols revealed differences related to cultural familiarity in the rate and sequence of the connections that readers made between individual propositions in the text. In their retelling, students recalled significantly more idea units and produced more elaborations, as well as fewer distortions, for the culturally familiar than for the unfamiliar passage. This would indicate that when reading culturally unfamiliar material, readers lack the relevant schemata, which leads to greater ambiguity. Cultural schemata thus appear to influence readers' processing strategies and the level of comprehension they achieve. Furthermore, students who lack background knowledge of the topic appear to use comprehension monitoring strategies as scaffolding for their construction of meaning

from the text. According to Pritchard, reading comprehension appears to have a strong connection to cultural familiarity, and therefore one cannot assess reading without considering the cultural content as well. Instead of “good” and “poor” readers, we may have good and poor reading behaviors that characterize most readers at different times.

Tierney (1990) looked at four major developments between 1970 and 1990 that have helped expand reading comprehension as a creative endeavor. He concluded that:

1) Reading as a constructive process: A person’s background knowledge is a good indicator of comprehension, but it also guides the reader through text and enables them to suggest scenarios, make predictions, identify and emphasize with characters, and relate to events or settings and their interplay.

2) Reading as writing: Both processes require researching, asking questions, tying together ideas, and rethinking.

3) Reading as engagement: Reading connects the reader to their imaginations and reaches beneath the surface to fuller considerations of the reader’s emotional, affective, and visual involvement.

4) Reading as situation based: Information cannot be limited to a single point of view, interpretation or system of classification. Reader’s understanding is enhanced when readers crisscross their explorations of ideas or vary their engagement within text worlds.

Flood and Lapp (1991) reviewed research concerning effective reading comprehension instruction. They stated that most educators agree that competent readers’ exhibit a set of discernable characteristics and actively construct meaning through an integrative process in which they “interact” and “transact” with the words on the page, integrating new information with preexisting knowledge structures. Additionally, a reader’s prior knowledge, experience, attitude, and perspective determine the ways that information is perceived, understood, valued, and stored. They identified elements of a reading plan that competent readers use for approaching the reading task. While the reader’s plan varies, the following were identified as elements competent readers use:

Before Reading- Preview the text. Build background by activating appropriate prior knowledge. Set purposes for reading.

During Reading- Check understanding of the text by paraphrasing. Monitors comprehension by using contextual clues to figure out unknown words. Integrates new concepts with existing knowledge.

After Reading- Summarizes what had been read by retelling. Evaluates ideas contained in the text. Makes applications of the ideas in the text to unique situations. Flood and Lapp stated that reading instruction in

the classroom need to be conducted in such a way that readers are encouraged to build meaning based upon their experiences and knowledge. They concluded, comprehension is a complex phenomenon that cannot be easily measured and it can almost certainly cannot be measured with a single instrument.

Gauthier (1991) discussed the use of student journals for assessing content area comprehension. According to the author, having students respond to text they have read has been shown to increase students' comprehension and to promote greater interest and involvement in reading. Gauthier presents a 3-step method for using response journals: Step One- Introduce a concept and have students define the concept. Step Two- Allow students to make journal entries. Step Three- Examine the journals and prepare subsequent lessons. The teacher needs to read and evaluate what the students have written and they develop follow-on lessons that address student concerns, interests and level of or lack of knowledge. Gauthier suggested that students be allowed to make journal entries everyday and teachers need to monitor these entries to check student comprehension and plan for future lesson accordingly.

Kletzien (1991) presented a study that examined how the interaction of reader ability, text difficulty, and strategy knowledge affected regulation of strategy among good and poor comprehenders in high school. Forty-eight U.S. high school students of average ability, half good comprehenders and half poor comprehenders, read three expository passages of increasing difficulty. Good comprehenders read the original passage while poor comprehenders read versions revised so that passages would be of the same relative difficulty for both groups. Both sets of students were asked to fill blanks left by randomly deleting 12 content-dependent content words. Subjects were asked to explain their reasoning processes for these cloze responses, and subjects' explanations were analyzed to identify their comprehension strategies. All subjects reported depending heavily using key vocabulary, rereading, making inferences, and using previous experience in constructing responses for all three passages. In addition, readers used more organizational strategies (recognizing passage and sentence structure) on passages of medium difficulty that on the other two passages. Kletzien found total strategy use declined for poor comprehenders as texts became more difficult. Good comprehenders also used more strategies on easier passages, but their strategy use was the same on the medium and difficult passages. When compared directly, the two groups used the same type and number of strategies on the easy passage, but as the passage difficulty increased, good comprehenders used more types of strategies and used strategies more often than the poor comprehenders did.

Nolan (1991) examined the effectiveness of combining two cognitive strategies, self-questioning

and prediction, for a range of students reading below grade level. He stated that comprehension difficulties are often related to readers' failure to participate actively in the reading process. Nolan hypothesized that combining self-questioning with prediction would require more active involvement of the reader with the text. Self-questioning directs the learner's attention to critical aspects of the text, while prediction provides a purpose for reading because readers anticipate coming events in the passage. Forty-two students in sixth, seventh, and eighth grade, whose reading comprehension ranged from 0.6 to 3.9 years below grade level as assessed by the Gates-MacGinitie Reading Test were matched and assigned randomly to one of three groups: self-questioning with prediction (SQWP), self-questioning (SQ) and control vocabulary intervention (CVI). For the SQWP and SQ groups the examiner provided instruction, modeling, and application of the metacognitive techniques, along with the rationale for using the techniques. For the CVI groups, the examiner provided instruction and application that emphasized vocabulary development. Within each group (SQWP, SQ, and CVI), students were organized into four groups according to the number of years below grade level in reading they were. Student in the SQ groups were instructed and given feedback on how to identify the main idea, write it down, and how the main idea could be changed into a question. During the second session, students reviewed the previous steps and were instructed to write down their question and to answer it. During the third session, students reviewed the technique and were given additional practice. Students in the SQWP received the same instruction as the SQ group during the first two sessions. During the third session, they received instruction and modeling regarding the benefits of prediction what the author might discuss in the next section of the text. Students in the CVI group received traditional instruction from a basal reading program that emphasized understanding key vocabulary prior to reading a passage. Nolan concluded that the use of the combined strategies of self-questioning with prediction scored higher than those who used only self-questioning or a more traditional vocabulary development intervention at all four reading levels. According to Nolan, the results of this study indicated that the use of the combined strategies improved reading comprehension of both slightly and severely disabled middle school students.

Pressley (2000) answered the question: What should comprehension instruction be the instruction of? First, he covered the ideas and research on effective comprehension that seems most relevant to consider in making recommendations about comprehension instruction. The discussion that follows is explicitly informed by the review of effective comprehension he had just described. He concluded that over the past quarter century there had been a great deal of evidence produced consistent with the general

conclusion that comprehension strategies instruction improves understanding of text. Research had shown that such instruction is possible even during the primary years. The beginning of comprehension is the decoding of individual words. Once mastered, decoding means students can read with greater fluency, vocabulary, and word knowledge, all of which contributes to comprehension. Students can also be taught vocabulary, which affects comprehension too. Finally, students can be taught a variety of comprehension strategies to help make sense of meanings encoded in text. The structured reading level is the optimal teaching and learning situation for learning while reading. Students with poor reading skills at the secondary level seldom will reach or maintain this level. The available body of research points to the fact that content area teachers need to know how to teach reading within the context of their subject area of expertise. Some of these researchers indicated that all subject content courses had specific skills that need to be taught in order for students to be successful at mastering material and that area (Roe, Stoodt, and Burns, 1999; Vacca and Vacca, 1999). For example, in order for students to master the fundamentals of geography, most curriculums require that students learn about the concepts of relative and absolute location; map skills such as reading latitude and longitude; orienting a map, how to interpret the legend of a map and how to read contour lines on a map. These tools of the subject help the student to interpret information when encountered on a map. In the same way, social studies is rich in vocabulary terms that carry unique and special meanings. Words are our labels for concepts and shape comprehension of both oral and written material. A student's word knowledge and the ability to apply it, is strongly linked to reading comprehension, intelligence, thinking ability and academic achievement. Most students have a much larger receptive vocabulary (listening and reading) than an expressive vocabulary (writing and speaking). There are many words, which you can recognize if you read them, or hear them but which you do not weave into your conversational speech. A common problem is that textbook writers, teachers, and parents assume students possess prior vocabulary knowledge that they do not. If that assumption is made, it is possible that the teacher might skip over introducing vocabulary that the student will encounter during reading. Sometimes students are already familiar with vocabulary words they encounter and their definitions. In other cases, the student is familiar with the word but it had an unknown definition or they know either the word or definition. Teaching vocabulary in the content classroom is not a simple matter. The word "party" has a slightly different meaning within the context of social studies than it does in a social gathering context. Similarly, "pass" has one connotation in football, a second connotation in driving situation, and a more specialized meaning within the social studies. There are many words students

recognize but that have special meanings. While students are probably familiar with the word “depression” and can probably give you an accurate psychological definition of what depression is, what do they think when we introduce them in World or U.S. History to a discussion about the *Great Depression*? On the other hand, the student may encounter a new word with a new definition. Some of the specialized words that pertain to the social studies that students need to learn (*monarchy, oligarchy, democracy, totalitarian, mercantilism, chivalry...*). These are words and concepts they may not know or they may know them but they have learned an incorrect definition. Students frequently use *manorialism* and *feudalism* interchangeably but the two words denote different aspects of the medieval period. They may also be aware of concepts that they do not use correctly. One such example is that in 1776, this country was established based upon the governmental concept of a democracy, right? No, it was originally established as a republic, which is different from a democracy. One area that seems to hold potential for improving reading skills in adolescents is the inclusion of supplemental reading materials into the curriculum, in spite of some studies that allege all students both dominant and minority benefit from using a set standard books in schools.

Greenleaf, Schoenbach, Cziko, & Mueller (2001) noted that persistent gaps still exist in student achievement between students who are members of the dominant culture and those who are not. They contended that such gains should be addressed by including adolescent literature material that emphasize minority characters into the classroom.

### **Reading Documents and Graphics**

This research category includes various types of documents and graphics that require students to use skills that they may not have had an opportunity to develop. Each article presents the particulars of the document or graphic and ways that teachers can teach these skills to students.

Kirsch and Mosenthal (1990a) described the use of nested lists, which overcomes a limitation hinted at in their discussion of intersecting lists (Mosenthal and Kirsch, 1989b); they can only contain three simple lists. If additional information needs to be displayed, redundant lists need to be constructed or information can be combined by “nesting.” The example presented is the percent of viewers by age and gender who watch America’s favorite TV programs. This information could be represented as four separate charts (Percent of female viewers by age who watch network TV programs; Percent of female viewers by age who watch favorite syndicated TV programs; Percent of male viewers by age who watch favorite network programs; and Percent of male viewers by age who watch favorite syndicated TV programs). It can also be presented by listing programs, vertically by “Network shows” and “Syndicated shows”, and then

horizontally “Female” and “Male” viewers, subdivided into “age groups” (18-24; 25-54; 55+) for each. The characteristics of nested lists include: 1) Nesting involves adding a second list of modifying information to a first list of modifying information. The new information must both relate to and modify the information presented in the first list. 2) One easy way to determine if a list is nested is to see whether one list of items in it is repeated. 3) Nested lists are commonly built upon intersecting lists. 4) Nesting occurs more frequently with column information. Kirsch and Mosenthal concluded that nested lists provided one way to maximize the amount of information presented on a page while minimizing the space it takes up. It also provided an important way for reducing the redundant information of several combined or intersecting lists.

Kirsch and Mosenthal (1990b) presented function and use of forms, part I. These may consist of using forms as a memory aid, a request for information, as a directive to others (personal uses), or to regulation of behavior (societal uses such as tax forms, birth and death certificates, or census forms). Forms require the person filling them out to provide information of various types from a variety of sources. Prior Knowledge- our name, date of birth, address, telephone number, social security number, employment status and mother’s and father’s full names. Primary information sources- family medical history is one type where information concerning possible ailments is listed as a reminder to us. Secondary information sources are those which we have located in one place and which we transfer to another, such as when we use a bank statement or check ledger to help us fill out our income tax form, or copy a bank account or credit card number onto a loan application.

Kirsch and Mosenthal (1990c) presented part II of understanding forms, in which they discussed the range of response modes and formats association with forms. The authors stated that information is frequently required to complete a form. This can range from placing an “X” in a block or box, entering the quantity of items being ordered, or entering one’s name in a blank space. Designers of forms strive to make response modes more efficient by limiting the amount of information on the form. Some forms organize single-items of information in some type of a sequence or order. The illustration presented is a Customer Service Assistance Form used by a utility company for persons who are applying for an extension of payment on their bill because of hospitalization. The form asks for the patient’s name, address, account number, phone number, the name of the hospital, admission date, expected length of stay and expected recovery time, signature and date. In longer forms, lists of items are grouped together into categories organized by type of information requested. The example provided is an accident/injury report where the

employer's information is grouped together in one section and information about the place and time of the incident is grouped in a separate section. Forms can be created as combined and intersecting lists, a check ledger or a TV schedule being examples. A final format, the mixed form, combines any of the various types of structures. The example here is an order form which requires personal information (name, address, etc.), listing of choices of merchandise being purchased (item number, quantity, title, price, etc.), and method of payment (check, credit card, card number, expiration date, and signature). Kirsch and Mosenthal concluded by stating that the functions/use of forms falls along a continuum that ranges from personal to enabling to regulating. We can distinguish from among various types of forms: those that we can complete using prior knowledge; those that have required information as part of the form; and those that require the user to refer to one or more secondary sources to obtain the required information.

Kirsch and Mosenthal (1990d) talked about the use of pictures, a type of mimetic documents. The purpose of a mimetic document is to show the denotative (shared qualities of all items in a group) and connotative (characteristics of some, but not all instances) features of some object, state, or event. These include pictures, diagrams, and schematics. In this article, the authors talked about only pictures. When pictures are combined with words in a mimetic document, the stated purpose is to convey a visual equivalent for the words. In its simplest form, the labeled picture is commonly used in dictionaries, encyclopedias and content area textbooks. It provided a sense of the whole object but does not necessarily distinguish between denotative and connotative qualities. Illustrators often use a second type of configuration called a picture list, which combines a verbal list with pictures that match each word. The example used is a picture list of "brass instruments" (French Horn, Trombone, Trumpet, etc.). Kirsch and Mosenthal stated that a picture list is more effective than the label picture at allowing the viewer to distinguish similarities and differences, which enables the viewer to create an intersecting list showing various features and identifying which features are characteristics that are shared and different. Factors that can affect our evaluation include the accuracy, level of detail, and appropriateness of the diagram. Meaningful features are also a function of the reader's prior knowledge or experience with the objects featured.

Kirsch and Mosenthal (1990e) discussed diagrams, a second type of mimetic document. Diagrams are more likely than labeled pictures or picture lists to accompany explanatory exposition. Explanatory texts tend to describe both the physical parts of the phenomenon and their functions. This enables the reader to more easily connect visual features with verbal descriptions of an item. The simplest type of

diagram is the labeled diagram. It consists of a picture, a title, and important parts or features. Accompanying text extends our understanding of the diagram by identifying 4 kinds of information: 1) characteristics, functions, structural relationships, and denotative / connotative qualifiers. This aids us if we wish to construct a combined list that can be used for the purposes of studying for a test. One way of identifying the extent to which an author believes that a structure is denotative or connotative is by examining such qualifying terms as “all,” “most,” “many,” or “some.” A second type of diagram is the diagram list, which contains two or more visual instances of some phenomenon and allows visual comparison of characteristics either shared or distinct.

Mosenthal and Kirsch (1990a) talked about understanding of general reference maps. Maps are a type of document that pictorially represents geographical areas using lines, words, symbols and colors to represent a selected set of features and their distribution within that geographical area. Most textbooks list the essential map skills as determining direction, interpreting a map’s legend, applying a map’s scale, understanding latitude and longitude, understanding common map terms, and understanding projections. According to the authors, little attention is focused on how we might teach concepts for understanding the structures of map content. Maps differ in their structure and therefore their usefulness to users. The more information a map contains the greater its potential usefulness to a larger number of people. Maps have a simple list as a basis of their structure. As maps become more complex, additional systems of identification of information are added. Some maps contain numbered identification labels, which correspond to an index list such as a list of state parks. By using different label methods or colors, multiple lists of information can be included (state parks in blue, hospitals in black, fire stations in red, etc.). To facilitate location of information, mapmakers use a coordinate system consisting of equal interval areas marked on the horizontal and vertical edges of the map. If horizontal coordinates are represented by numbers and the vertical coordinates by letters, an alphabetic and numerical system is created to help the map user focus on a particular area and simplify the search for specific details on a map.

Mosenthal and Kirsch (1990b) discussed understanding thematic maps, which show how a single phenomenon is distributed over a given geographical area. Some examples include population density maps, weather patterns, land elevation, and political boundaries. Thematic maps are similar to charts and graphs in that they represent patterns of data pictorially. Unlike graphs and charts, thematic maps do not contain the quantified data they pictorially represent. The content of thematic maps can be represented in terms of simple and combined lists. Two types of comparisons are generally made between thematic maps.

One is comparing the distribution of two or more phenomena over a given geographical area at the same point in time. An example might be the production of crops in an area compared to the annual rainfall in that area. A second type of comparison involves examining the distribution of two or more phenomenon over the same geographical area at different times. An example might be a comparison in a region of the number of doctors per 1,000 person's population in 1870 and 1970. Thematic maps are frequently used in content textbooks to show patterns of birth and death rate, urbanization, Gross Domestic Product, literacy rates, language spoken, protein consumption and number of physicians and life expectancy. The importance of thematic maps can be seen in the use at local, state and national levels as the basis for policy decisions, issues such as where to build hospitals, dams, schools, reapportion voting districts, and optimal bus routes for a school district.

Mosenthal and Kirsch (1990c) presented understanding graphs and charts, part I. According to William Playfair, a British political economist, graphs are preferable to tables and bar charts for representing information because the former shows the shape of the data in a comparative perspective. A pie chart represents a feature or characteristic of some object or thing, which is then differentiated into two or more pieces, with the pieces appearing as a percentage of the total object or thing. Data for pie charts are derived from a particular type of intersecting list. In an intersecting list, one list is arrayed as row information, a second list is arrayed as column information, and the third list is arrayed by the intersection of a single row and column. In a pie chart, information from an entire row or column is visually represented as a percentage or ratio. Bar charts, another means for graphically representing information are like pie charts but can be used to represent two lists of modifying information relative to a single concept or idea. However, unlike pie charts, bar charts are not as limited in the amount and type of information they can display. Furthermore, where as pie charts are restricted to presenting information in parentages, bar charts can represent amounts in other units of measure (Dollars, inches, etc.).

Mosenthal and Kirsch (1990d) presented part II of understanding graphs and charts. They stated that there are advantages of visually displaying information in graphs and charts over displaying information numerically in tables. One advantage is that graphs and charts provided a more efficient and flexible way for comparing and highlighting trends in various sets of data. Bar charts provided useful means for representing not only combined and intersecting list information but also nested list information. Another way to represent tabular information pictorially is with a line graph. In addition to information that can be displayed in bar charts, a line graph allows the addition of representing some unit of time.

Mosenthal and Kirsch (1991a) described a third type of mimetic document, process schematics. Schematics provided a visual instance of an event or phenomenon- changes in states associated with persons, places, or things over time. They are accompanied by explanatory text. Because they are built on pictures and their accompanying text, process schematics frequently include the same kind of information found in the text. Although they may appear to contain a variety of different information, examination of a large sample of schematics would reveal that they and their text usually contain four or more of the following types of information: agent, object, action, reference point, direction path, effect, and condition. An example of a pair of nail clippers is presented to explain a process schematic. The authors identified four different groups of process schematics- multiple causation, direction path, steps, and stages. 1) Multiple causation schematics tend to depict an event phenomenon either as a process in which various agents act directly or with the help of intermediary agents to produce a common effect. 2) Direction path schematics illustrate the range and direction or motion of objects in relation to a single reference point. They define trajectory and range of motion of an object as it undergoes an action with respect to a particular reference point. 3) Step schematics depict a series of successive stationary stages that, overtime, define some process. They may show a chain of cause and effect events with either a final effect or a continuous cycle. They may also illustrate different agents acting upon a single object or multiple objects that result in a terminal effect. 4) Stage schematics are of one of two types: abrupt and continuous. Abrupt stage schematics are typical of developmental illustrations found in science books. The emphasis is on depicting body parts and physical characteristics of an insect, for example, at various stages of its development. Continuous change schematics depict growth or evolutionary changes more gradually. This type schematic shows the addition of new parts, changes in the old parts, changes in the structural relations between new and old parts, and actions of new parts in specific direction paths and relative to reference points. The example presented is an illustration of how a seed develops into a plant.

Mosenthal and Kirsch (1991b) talked about procedural schematics, which make use of combined lists and other mimetic documents to convey different type of information. An example of this type of diagram is instructions provided for assembling a bookcase or other item. Some types of information included are: 1) Final effect information- a diagram that helps us envision what the finished product should look like. 2) Parts, hardware, and tool information- a list of required items and the name and quantity of included parts with a list and some type of way of identification. 3) Structural relationship information- identifies where and how parts are to be located and attached to one another. 4) Written information

unusually accompanies the labeled diagram and provides expanded instructions, usually in major and minor steps to be accomplished. According to Mosenthal and Kirsch, the purpose of procedural schematics is to help us carry out, effectively and efficiently, the procedures specified in a set of directions. Rather than merely helping us to understand some object or event in the abstract, they help us identify real parts and manipulate these.

Kirsch and Mosenthal (1991) described the role of knowledge modeling to understanding mimetic documents. They demonstrate how scheme for understanding mimetic documents can be used as a framework for understanding the levels of knowledge that make up the declarative stage as described by Anderson (in *The Architecture of Cognition*, Harvard University Press, 1983). Anderson stated that in the declarative stage, learners identify bits of information that define some activity. These facts are then grouped together according to the procedures that collectively make up the activity. Declarative knowledge can be divided into four levels. 1) Pictorial knowledge- what is necessary to understand pictures and their text. 2) Diagrammatic knowledge enables us to understand diagrams and their text. 3) Process schematic knowledge- what is needed to understand process schematics and their text. 4) Procedural schematic knowledge is what is needed to understand procedural schematics and their accompanying instructions. An example is presented which demonstrates how students can move from acquiring knowledge from a pictorial representation to procedural schematic knowledge (more in-depth understanding of the processes and the role of parts in the operation of an object). This entails moving from being able to describe to manipulating an object's parts so that the operations and processes which the object undergoes, can be controlled. Kirsch and Mosenthal believed that mimetic documents provided a framework for understanding at this level.

Mosenthal and Kirsch (1991c) described three major document groups of mimetic documents: matrix documents, graphic documents, and locative documents. Matrix documents (including schedules and tables) organize linguistic and numerical information in row-by-column format. Graphic documents (Including pie charts, bar graphs, and line graphs) depict comparisons and trends in numerical data. Locative documents (including general reference and thematic maps) depict the location of places and things or portray the characteristics of a geographic area's regions. This article summarizes information from several previous articles that have already been covered. Topics include simple and combined lists (Mosenthal and Kirsch, 1989a), object lists, modifying lists, combined lists, intersected lists (Mosenthal and Kirsch, 1989b), nested lists (Kirsch and Mosenthal, 1990a), graphic documents such as pie charts, bar and

line graphs (Kirsch and Mosenthal, 1990c and e), locative documents such as general reference maps (Mosenthal and Kirsch 1990a) and thematic maps (Mosenthal and Kirsch 1990b).

Kirsch and Mosenthal (1992a) described how to navigate a document using locate known/need-to-know strategies. Using a bus schedule, the authors presented an example of combining known information and information in the schedule to determine some information we need-to-know. By viewing the schedule students can learn to determine when there is no service between two points on the route, what order the stops come on, when the first (last) bus of the day departs (arrives), at which stop you can catch a particular bus, at a particular time, on a particular day. Various questions can also be answer using the questions who, when, where? Who rides the bus from point “X” to point “Y” most often on Saturday? When can be used to request time or condition information. (What time is the next bus to Point “Z”?) Where can be used to get location information. (Where does the 2:15 bus stop at?) A systematic example is provided.

Kirsch and Mosenthal (1992b) discussed applying higher order thinking skills to documents. Integration tasks require us to compare features within and between documents, to detect patterns. There are three types of integration tasks: 1) Rank ordering-comparing and contrasting features in list against a fixed criterion. 2) Looking for similarities within a list of items. 3) Looking for differences between lists of items. An example of rank ordering is looking for the highest sales volume month for a car dealership during a particular physical year. An example of looking for similarities is charting the quarterly sales volume over a several year span. An example of looking for differences between lists of items might include sales records for outboard boat sales when compared with the average monthly temperature over a 3-year period. Such information would be useful in making future sales predictions. An example is provided that uses all three integration strategies. Kirsch and Mosenthal noted that you may wish to inform your students that most tables and charts in textbooks and the popular press present only enough data to permit rank-ordering and first level integration tasks. Only in technical scientific journals do we find documents that permit second level integration tasks.

Mosenthal and Kirsch (1992a) described cycle strategies in document searches. Locating information, such as times and stops on a bus route is the first skill that must be used. First, you decide what information presented is known. Second, identify the type of information you need to know. Third, search the document lists to find the information matches what you know. Fourth, search for the need-to-know information in a location related to the known information (same row, column, or intersection of a row and column). Cycle tasks require students to do two or more locate tasks. There are various types of

cycle tasks such as 1) locate items in a document that meet one or more criteria, 2) count the number of items that meet one or more criteria, 3) locate information in one part of a document in order to interpret information in another part.

Second, cycle task may be either independent or dependent. Independent tasks locate and list information independent of other answers. In dependent cycle tasks, students identify information to be found, and then they incorporate that answer as part of known information, which they use to carry out another search and so on.

Mosenthal and Kirsch (1992b) talked about using knowledge modeling as a basis for assessing students' knowledge. This article provided a very detailed explanation of how to construct an individual difference measure for evaluating content area knowledge in the classroom. They noted that if test designers understood the scaffolding hierarchy that reflected different readers' grasps of a content domain, these designers would know how to write better, more discriminating multiple-choice items.

Mosenthal and Kirsch (1992c) discussed various types of document knowledge. Simple lists can be combined to form combined lists, intersecting lists, and nested lists. Each of these can be grouped as ,matrix documents like tables and schedules, graphic documents like pie charts, bar graphs and line graphs, locative documents like general reference and thematic maps, entry documents like forms and ticktacktoe grids, mimetic documents such as pictures, diagrams, process schematics. Beneath their format variations, all documents build on combining simple lists. The types of information that can be included are rather limited: persons, places or locations, things, times, amounts, conditions, attributes, and types.

Mosenthal and Kirsch (1993a) presented an example of how to analyze students' ability to process documents they encounter. They stated that tasks requiring student to simply locate something are easier than tasks where they carry out a cycle of subtasks. Cyclical tasks are easier than tasks where we have to integrate several things. Integrate tasks are easier than tasks where they have to generate information from their store of knowledge. Another difficulty factor is the degree to which to which information in a question literally matches some information in the document being searched. The more literal the correspondence between question and the document, the easier the question. Still another factor is the number of features students have to hold in their memory as they search for information. A final variable is the number of explicit or implicit responses required to complete the task. Test designers can make locate tasks systematically more difficult by a) making them inferential rather than literal, b) requiring more features to complete matches between question and document information, c) by increasing the number of

implicit responses that are required. They can make them systematically easier by making more correspondence literal, minimizing the number of responses required to complete the question, and making the number of responses explicit.

Mosenthal and Kirsch (1993b) describe three “generate: strategies for seeking information in text when expected clues are missing. Students can begin by using the known/need to know strategy (Kirsch and Mosenthal, 1992a) and then rephrase a problem into a question to be answered using available resources. When that does not work because the search document does not contain a specific entry for the information being sought, students can attempt to locate information using brute force to generate a search category by locating more features of known information directly in the document. If looking for information about a particular act passed by Congress that is not listed in the index of a reference book, look for other information that might help you create a categorical search. Another method is using brainstorming, where the student attempts to think of all the categories they possibly can that might be associated with features in both the known and need-to-know information frames. Skim and scan is one effective way of doing this. A third method is generate by asking those-in-the-know, find a resource person and ask them the question to see if they know the answer or can refer you where to look. Mosenthal and Kirsch pointed out that student will find it most effective to use these strategies in reverse order.

### **Reading Skills**

Reading skills includes proficiency in critical reading, using context clues, locating information, difficulties presented by textbooks, and the importance of metacognition.

Hickey (1990) presented a unit designed to develop critical reading skills. The unit provided established goals and lists of topics for consideration, such as understanding cause and effect relationships, distinguishing fact from opinion, identifying propaganda techniques, recognizing purpose, distinguishing relevant from irrelevant information, recognizing bias, recognizing emotionally charged words, and comparing and contrasting reports. Examples are given of each. Hickey presents 7 important implications for instructional planning at the middle school level.

- 1) Students cannot be expected to demonstrate critical reading with material that has not been introduced properly. Prior knowledge of content is essential to synthesis and analysis of material.
- 2) Direct training in study skills for handling information found in charts, graphs, and maps is essential to students’ critical appraisal of the information.
- 3) Comprehension beyond the literal level may be limited by below-average reasoning ability.

- 4) Readers who react while reading and demonstrate associative thinking abilities will more quickly grasp the fundamentals of critical reading than those who do not.
- 5) Students need frequent opportunities to read and discuss contradictory viewpoints. This practice will help them learn to suspend judgment until accounts by several sources have been read.
- 6) Teachers should make every effort to help students clarify purposes for reading assigned materials.
- 7) Students should be guided to react to assigned reading with original objectives in mind.

McKenna and Robinson (1990) define “content literacy” as the ability to use reading and writing for the acquisition of new content in a given discipline. They identified three principal cognitive components: general literacy skills; content-specific literacy skills; and prior knowledge of content. They also discussed the implications of content literacy for content area reading teachers. Anything that a teacher does to enhance knowledge enhances any subsequent reading or writing germane to that knowledge. Content literacy is content specific, that is, an individual who is very knowledgeable about one subject may not have an equal ability in a different subject. Reading and writing are complementary tasks and greater gains can be expected when the two are used in tandem. Writing in the content classroom does not need to focus on writing mechanics, unless problems are so severe as to distort meaning. McKenna and Robinson presented four reasons for not depending on direct instruction alone in the content classroom: 1) The products of literacy activities will never precisely match those of oral instruction. 2) The individualized extension made possible through such activities as a natural follow-up to direct instruction. 3) Present models of direct instruction incorporate practice phases that follow-up the presentation of content for the purpose of reinforcement. 4) Students who have been afforded opportunities to become content literate will be better able to use content literacy as a means of extending their knowledge of a discipline even after they have completed a given course.

Simmer-Wolpaw, Farrell, and Tonjes (1991) describe and evaluated a reading/study skills program across content disciplines. The project began with the school district building a new, expanded library for the high school, which had been an area of concern voiced by the school’s faculty on a faculty-authored survey. After administrative personnel engaged in professional development to better learn about content area teaching, a 10-member curriculum writing team, working with an experienced reading specialist hired at the school, developed a proposal, which included the following: 1) A plan for teaching and reinforcing 20 selected reading/study skills in all curriculum areas. (graph included showing skills by grade and subject). 2) A diagnostic survey to evaluate students’ reading/study skills needs on an annual

basis. 3) A staff development program to help teachers integrate targeted skills into course materials. 4) An instructional strategy called “Conspiracy days” designed to stimulate school-wide involvement. 5) A faculty-authored teachers’ instruction and evaluation manual.

A survey was constructed to elicit input from students on their own needs on topics of listening; notetaking, test-taking, following directions, researching, paper writing, time management, reading vocabulary, library usage, and the relative value students attained from each of these skills. Responses were analyzed against 12 background questions that were included in the survey. The survey was given in 1985, 1986, and 1988 for formative and evaluative purposes. On “conspiracy days” all faculty members “conspired” to teach and reinforce one agreed-upon reading/study skill in their area. Each of the 20 skills to be implemented was written up as a lesson plan by one of the content area teachers and all were submitted to the reading specialist who formatted them for uniformity and consistency of evaluation. Simmer-Wolpow, Farrell, and Tonjes reported, over the four-year period of this study, the high school had changed dramatically and its reading/study skills program was demonstrated to provide significant improvement in mastery of student reading/study skills.

Tipton (1991) described how to extend context clues to composition and cooperative learning. She introduces her students to the different types of context clues (definition, synonym, comparison, contrast, and example) and explains each one. Once class responses indicate that they can recognize a single type of clue, she assigned sentences and passages for individual work. Using cardboard strips and a marker, she wrote words that she is sure were not part of the students’ reading, writing, or listening vocabulary. When students finish their work for the day, they went to the board, choose a word, and take it back to their desk. They are to look up both pronunciation and definition for the word in the dictionary. They are to write either a sentence or a paragraph using the word along with the particular context clue from the day’s lesson. Once the writing assignment is completed, students exchange papers, and tell each other what they think the word means. After collaboration is finished, papers are returned and students write down the word and definition learned from their partner so each pair of students has learned two new vocabulary words for the day. Tipton stated that this type of assignment fosters an interest in words and their meanings.

Carver (1992) describing “rauding” (a combination of “reading” and “auding”) as representative of one of the five basic reading processes that involves the comprehension of complete thoughts in sentences of textual material. He stated that traditional thought usually considered reading rates to vary with the

difficulty level of the material and the purpose of the reader. Now, he stated, reading rates can be predicted because the primary factors affecting reading rate and reading comprehension have been delineated. He presented rauding theory as the explanation of how reading rates can be so accurately predicted. Reading means looking at words and determining their meaning and auding means to listen to words and determine their meaning. He stated that the comprehension process underlying typical reading and auding are the same. Rauding is comprehension of the complete thoughts in the sentences of textual material, whether visually or auditorily. It is one of five basic reading processes (memorizing, learning, rauding, skimming, and scanning). He compares these processes to the gears on a bike, you shift up if you need more speed, and shift down if you need more power. Carver says most of the time readers are using rauding as they read. Students have an effective rauding rate and forcing them to either go faster or slower than this rate results in less effective comprehension. This comprehension is a central process for understanding written or spoken language, requiring a certain minimal amount of time, and limited by an individual's own thinking rate called cognitive speed. Carver presented a table with typical student rauding rates by grade level. Between grades 2 and 12 a typical reader will approximately double the number of words per minute they can read with understanding. He outlines practical implications for teachers with 10 item teachers should expect to observe in their classrooms.

- 1) Expect most students will use their personal rauding speed on almost everything they read.
- 2) Students will change their reading process only if they downshift for learning/memorizing or up shift for skimming and scanning.
- 3) Don't expect students reading rates to go up just because the content is familiar.
- 4) Subvocalizing appears to be normal aspect of rauding and helps keep the accuracy of comprehension high.
- 5) Expect that students will read every word.
- 6) If you notice that a student is spending more time on certain words and phrases, assume that the vocabulary is unfamiliar or the concepts new, or that you have set the student a learning task rather than a rauding task.
- 7) Don't ask students to skip over the less important words unless you want them to shift up to a higher gear.
- 8) If students ask whether they should pay to take a speed-reading course, say no. Speed-reading is really skimming in disguise.

9) Expect students to increase their reading rate rather evenly from grade 2 through 12. The gain each year is about 14 words per minute, due to cognitive maturation.

10) There are many ways to slow the reading process (poor lighting, poor handwriting, poor screen contrast), but no easy way to speed it up.

Dreher (1992) defined a type of literacy task, the search task (locating specific information). She explains why it is of concern, described research on high school and college students' searching, and offers suggestions for search instructions. In a search task, reader attempts to locate information for a specific purpose, such as defining a new term. Research studies done on high school and college students' ability to search for information showed many of them to be inefficient.

Dreher and Guthrie (1990) studied 34 grade 11 students enrolled in average or better classes. They were asked to locate information in a life science textbook that they had not previously used. Two questions were presented one required the students to locate the meaning of a single term while the other asked them to locate three pieces of information, which could all be found in the same chapter. Both the table of contents and the index clearly listed where the answers to the questions could be found. Only 18 of the 34 students (53%) answered the three-characteristic question correctly. Indications were that students frequently failed to complete the task successfully because they appeared to take the first answer available, often a boldface term. A different study involved 28 college students engaged in a search task using a psychology book. They had two separate search tasks, each requiring them to locate one piece of information. One task contained a searchable term. The other question (concerning the apparent motion of the moon moving through clouds on a windy night) required to student to generate a searchable term because no term in the question was in the index or glossary. For the first task the success rate was 57%. For the second task, the success rate was 29%. The students (n=8) who successfully answered the second search located the answer by going to the table of contents and selecting the chapter on perception, or going to the index and looking up either "motion" or "perception." Of the 20 who were unsuccessful, 14 were able to find the correct chapter by using the table of contents, the index, or both. Eleven of the 14 viewed the right page but failed to extract the correct information. Five students selected an incorrect boldface heading. Several students never located the correct chapter in the text. In a second study done with 23 college students, they were asked to answer questions using a textbook chapter accessible on a computer. They used a menu to select from several information access systems- glossary, index, table of contents, scan chapter, and browse. The questions required students to locate and integrate information about five earth

science terms and use the information to infer the relationship among the terms in a written response. Results showed that there was variety in the search methods used by various students. On average, students who chose to begin with a more specific access system (glossary, index, table of contents) did better than those who chose to scan or browse the text. Dreher stated that she believed student experience difficulty searching for information because they have only used text for narrow searches or only minimally, relying instead on teacher lectures. Many students view teacher lectures as equally or more important than their content area textbook for obtaining information. Dreher and Guthrie concluded that there is a need for teaching self-monitoring procedure that include activities such as planning, checking, and evaluating outcomes. They presented a graphic that identifies different search processes (goal formation, category selection, information extraction, integration, and recycling) and common problems that student encounter with each of these tasks, and then question(s) student need to ask to perform self-monitoring.

Hartman (1992) investigated the intertextual links able readers used while reading five passages of text. During the three-hour session, each reader reported aloud their thoughts while silently reading the passages and responded to prompting and debriefing questions afterwards. Sessions were videotaped and later transcribed. Qualitative analysis revealed two general types of intertextual links, one between ideas, people and events and the other related to the reader's way of positioning themselves in relation to the passage. In the first type, readers avail themselves of many textual resources using one of three approaches: intratextual, intertextual, or extra textual. 1) Intratextual- reader's links were traceable to textual resources within the passage they were currently reading. 2) Intertextual- reader's links were traceable to a full range of textual resources within, between, and beyond the five passages. 3) Extratextual- reader's links were largely traceable to textual resources beyond the passages, such as films, videos, class lectures, conversations, and books.

In the second type of intertextual link, readers' adopted three discourse stances that reflected their position. 1) Logocentric readers read as if they were trying to unearth the author's meaning. 2) Intertextual readers read as if they are exploring possibilities with many textual resources, considering various interpretations as equally well supported. 3) Resistant readers read as if they are fighting their way through the passage, trying to assert their own meaning in place of the author's. Hartman stated that finding of this study indicated that the models constructed of expert reader are too simplistic. Able readers employ a plurality of ways to read. Reading appears to be more than finding the appropriate schema, activating it, and filling in the slots. Readers assemble knowledge in situation-specific configurations,

formulate grouping as they encounter textual sign systems, and intersect texts in ways that reflect their discourse stances. The study also suggests that an unnecessarily narrow view of reading had been taken in the past by looking at comprehension in terms of single, individual passages.

Stetson and Williams (1992) examined the skills readers bring to the reading act, the print requirements of social studies textbooks, and why breakdowns in learning sometimes occur during reader interactions with text and possible solutions. The reason why some students experience trouble reading content textbooks, but social studies in particular, is very easy: 1) Readers possess a repertoire of abilities, defined as reading energy, that are brought to any reading task. 2) Textbooks contain two kinds of energy requirements that must be met in order to be understood: surface structure (decoding) and deep structure (comprehension). 3) Learning from textbooks depends upon the reader's ability to exert energy in sufficient amounts to meet both surface structure and deep structure requirements of the text. 4) When reading energy is not sufficient, student tend to consume so much of their energy deciphering the surface structure that the energy needed to comprehend and remember factual information, terms, concepts, and the deeper meaning of the text is simply not available. Reassigning energy consists of three components that are interrelated: skill in decoding surface structure of text, previously acquired knowledge and perceptions about a topic, and, language skills possessed for combining information obtained from decoding the text with their previously acquired knowledge and perceptions in order to create meaning from text. Factors that influence the ease and difficulty of social studies texts include the surface structure – length of sentences, number of polysyllabic words, and numerous graphophonic (letter-sound) combinations. A second factor is the deep structure- the amount and difficulty of important vocabulary, the complexity of the concepts to be learned, and the sheer volume of facts typically found in a social studies textbook. A third factor is the way in which authors organize the text, communicate its goals, present information within an understandable context, and ask appropriate questions of students can have an effect on how friendly a text can be. Stetson and Williams believed that understanding a text reading passage requires an effective and efficient interaction between reader and text. Both decoding and comprehension are necessary if students are to succeed in reading the social studies text. When reading energy becomes inadequate, students are forced to subconsciously make a decision about how their reading energy will be used. Most readers will unknowingly give priority to decoding the surface structure unless taught otherwise. A second factor, a lack of prior knowledge, diminishes their ability to understand and assimilate new information about a topic. Increased probability of learning occurs in 4-ways:

1. Increasing the reading energy of students to match that required of the social studies textbook. Ways to do this include: 1) Previewing new material with students prior to reading: a) silently read the initial paragraphs. b) silently read bold-faced headings and the first sentence of every paragraph. c) Reread the summary paragraph in its entirety. d) conclude with a spontaneous recitation in which students discuss what they have read, what they have learned, and what the chapter is basically about. 2) Preteach key vocabulary. This a) increases a student's specific word knowledge about a topic. b) increases overall reading energy. c) allows the reader to devote additional energy to comprehension. 3) Key concepts and important statements should also be taught.
2. Teach students to use less energy for decoding in order to have more available for comprehension. One way to do this is give as little attention as possible to reading errors. One way is to use repeated readings- direct students to read material more than once. Examples include paired reading where students read passages in unison or to each other followed by discussion.
3. Decrease the energy requirements of social studies textbooks until they more closely match that of readers. One way is to use easier material to teach the same concepts. Another way is to narrow the concepts to be learned. Teacher can prepare a chapter test first, and then mark all the places in the textbook where answers to the test questions can be found. Mark other important information even if it is not on the test. Teach them signal phrases you use to help cue them: "this is an important paragraph", "know this because...", "are you prepared to identify...?"
4. When the gap between reader energy and text requirements is too great, eliminate the need to read altogether. Teachers can read aloud to their students. Teachers not only read fluently, they add important embellishments that enhance comprehension opportunities such as gestures, facial expressions, and proper use of pitch, stress, and juncture. Most students benefits when teachers follow up any silent reading assignment with group discussion about its terms, concepts, and important information.

Tierney and Pearson (1992) described changes that had taken place in their thinking since 1981 when they first wrote an article entitled "Learning to Learn from Text: A Framework for Improving Classroom Practice." The first change they mention is replacing "from" in the title to "with" and changing "text" to "texts". The change of *from* to *with* reflects that texts are tools used to learn and construct meaning. The change from *tool* to *tools* reflects the multiplicity of texts. Additionally they wanted to add the word "Learners" into the title, and expand the idea of one learner learning from a single text to a learner, in

company with other learners (including teachers), enlisting several texts as they read, write, and research ideas. They proposed a better title to be “Learners leaning from texts: A framework for improving literacy learning in the classroom.” They identified a list of current essential issues:

- 1) The ongoing, dynamic nature of the processes of constructing meaning.
- 2) The importance of the learner’s stance in making moment-to-moment decisions during reading and writing.
- 3) The extent to which reading and writing are intertwined with one another, with oral language processes, and with other symbolic systems, such as art, dance, mime, and drama.
- 4) The need to situate content-area learning in real classes and problems that exist outside of the classroom and the school.
- 5) The importance of thinking of content area learning as a set of processes, such as exploration, discovery, and application, rather than a body of facts.
- 6) A view of teaching that focuses more on the learner than on the body of knowledge.
- 7) A view of testing that recognizes that the best justification for today’s teacher assessment is tomorrow’s self-assessment by students.

In addition, they identified some questions that they wished they had answered but did not. What is Reading For? What Counts as Evidence of Comprehension? What is More Important—Process or Content? What Is the Teacher’s Role in the Content Area Classroom?

Schumm (1993a) described a five-component model of text searches suggested by John Guthrie and Peter Mosenthal: 1) Goal formation 2) Category selection 3) information extraction 4) information integration with prior knowledge 5) component recycling (repetition of steps 1 through 4 until the task is completed).

Dreher and Guthrie (1990) did research related to efficient searches to locate information. They found that students who are more efficient searchers spent time generating search categories. The search task involved locating answers to questions based information in a textbook. Questions were of two kinds: those that provided explicit clues to categories and those that provided no such clues. Students were presented with a list of questions representing both questions types, an index, and table of contents from a psychology book. They were asked to identify which chapter would most likely contain the answer to the question and to rate their confidence in the correctness of each response. Measures of general academic ability (GPA) and prior knowledge of psychology (a general psychology test) were available for each

student. Students were most successful in identifying the correct location of an answer when explicit clues were provided in the question. Their confidence rating in the accuracy of their responses was also higher for questions with explicit clues. While general academic ability was the best predictor of success in locating answers to questions with explicit clues, prior knowledge of psychology was the best predictor for questions with implicit clues.

Miholic (1994) presented an inventory to help students become aware of what they do while reading and make them more aware of metacognitive strategies. He stated that a true assessment of the degree and completeness of students' comprehension monitoring is not possible, but this inventory gave teachers some basic ideas of what their students know with respect to achieving higher levels of comprehension. It draws on research that had repeatedly stressed the importance of summarization and text back-tracking to check facts and accuracy of comprehension. The question types attempt to be consistent with four specific domains presented by Jacobs and Paris (*Educational Psychologist*, 22(3&4), 255-278, 1987):

- 1) regulation (monitoring and redirecting one's efforts during the course of reading to reach desired goals.
- 2) conditional knowledge of strategies application.
- 3) planning cognitive events.
- 4) evaluation of one's processes.

### **Reading Strategies**

Studies in this area focused on presenting students with various methods to help them learn better from text.

Cheney (1990) described a seven-step, 10-second previewing technique designed to increase reading comprehension of textbooks:

- 1) Give each student an issue of a news weekly.
- 2) Have them turn to the lead article and silently read the title and subtitle and look at the photographs.
- 3) Time their reading for 10 seconds.
- 4) Stop them and ask them rapid-fire questions such as: What is the article's topic? Where does it take place? Who are the subjects? Do you know anything about them?
- 5) Repeat at least five times, with different articles.
- 6) The last time, have the students preview for 10 seconds and then write a purposeful question.
- 7) Finally, have them read that one article to answer their purpose-setting question. Lead a brief discussion on how they felt this last time. Did their written question help their reading? This allows students to

generally see how easy it is to preview and how much information they can quickly gather. Cheney noted that the technique is adaptable to students at all levels.

Davis and Hunter (1990) stated that gifted middle school students are often asked to think and perform at mature levels of reasoning without the necessary learning strategies. One of the particular concerns, and an area that some teachers have given up on, is assigning a research paper. The authors point out that conducting research fosters student independence, critical reading, logical thinking, and moral reasoning. They proposed that one option is to have students conduct research but write about their subject in a narrative form. Davis and Hunter proposed a research project that had a real problem to solve (one with no existing solution). Students were asked to evaluate the accuracy of a historical novel. Six stages were developed.

- 1) Initiating the assignment- evaluate the accuracy of a historical novel, looking for errors in describing the period.
- 2) Selecting a topic- 20 topics were identified, students then read the historical novel and wrote a summary of what they had learned about three different topics.
- 3) Prefocus exploration- identify a list of historical references.
- 4) Focus formulation- based on personal interest, requirements of the assignment, availability of materials and time allotted.
- 5) Information collection- answering questions that they had generated not just putting down facts for the teacher to read.
- 6) Search closure- ensuring that adequate amount of the proper material has been utilized.

Students evaluated the project after they had completed it. Of the 33 students, 30 considered the project “typical” or “fairly difficult”; 23 were “fairly happy” to “very happy” with their work. All the students thought the systematic progression helped them. Davis and Hunter concluded that these students could conduct real research if they were taught the organizational strategies they lacked.

Dreher and Guthrie (1990) examined the task of locating information in textbook chapters. Text searches involve finding a specific subset of information relevant to a particular goal, rather than recalling or understanding the entire contents of a text. The authors presented a textbook chapter and its accompanying index, table of contents, and glossary on a computer and asked 31 U.S. high school students to search for answers to simple and complex questions. Dreher and Guthrie found differences between more efficient and less efficient searchers in how they distributed their time across the various aspects of the

task. Less efficient searchers spent just over three times the amount of time than more efficient searchers looking for information. Complexity of the question was not a factor in the relative amount of time spent. As text complexity increases, efficient searchers allocate relatively more search time to initial stages of text search, during which they selected relevant categories of information for pursuing their goals. Methodical search strategy seemed to be a distinguishing factor in time spent searching for answers. As a result, searchers that are more efficient were able to spend less time on actual extraction of information sought than were less efficient searchers.

The International Reading Association's Reading/Language in Secondary Schools Subcommittee (1990b) considers summarizing as an effective learning strategy that can be used before, during, or after reading to keep students actively involved. Before reading, student summaries concern what they already know about a topic. During reading, the use of one-sentence summaries can aid students in consolidating and identifying the more important thought (main idea) of what they have read. The use of a chronological frame can help students' breakdown and visualize the steps in a historical event. The steps included identifying what is to be summarized, telling what it began with, telling what is in the middle (immediate result), and tell what it ends with. The problem-solution frame helps students summarize issues and conflict. This frame consists of the steps: tell who or what is being talked about, tell what the person wanted to do, tell what interfered, and tell how the problem was resolved. After reading, writing summaries can help students to recognize patterns that occur throughout content material. They must generalize from several readings and use their background knowledge.

Jacobowitz (1990) compared skilled and unskilled adult readers' approaches to finding the main idea in text, citing Afflerbach (1987) in which he found that skilled readers employ certain strategies which less skilled readers did not, such as asking questions before, during, and after reading; using strategies such as prereading, activating prior knowledge, predicting content. After reading, skilled readers attempted to paraphrase and summarize the main ideas and returned to the text to confirm their thoughts. The author developed and tested Author's Intended Message (AIM), a holistic main idea strategy suitable for independent use by college study skills students. The purpose of AIM was to enable students to construct the main idea in a meaningful independent manner and is similar to PSRT (Simons, 1989). A study was conducted using 48 undergraduates enrolled in six college reading and study skills improvement courses. A stratified random sampling procedure was used to assign classes to treatment group, 26 in three experimental groups and 23 in three control groups. Student's reading abilities were measured using the

Nelson-Denny Reading Test: Form E, administered one month prior to the experiment. The experimental groups learned and applied AIM while the control group learned and applied traditional main idea strategies. Instruction was carried out over a period of 3 weeks, twice a week, for 3 hours per class. Following the period of instruction, students were asked to read a scientific selection and respond to 16 multiple-choice questions based on the text. The mean score of the experimental group was 11.38, the control group was 9.45. Results of analysis of covariance with the Nelson-Denny score indicated the experimental group's mean score was significantly higher than the mean score of the control group ( $F_{47} = 5.34, p < .006$ ). When students were asked the rate of chance that they would use AIM in the future, 57% rated the chances as high or very high, 42% said they would use it occasionally. No students rated the chance as never. Aspects identified as being most helpful were prereading and establishing purpose through prediction, and self-questioning. Jacobowitz believed that this study indicated that AIM could be a valuable and useful strategy for constructing an author's message, and is a way of teaching students to identify topic sentences that contain main ideas.

Paris and Winograd (1990) wrote a textbook chapter concerning how metacognition can promote academic learning and instruction. The focus is that students can enhance their learning by becoming aware of their own thinking as they read, write, and solve problems in school. Metacognition is based on self-appraisal and self-management of one's thinking and included strategies like skimming, summarizing, paraphrasing, predicting, and self-questioning. The authors stated that students should be taught to use particular strategies in particular settings to accomplish specific purposes and not taught just an inventory of strategies without having guidance as to when it is appropriate to use a particular strategy. Four approaches to teaching metacognitive strategies include direct instruction, scaffolding, cognitive coaching, and cooperative learning.

1. Direct instruction has three advantages: 1) it teaches students direct ways to approaching problem-solving situations by providing effective relevant strategies. 2) It requires the teacher to understand the cognitive demands of the task and to more than mention learning objectives and distribute assignments. 3) It can be done with a large group or whole class so it is an economical way for the teacher to present instruction.

2. Scaffolding is predominantly a dialogue between teacher and student that provided the student with sufficient support and guidance to achieve goals that are beyond unassisted efforts. The advantages to this approach include 1) Data from several studies indicated that it is an effective approach compared to a variety

of more traditional forms of instruction. 2) Dialogue between teacher and student allows students opportunities to share rationales for why they made certain judgments and choices, 3) It enhances the social relationship between teacher and students and provided additional motivation for learning.

3. Cognitive coaching includes mutual dialogue, direct explanation, modeling, and encouragement.

Advantages to cognitive coaching are 1) Teacher and students have common goals in coaching situations that provide for striving to learn and cooperation. 2) Coaching involves on-going assessment of student performance so that difficulty and expectations can be adjusted to challenging levels. 3) Requires mutual regulation, teacher must be aware of student's perceptions and comprehension difficulties; students must share thoughts and feelings about their thinking processes rather than focusing on the content of reading selections.

4. Cooperative learning entails students working together to complete tasks. Advantages of cooperative learning include the social interaction, which facilitates learning for all group members; the nature of the cognitive processes used in learning, such as oral discussion; and the overall combined learning gains for all members of a group. Paris and Winograd concluded that research findings concerning metacognition illustrate the positive value of students gaining awareness of their own mental process and the purpose of academic learning.

Clarke (1991) relates that content teachers recognize that visual organizers such as time lines, Venn diagrams, inductive towers, concept maps, casual chains, force fields, and flow charts help students recognize and take control of the intellectual processes that bring meaning to the study of content subjects. Visual organizers are graphic representations of different kinds of thinking processes. They are normally thought of as ways to organize student processing of text in both reading and writing, but they can also be used to organize student listening and speaking. Clarke stated, evidence from research had shown that graphic frames support student comprehension and encourage higher order thinking, particularly among low-achieving students who have not developed effective learning or thinking strategies. Graphic organizers serve two purposes: Bottom up graphics help students scan, sort, and organize information so they can draw inferences and conclusions. Some examples are: Time lines, which help students line up events chronologically. Web diagrams help them tie related events to one idea or concept. Circle diagrams guide them to group events to illustrate a potentially useful concept. Data grids, pie charts, and graphs help them count up recurring events and draw inferences. Venn diagrams and complex matrices let them sort information into multiple categories. Inductive towers help them connect factual statements and draw

inductive inferences, assembling the basis for theories or predictions. Top-down organizers help students apply rules, test hypotheses, make decisions, or solve new problems. Some examples included: Concept maps such as lecture guides, notetaking guides, and the medium for small group activities. Weighing scales, continuum lines, and pro/con charts help students weigh evidence in support of opposing arguments. Force field diagrams help them see antithetical forces lined up in opposition to each other. Causal chains let students see or construct a model of a process. Decision trees and if/then flow charts let them work out steps in deciding between two or more choices. Path models and PERT charts help them plan solutions to a problem in an organized pattern. Procedural flow charts and various problem-solving protocols help them work through specific steps of a routine task.

Schumm and Mangrum (1991) introduce the FLIP (Friendliness, Language, Interest, Prior Knowledge) framework to help middle and secondary students examine their reading assignments and develop appropriate plans of action. Included is a rationale for the framework, a description of it, and suggestions for classroom implementation. The authors believed that students need to be able to analyze an academic task and plan actions appropriate for completing it. FLIP includes a brief overview of a reading assignment during which the student looks for such elements as an introduction, summary, and graphics. In addition, it requires the reader to evaluate both text-based factors (friendliness and language) and reader based (prior knowledge and interest) to determine the text's level of difficulty. Using a guide called a "FLIP Chart" students evaluate the text for each of the factors (Friendliness, Language, Interest, and Prior Knowledge) using a scale of 1 to 5. Once this is completed, the student does a follow-up to establish a purpose for reading, determine an appropriate rate of reading, and budget reading and study time. Schumm and Mangrum speculated that further research will confirm their initial findings that FLIP helps students become aware of the text-based and reader-based factors that affect their reading comprehension and make more realistic predictions about estimated reading/study time.

Stahl, King, and Henk (1991) described enhancing students' notetaking through training and evaluation. The authors stated that a sizeable portion of the general student population does not have a systematic, self-directed approach to tackling the demands of the traditional content field lecture. They presented a 4-stage instructional sequence of modeling, practice, evaluating, and reinforcing activities for developing student-directed notetaking strategies. They begin by presenting a graphic showing 12 generic, time-honored, notetaking procedures. They presented the NOTES method (Note-taking Observation, Training, and Evaluation Scales) developed by Stahl and King (1984) designed to be implemented over a

semester or year of school. In the Modeling phase, the teacher plays an audio or videotape of an introductory lecture. As the lecture proceeds, the teacher demonstrates a selected notetaking method by taking note on the lecture using a transparency or overhead. During the next lecture, the teacher played another tape and took notes again, but had the students take notes as well. As lessons progress, the teacher introduces longer lectures and may stop writing on the overhead in order to observe students notetaking procedures. The main purpose of the model stage is to show students an effective notetaking method. In the Practice phase, students are instructed to engage in long-term, monitored practice by having them use and adapt the previously learned technique in one of their other classes for the remainder of the term. Stahl, King, and Henk pointed out that there are some disadvantages to this approach including that it is better suited for a reading lecture-review-test format. Some social science and natural science course are better suited to use of other approaches. Some students may also be unwilling to experiment with another content course being taken for credit. The evaluating and reinforcing phase consists of both teacher feedback and peer review. This portion of NOTES is described and examples are included of how to do an assessment for NOTES, an evaluation criteria, a record sheet for documenting changes and improvements, a progress chart for recording improvements, and a set of directions for students to following in doing a peer review.

Archambeault (1992) offered suggestions for making students more aware of their own study styles and for helping them select appropriate strategies for various study tasks. She stated that effective instruction at the secondary level should focus on two factors: enhancing students' awareness of the components of their own study style and increasing students' ability to select appropriate strategies for various study tasks. A student's individual study style is composed of two major areas: preference for strategies and environmental conditions. Strategy preference may result from classroom instruction but it is more likely developed because of student perceptions of previous successes and failures. Choice of environmental conditions is also tied to past success or failure. These include lighting, room temperature, sitting position, time of day, and presence or absence of food, noise, or other people. The study styles checklists and instructional activities presented in this article were designed to encourage students to control their own study by enhancing their awareness of personal preferences and helping them select study strategies appropriate for the study task and compatibility of their study style. The checklist can be complete in class and answers shared so that other students can see what strategies work for particular students. Emphasis needs to be made by the teacher of the study strategies and environmental conditions

that are within the student's control. Archambeault stated that the goal of these activities is to develop student awareness of their own study styles and enable them to monitor their own learning. It is not intended to teach a specific strategy or technique.

Duffelmeyer and Baum (1992) talked about the revised Extended Anticipation Guide, which is designed to reveal students' misconceptions about a topic and help students to understand expository content area text. Expository text is difficult for students to understand because of its high concentration of complex information and unfamiliar or technical vocabulary. If information presented in a textbook runs counter to their beliefs, this can add to the difficulty they experience in learning. One of the problems with the standard Anticipation Guide is that it does not have a built-in feature for testing one's beliefs. Duffelmeyer and Baum created the Extended Anticipation Guide by adding a component to be used individually during reading to help students accomplish this. The first part of the Extended Anticipation Guide is unchanged from the standard Anticipation Guide. Students are asked to read statement about material before reading about it and indicate whether they believed the statements are true or false. In the second part, students are asked to verify their statement from Part 1 with what they read in the text. If their beliefs match what was stated in the text they are to write a summary in their own words under a column labeled "Why my choice is correct." If their belief differs from what was in the text, they are to summarize what was stated in the text under a column labeled "Why my choice is incorrect." This helps ensure that the new information will be internalized and retained.

Hayes (1992) described a way of integrating cartographic literacy. When interpreting maps, students use a distinctive set of literacy skills- pattern, space, and symbols to derive meaning from diagrams that represent places and information about the places. Cartographic skills are developed with practice. The suggested strategy, called MAP (Make-A-Place), is an inductive activity consistent with Piaget's idea that to understand is to invent. Each student imagines a hypothetical place and draws a map of it. As they progress, they learn the names for surface features of the earth, how these features are represented on maps, and how they are related to land use and cultural development. Students include land features that the teacher had listed on the handout, along with a north arrow and degrees of latitude. Students then add features to show how the country is developed. How land is used, where cities are situated, what kinds of products are made, and the means by which products are transported. Development should make sense given its latitude and placement of natural land features. To cap the activity, students write a description of the country. Hayes stated that by using MAP, students learn by doing and the teacher gets to work with

students individually. It establishes a positive attitude towards map study and provided a foundation for going on to work with actual maps.

Moore and Moore (1992) provided up-dated research on a strategy called “possible sentences,” (Moore and Moore, 1986), focusing on research done using the technique, and to refine the rationale and conclusions. They stated that the general purpose of most reading assignments in subject matter classrooms is to introduce students to new concepts and vocabulary, but that students generally need help acquiring such information. Possible Sentences is a technique that teachers can use to provide this instruction. The main purpose is to focus students’ attention on the key vocabulary of the to-be-read passage. Students infer meaning by examining the way they are presented in the passage. There are four steps in a Possible Sentences lesson.

- 1) The teacher lists key terms that are define adequately by their context.
- 2) Student pairs any two words on the list and dictates a sentence using them.
- 3) Students read the passage for the purpose of checking the accuracy of their classmates’ statements.
- 4) Sentences generated prior to reading are evaluated, revised or eliminated, and the final accepted statements should be copied into the students’ notebooks or folders.

Moore and Moore stress the importance of the teacher selecting key words that have meaning that can be readily grasped from context. A second caution deals with the accurate evaluation of the students’ level of experience. Follow up instruction should also be provided for students after the apprehend word meanings for context so that those meanings are related to students’ experiences and understandings.

Ogle (1992) described how various applications of KWL Plus can be used in the classroom. In addition to having students go through the process of identifying what they know, what they want to know, and what they learned, to help them retain information, two post reading strategies, mapping and summarizing, can be used. After reading, students create a graphic map or diagram of the ideas, which includes both information the student, knew before reading and what they learned from reading. When the map is complete, it is easy for students to write a summary of what they now know. Several examples from different content subject classrooms illustrate the variety of ways KWL Plus can be used in different class settings.

Ollmann (1992) talked about the use of two-column response to literature. She clarifies the purpose of a two-column response by stating that the process of understanding what we read happens in three places. First, the text gives us facts. Second, using both text and our heads, we interpret the facts. Third, using our heads alone, we draw on our own experience to form a generalization or make an

association. Students use the left side of their paper to record passages from their reading. On the right side of their paper, they record personal responses by interpretation, stating an opinion, raising a question, or evaluating the writing style. A two-column response offer several advantages: 1) Students focus on specific language. 2) They think actively about the text. 3) Higher level thinking is required. 4) Students generate questions about the text and monitor their own understanding. 5) The starting point for discussions is student-centered. 6) Topics are relevant to their experiences, and they are motivated when they see that the agenda is theirs, not the teacher's. 7) The teacher receives a brief written record of the level of each student's understanding. 8) Special populations can complete the assignment at their own level yet participate with the class.

Sakta (1992) described using the graphic organizer as an instructional tool prior to lecturing to help students take accurate lecture notes. The process involves the teacher creating graphic organizer by outlining the topic, the main ideas to be explained, and the essential supporting details. Go over the graphic organizer at the beginning of class so the students get an overview. During the lecture, the graphic organizer should remain available for students to refer to. This frees students to focus on the lecture and makes notetaking easier. The graphic organizer also provides a device for checking the completeness of their notes. Sakta provided a four-step process students need to go through to achieve independence in notetaking: 1) Students take notes with the aid of the complete graphic organizer, including lecture topics, main ideas, and essential details arranged in the order of presentation 2) The graphic organizer is reduced to the topic and main ideas. Numbers placed under the appropriate main ideas represents essential details. 3) The graphic organizer still includes the topic and main ideas but the number and placement of essential details are omitted. Only verbal cues are provided to help the student identify essential details given during the lecture. 4) The graphic organizer provides the topic of the lecture. The main ideas are omitted, with only the number and placement of the main ideas provided. Verbal cues by the teacher help students recognize the introduction of main ideas.

Schumm (1992b) takes a closer look at advanced organizers. In a survey of secondary students' perceptions of textbook adaptations that teachers make to promote understanding, one student commented: "Teachers should spend more time explaining the material." Most students responding to the survey reported they appreciated when teachers talked about a topic with the class before a reading assignment. The purpose of an advanced organizer is to help students activate existing knowledge or develop new knowledge about a topic before reading. A study by Steven Rinehart and Mary Alice

Barksdale-Ladd of West Virginia University and William Welker of Warwood Junior High School examined the effect of four variations of advanced organizers on the reading comprehension of seventh-grade “less skilled” readers. The variations included teacher reads advanced organizer aloud, with and without discussion, and student reads advanced organizer silently, with and without discussion. Results indicated that students’ comprehension on both immediate and delayed tests was greater when teachers read the advanced organizer and included class discussion of the topic. This substantiated the statement made above, that most students appreciated when teachers talked about a topic with the class before a reading assignment. If students want prereading discussion and if student reading comprehension is improved with prereading discussion, then that is what content area teachers should do.

Wood, Lapp and Flood (1992) produced a pamphlet intended as a comprehensive review of study guides that talked about why and how to use study guides to help students comprehend text with a focus. An array of study guides is presented, their purposes are explained, and a set of guidelines that encapsulate the principles governing appropriate and effective use of study guides are given.

Gillespie (1993) discussed the types and functions of graphic displays found in textbooks, whether they facilitate learning, how well students read graphic displays, and what classroom teachers can do to help students read and interpret graphic displays. She begins by identifying categories of graphic displays: Sequential- flow charts, time lines, organizational charts, and process charts. Quantitative- number lines, bar graphs, line graphs, pictographs, and pie charts. Maps- political, physical, and special purpose maps. Diagrams- cross-sections, blueprints, and machine drawings. Tables/charts- row-by-column matrices. The dominant types found in textbooks are maps (show relationships between areas), charts/tables (focusing on relationships between items), and graphs (comparing things and showing quantitative information). Graphic aids have a variety of functions in textbooks. Some provide information not discussed in the text. Others reinforce text by repeating key information. Some elaborate by repeating textual information and adding new information. They may also summarize a portion of the text or compare and contrast information presented in the text. Research has shown that supplementing pictures with the verbal information results in better comprehension than text alone. There are two explanations why students experience difficulty reading graphic displays. One is that the displays themselves present problems and the other is that teachers and students are not as familiar with reading graphic displays, as they should be. Some students lack experience reading graphic displays, which present information in a concise, condensed manner. It requires them to use skills that they do not usually employ. Also noted that some teacher lack

proficiency at reading graphic displays and are unfamiliar with the notion that specific skills are necessary to read and interpret graphic displays. Gillespie asked, “What can teachers do to help students read and interpret graphic displays?”

- 1) Teachers should draw student’s attention to graphic in textbooks during pre-reading, during reading, and after reading.
- 2) Teachers need to ask specific questions related to the displays so students can become habitual graphic display readers.
- 3) Teachers must provide instruction in how to read and interpret graphic aids, not assume that students can read and interpret them.

Reinking (1986) had talked about the need for instructional activities to help students make connections among text, graphic displays, and the reader’s prior knowledge. His graphic information lesson included three stages: 1) Determine the graphic information contained in the text. How does information in the text relate to information in the graphics? 2) Integrate and synthesize new information. Reinking presented several examples of information related to, but not included in the text (pseudographics). 3) Reinforce and apply graphic information.

Grant (1993) presented a strategy training framework called SCROL (Survey the headings, Connect, Read the text, Outline, and Look back) for helping at-risk college age students use text headings to improve comprehension. She stated that improving readers’ processing strategies can also improve their comprehension of content. Textbooks frequently use signals such as titles, text headings, subheadings and typographical cues to facilitate comprehension. Textbook headings may facilitate text processing in several ways: 1) activate schema and trigger prior knowledge. 2) accentuate relationships among concepts. 3) provide content cues for retrieval of information. 4) provide motivational appeal for reading especially long, difficult texts. Students generally are aware of the presence of headings and use headings to locate text information that they comprehend. They do not use text headings to encode information or use them to better comprehend complex text. Grant presented the SCROL procedure.

1. Survey the heading: in the assigned text selection, read each heading and its subheadings. For each heading and subheading try to answer the following questions: “What do I already know about this topic? What information might the writer present?”
2. Connect: After reading all the headings and subheadings in the section, ask yourself “How do the

headings relate to one another?" Write down key words from the headings that might provide connections between the headings.

3. Read the text: Now, go back to the first heading segment and begin to reading the text. Remember that the headings may provide clues to important information in the text. As you read each segment, look for words and phrases that express important information about the heading. Feel free to mark the text to point out important ideas and details. Before moving to the next heading segment, stop to make sure that you understand the major ideas and supporting details. If you do not understand, reread.

4. Outline: Using indentations to reflect structure, outline the major ideas and supporting details in the heading segment. Write the heading and then try to outline each heading segment without looking back at the text.

5. Look back: Now look back to the text and check for accuracy of the major ideas and details you wrote. Correct any inaccurate information in your outline. If you marked the text as you read, use this information to help you to verify the accuracy of your outline.

Reinking, Mealey, and Ridgeway (1993) presented a model of introducing content area reading strategies to teachers, which showed how to match strategies to particular context factors that affect the teaching situation. They stated that a major consideration in teaching students how to use strategies is to help them choose wisely from among the many strategies and to develop their abilities to adapt and extend strategies in response to circumstances that arise during teaching. The goal of the model presented is to facilitate the development of conditional knowledge in addition to declarative and procedural knowledge about content area reading strategies. There are four domains of instructional activities included. 1) Activities that inform teachers about the rationale for using individual strategies and the procedure for implementing them. 2) Activities that model how strategies can be selected, adapted to fit conditions of a particular teaching context, and implemented. 3) Activities that provide pre service teachers with opportunities to practice strategies. 4) Activities that help preservice teachers analyze a teaching context to determine which strategies to use and how to implement them. Provided is a graph showing factors to consider when selecting vocabulary strategies, as generated by preservice teachers in a content area reading class. The authors raised the question: How can preservice teachers be expected to analyze a teaching context when they lack teaching experience in classrooms and indeed have many misconceptions about teaching. First, they believed that lack of experience should no be a factor in exposing preservice teachers to opportunity to engage in analysis of teaching contexts. Teacher education can be said to provide students

with a framework for thinking about teaching of subject matter that can influence what teachers will learn from the classroom. Second, it builds in opportunities for pre-service teachers to become more attuned to classroom environments. Third, instruction needs to move from instructor centered to student involvement requiring problem-solving tasks related to classroom teaching. Reinking, Mealey, and Ridgeway made no claim as to having gathered any empirical data to support their notion that this model will improve preservice teacher performance in the classroom.

Ruddiman (1993) described a classroom learning strategy called the Vocab Game. It provided students with practice discerning the meaning of words in isolation and includes understanding morphemes, knowledge of affixes and roots, and awareness of etymologies. Rule for the Vocab Game are: 1) Each student is responsible for one word each week to be presented on the designated Vocab Day. 2) The word must be from the real world, from something the student had read (magazine, novels, textbooks) or heard. No proper nouns may be used. 3) The students should be able to tell how the word was used in context and give the source.

Guideline include: 1) Any student who fails to produce a word, the class loses 5 points to be subtracted from the running weekly total. 2) The word is given to the teacher in isolation with no context clues. If the teacher does not know the word, the class gets 5 points. 3) If any other student knows the meaning the class gets 5 points. 4) At 100 points the class gets a party. Procedures for use in a small class, each student presents a word for the week. In larger classes, students are grouped into teams, and teams decide which word to present to the teacher. Ruddiman stated it is important to model the correct procedure several time until the students learn the procedure. She stated that you need to insist that students state where they found the word and its context to ensure real words from the real world are being used. For an end of marking period compilation, she usually uses a cloze procedure where she composes a story or essay with students being required to fill in the blanks without looking at their word lists. The focus is not necessarily on a grade but on application of new vocabulary.

Schumm (1993b) believed that students are often told to identify and study the most important terms presented in textbooks. This assumes that they can identify key terms and that their interpretations of what is important are consistent with those of the test constructor. A recent study conducted by researchers at Louisiana State University raised questions about these assumptions. A content area expert, 10 secondary and college level instructors, and 11 college undergraduate students were asked to read a 600-word excerpt from a chapter textbook dealing with the Cold War. The expert was asked to identify a pool

of terms that were critical for understanding the passage. The classroom teachers and students were then asked to identify three words that were important to passage comprehension. Their selection was limited to three words to serve as an index of importance. Results of this research indicated little consistency among the groups in identification of terms. The expert and classroom teachers had two words in common; the expert and students had nine words; and the students and teachers five words. Only one word was identified by all three groups. All the words identified as important by the expert could be classified as technical vocabulary while words identified by teachers and students were a mixture of technical and general vocabulary. According to Schumm, this showed that experts and novices had different ideas about word importance. Directions given to students to “study important terms for a test” may be inadequate, particularly if students had limited prior knowledge of the topic and if terms are not highlighted in text.

Cocking and Schafer (1994) described the Library Scavenger Hunt program at Baylor University (part of the reading and study skills program) which emphasizes learning what sources are available in a college library, where they are located, and how to use them. The authors stated that students that are new to college frequently use researching techniques that worked in high school and neglect more sophisticated sources necessary to produce a college-quality paper. This is because students had a limited library schema, that is, their knowledge is limited to textbooks, encyclopedias and dictionaries. Experts have identified specific skills that effective research requires. These include using indexes and electronic resources, recognizing criteria for choosing applications software, and locating and working machines like microform readers. Students tend to question their instructors rather than librarians about help with beginning resources. They also tend to prefer browsing the library and searching citation networks, and generally lack a cohesive approach to researching topics. The scavenger hunt is collaborative projects and has five stages: 1) Discussing the library resources while viewing a graphic organizer. 2) Completing a guided scavenger hunt. 3) Attending a library orientation. 4) Designing their own hunt. 5) And solving another group’s hunt. Cocking and Schafer stated, the library scavenger hunt is designed not only to acquaint the students with the resources that are available but provided them with several opportunities to create and solve a search for data utilizing the library’s resources.

Duffelmeyer (1994) discussed common flaws in Anticipation Guide statements (teacher-generated statements, used in teaching expository reading about a topic that students respond to before reading about the topic). The author stated that anticipation guides are only as effective as the statements composing

them, and he offers guidelines for writing statements and examples of ineffective and effective statements. The Anticipation Guide evolved from Herber's (1978) ideas on how prediction can be used to arouse student interest and help students relate to their own lives the concepts in printed sources they use. It is a series of teacher-generated statements about a topic that students respond to before reading about a topic. Responses are usually in an agree/disagree or likely/unlikely format. These serve as a foundation for discussion during which misconceptions and differences in beliefs are likely to emerge. Constructing an Anticipation Guide involves four tasks: 1) Identify the major ideas presented. 2) Consider what beliefs the student is likely to have. 3) Create statements to elicit those beliefs. 4) Arrange the statements in a form that requires students to respond to each one either positively or negatively. Duffelmeyer identifies three major problems in construction an Anticipation Guide:

- 1) Using statements about which students lack sufficient prior knowledge.
- 2) The use of statements that stem from subordinate rather than major ideas.
- 3) Using statements that are likely to be common knowledge.

He then identifies four attributes of effective statements: 1) They convey a sense of the major ideas students will encounter. 2) They activate and draw upon students' prior experiences. 3) They are general rather than specific. 4) They challenge students' beliefs. Duffelmeyer concluded that Anticipation Guides had much to offer such as activation of student's prior knowledge, stimulating thinking, challenging students' beliefs, raising expectations about meaning, motivating active reading, and helping convince students to modify erroneous beliefs. All this depends on how well conceived the statements used to construct them are.

Noll (1994) talked about the opportunities that literature circles offer teenagers to negotiate meaning from texts and develop new perspectives on their own lives. Literature circles and the accompanying discussions help to support adolescents' development of social consciousness. Authors such as Judy Blume recognize their role in helping adolescents deal with a range of conflicting feelings and situations. While the situations that the characters in these types of books may not be familiar to some students, the characters emotions are often the element that adolescents can identify with. Noll explains the use of the dialogue journal, a format for conversations between student, teachers, and other students about literature they have read and issues they have encountered. Literature circles are small groups of students who meet together to discuss a chosen book, author, topic, or theme. It pushes students to think and to develop understandings about themselves, other students, and their world. One aspect that makes

literature circles so important is that much of the learning that takes place is self-directed. From the selection of a book, to their focus and discussion, to the final presentation, students make decisions about how and what they will investigate and report on. Issues may focus on personal concerns and interests or range to broader social issues such as the environment, social conditions, or the future of the world. Many of these are concerns that have real life connections to the literature students are reading.

Poindexter (1994) discussed four reading strategies or teaching techniques (jigsaw method, anticipation/reaction guides, “What I Know”, and self-questioning) found to be critical in helping teachers overcome their reluctance to teach reading in content area classes. Each of these techniques either involves students actively or develops their metacognition.

-Jigsaw (Aronson, 1978) is a cooperative learning technique that promotes comprehension of material while reducing the anxiety of some students who are intimidated by the length of required reading. Students are assigned to teams of four to six members and material is broken down into as many parts as there are members of the team. Members of different teams who are assigned the same section form “expert groups” and study together. They then return to teach their section to their group. A quiz over the entire set of material may be used.

-Anticipation/Reaction Guides (Bean and Peterson, 1981) is a series of teacher-developed statements about the content of an assigned text. They help activate thoughts about content before students begin reading, and allow students to use the knowledge gained from reading to validate or reformulate their earlier predictions.

-What I Know (Heller, 1986) charts is a way to model metacognitive strategies. The charts are made up of three columns: What I Knew (before reading), What I Know Now (after reading) and What I Still Need to Know about a topic.

-Self-questioning facilitates metacognitive development as the students ask questions about the text, beginning with questions like “What is the main idea of this selection?” and “Is there anything I don’t understand in this paragraph?” Students can work individually, in pairs, or small groups. Teachers can model different levels of questions (literal, inferential, critical, and creative) using oral discussion as a means of presentation. Poindexter stated that college students in her content reading class came to recognize that using these techniques kept students involved in reading and aided in the comprehension process.

Richardson (1994) presented great read-alouds for prospective teachers and secondary students. Read-alouds consists of having one person read out loud to another, and is a frequently use in-class technique especially in elementary and to a lesser extent, in middle school. Some textbook authors suggest read-alouds should take place daily at all grade levels, including junior high and high school. One point that Richardson made is that unless teachers teach reading as a way of learning rather than a collection of unrelated facts, they are likely to produce students who have “learned bits and pieces of incorrect and misinterpreted facts.” Richardson presented several examples of great read-alouds and included a separate bibliography of read-alouds. She also suggests ways that teachers can go about finding good read-aloud passages from literature that they have read.

Sternberg (1994) described a strategy that teachers in any classroom and parents can use to help children develop their intelligence. This strategy is rooted in how we answer children’s questions. Sternberg stated, there are seven ways we can answer a child’s questions:

1. Rejection of the question- sends the basic message to the child that the adult is too busy and the child should “shut up.”
2. Restatement of the question as responses- usually in a wholly empty way: “People from Holland are tall because they are Dutch.”
3. Admission of ignorance or presentation of information- “I don’t know” or “That is a good question” without going any further.
4. Encouragement to seek response through authority- either the adult looks up the information or encourages the child to locate the answer for himself.
5. Consideration of alternative explanations- presentation of alternative explanation because the authority does not know the correct answers themselves.
6. Consideration of explanations plus means for evaluating them- children are encourages to generate alternative, but to also reflect on methods for comparing alternative to test them for viability.
7. Consideration of explanations plus means of evaluating them and follow through on evaluations. The mediator actually encourages the child to consider alternatives and to perform the experiments that could distinguish among the alternatives. Sternberg concluded that the single most helpful thing we can do to help children develop their intelligence is to take their questions seriously, and turn those questions into opportunities to think and learn.

Whitehead (1994) described the Modified Guided Silent Reading Procedure (MGSR), an instructional framework for teaching complex literacy and learning strategies to fluent readers of about nine years of age and above. In contrast to the Guided Silent Reading procedure (GSR), MSGR is designed to teach readers the complex strategies that enable them to extract and manipulate meaning from text. Like GSR, MGSR is student centered and consistent with beliefs about language and learning that underpin programs aligned to a whole-language philosophy. MGSR is designed to specifically provide students with practice activating prior knowledge and generating predictions about a text; setting a purpose for reading; recording, ordering, and manipulating understanding; and communicating understanding to other students. Sometimes students work with the teacher and other times they engage in independent activities such as research, thematic related recreational reading, or text related art, craft, drama and audiovisual activities that extend their understanding of texts already read. MSGR follows a four-step procedure: 1) Readers share prior knowledge of the topic, survey and discuss the text, and then generate predictions about its content and structure. 2) Before silently reading the text, students individually and collectively set a purpose for reading; decide whether they will employ a strategy that allows them to consciously monitor understanding; and decide whether they will record information while reading. 3) After silent reading, students share with the group their purpose for reading, and decide through discussion whether they were able to achieve this purpose. 4) Finally, students complete activities designed to extend and share their understanding of the text.

Justifications for using MGSR included: 1) The belief that language is a social construct and that text is composed of a range of potential meanings that can be dependent on the reader's prior knowledge. 2) The belief that social groups have their own socially agreed grammars, and their own way of structuring meaning. 3) The belief that language is a living social system. Reading needs to employ texts that allow readers to comprehend links and nuances within them.

Wollman-Bonilla (1994) conducted a study that investigated the purpose for classroom discussion as constructed by the members of groups formed based on reading ability, and the kind of discussions that took place. Data collected included audiotapes and transcripts of literature discussion group meetings (approximately 15 to 20 minutes per session) , field notes describing observations of meetings and other classroom interactions (approximately two times a week), and interviews with students and the teacher using open-ended questions. Each turn during the discussion was coded as to the type of response made (Introducing Topic; Topic Incorporating; Reintroducing Topic; or Topic Collaborating). Turns were also

coded for sociocognitive functions (Question-Answer Pair or Voluntary Comment and sub-coded for the type of information presented (Known Information; Unknown Information; Exploratory; Personal Response; or Elaboration). The group composed of more able readers, constructed a conversation in which students participated eagerly, valued each others' contributions and spoke a larger portion of the discussion time than the teacher. In contrast, the group of less able readers constructed a more teacher-dominated activity in which students seemed reluctant to participate voluntarily, display their knowledge, or construct meaning collaboratively. The study suggested several possible reasons why the less able readers did not respond to the teacher's invitation to participate in informal discussions of literature: 1) Less able readers expected the discussion to be a more traditional teacher-led format. 2) Less able students did not feel as confident in their ability to create context and collaboratively construct meaning from what they had read. 3) Less able students usually waited to be questioned and called on before participating in the group. 4) With the less able readers, the teacher felt the need to ensure that basic understanding was achieved for all students and therefore maintained more control over the group's discussions. Questions raised by this study included: 1) How does teachers' text choices and grouping schemes influence students' growth in reading and appreciation for literature? 2) If less able readers in particular are reading a text they understand and enjoy, does their sense of their own reading ability influence their voluntary participation in the discussion? 3) If a teacher chooses not to focus on reading strategies and basic comprehension of a difficult text with less able readers, but instead encourages informal discussion of it despite their difficulties with it, how will students' reading abilities or interest in reading be affected?

Barton (1995) presented effective techniques for leading productive classroom discussions, noting that the techniques increase teachers' and students' abilities to speak and listen. He stated that leading a productive classroom discussion is highly complex and teachers must consider factors such as classroom climate, students, and instructional language. Barton recommended starting by teaching students to listen, thus creating a supportive classroom environment. Students need to consider what they already know about the topic to be discussed and to establish a purpose for listening. Use of verbal and non-verbal signals can lead to more meaningful learning in the classroom. Another method to get student involved is for the teacher to show interest in what students are saying by moving towards them when they speak, writing their ideas on the board or overhead, and returning to something that they said earlier. Students who are reluctant to speak and ESL students may need extra encouragement to participate. The use of a clear instructional focus is the single most important component of a well-orchestrated discussion according to

Barton. The teacher must generate discussion questions that encourage students to think. Using provocative and unusual questions and those that require students to give their opinions based upon material they have read are the most productive types of questions for encouraging discussions. Discussions also are dependant on effectively defining new vocabulary and creating graphic organizers to help student incorporate new material they learn. Barton believed that creating a supportive classroom climate, including all students, and using instructional language is essential for good discussion and he offers some summarizing thoughts. Students' spontaneous questions should be viewed as opportunities to encourage student participation, assessment of comprehension, and reinforcement of key concepts. Responding to student responses that appear to disagree with the teacher's perspective will signal to students that their opinions are considered important and will aid in establishing a supportive classroom environment. Try to recognize when students' enthusiasm for a topic is waning and close the discussion before the momentum winds down completely.

Baskin and Harris (1995) advocated using audiobooks in the secondary classroom, arguing that they can facilitate understanding of dialect and complex language, emphasize humor and drama, and provide benefits of storytelling. The authors particularly value the use of audio books in situations where characters speak with accents because comprehension and interest can be facilitated by an auditory presentation. They cite that trained actors who read textbooks can simulate local accents, phrasing, emphasis, and other phonological attributes that clearly distinguish various types of speakers. Archaic written patterns may become comprehensible when heard, and professional narrators bring finely honed dramatic skills to the interpretation of text. This can generate excitement, and captivate a wide spectrum of listeners. There are a variety of audio presentations, including unabridged, single narrator audiobooks, audiobooks that use more than one reader, some authors read their own works which adds the elements of "author's remarks" that can provide insight into the creative process. The use of shortened versions irritates many avid readers but is driven by economic considerations, usually by the publisher, to keep the costs of the audiobook under a specific dollar amount. In the case of presenting literature to certain portions of school populations (students whose interest in reading or attention span is not able to deal with nine cassettes or CD's of a classic work of literature), they may be able to tolerate the 4 disc abridged version of the same work. The abbreviated presentation frequently focuses on important plot summary and exposure to fragments of the whole text may stimulate the student to read the full version later. At a minimum, they have at least been exposed to major works of literature that they might not have otherwise even read. Students with certain

physical impairments can also benefit from audio presentation of literature and low-function students usually comprehend more of what they hear than what they read. Student with ADD may find that attending to aural stimuli offers fewer distractions than attempting to read print. ESL students are provided with exemplars of standard speech patterns in addition to the literature itself. Baskin concluded that audiobooks provide numerous opportunities for students to engage literature that may evade them in a traditional written format.

Moje and Handy (1995) described and analyzed ways a high school content teacher used reading, writing, discussion, and presentations to reshape traditional assignments in a chemistry class. Strategies were used to teach as well as assess students, to provide them with multiple opportunities to express their understanding, and to assess their abilities to communicate their understanding of chemistry concepts. Moje acted as a classroom observer and teacher-assistant during a year-long ethnographic study conducted on Handy's classroom. Students were given a daily reading assignment and taught a modified form of SQ3R (Robinson, 1941) as a notetaking strategy. While reading, students skimmed or surveyed the chapter, wrote questions based on section headings, and then wrote answers to the questions based on their reading. These notes were combined with handouts, tests, articles and graded assignments and were collected and checked periodically by the teacher. Students were required to write summaries or the key points of assigned articles and these were used as the basis for classroom discussions. Students were encouraged to "show their thoughts" as they worked through assigned problems. During laboratory experiments, a diagram was utilized that helped students focus on the theory behind the experiment, the purpose of the experiment, the procedures and data sources utilized, and the conclusions drawn from the data collected. The final examination was designed to test the student's ability to perform laboratory procedures and to cooperatively solve content chemistry problems. An oral presentation was also required as well as an in-class written position paper based upon two articles that students had been given the week before. Moje and Handy concluded that this form of alternative assessment goes along with research that suggests that students' learning and abilities are best assessed by a variety of on-going, holistic, and authentic assessments.

Richardson (1995) talked about the use of read-aloud in the social studies classroom. She presented an example from the book *Raney* by Clyde Edgerton, which she says meet one purpose in the social studies classroom of identifying, exploring, and resolving values conflicts. A second purpose this story meets is the use of facts to understand themes and concepts. Richardson presented ideas for activities that can be done with this read-aloud, as an example of using literature to make a connection to a content subject such as

geography: students might use their geography knowledge to plan a trip using a map. They can decide how they will travel, how long their trip will be, what obstacle they must overcome. They may also gain awareness of how travel has changed over time by considering what types of advantages and problems different forms of transportation offer. It also provided an opportunity to discuss how people from different regions of the country or from different countries and cultures may view the same issue. Richardson cautioned that the language used by Edgerton in his writing may not be appropriate for younger aged students or those who live in some cultural settings.

Simpson (1995) presented an example of the use of literature-circles that helped students in a literature class develop new reading strategies and a positive attitude about reading. An outline explaining how the literature-circle works, for distribution to students at the beginning of the year, is included. Literature-circles are groups of five or six students selecting a common novel to read, reading several chapters every week, and then meeting for approximately 35-45 minutes at the same time each week to discuss the section they have read. To begin, the teacher needs to select 8 to 10 novels and each student votes for their top three choices. About five groups can be formed based upon these preferences. She suggests that texts need to deal with issues which students care about, and which raise significant social, cultural, or moral issues. To help with weekly discussions, students jot their thoughts on sticky notes attached to the relevant page in the story. Simpson recommended that a different group meet each day of the week while the rest of the students work on other assignments. Students who have not completed their assigned reading are left with their groups and according to Simpson; this seems to motivate many not to repeat this behavior. She concluded that students who participate in this type of program learn different strategies for accomplishing reading and find the reading process a much more positive experience. She felt that the class as a whole was drawn closer together because of the group interactions that occurred. They learned to regulate their behavior in groups, they shared common experiences, developed understanding and communication skills, and they were exposed to literature that they might not have otherwise experienced.

Alvermann, Young, Weaver, Hinchman, Moore, Phelps, Thrash, and Zalewski (1996) did a study involving adolescents from five culturally different sites in the U.S., focusing on adolescent students' perceptions of their own actions, thoughts, and motives related to classroom talk about regularly assigned content area texts. They explored how verbal and non-verbal patterned ways of interacting shape and are shaped by, social practices inherent in classroom talk about text. Data consisted of three rounds of

videotaped class discussions followed by three focal group interviews, field notes, theoretical memoranda, narrative vignettes, and samples of students' work. The data found that students were aware of the conditions they believed to be conducive to good discussions. Four specific conditions were identified: working in small groups (peer-led), knowing and liking group members, contributing to group talk (need for every member of the group to make a contribution), and staying focused on the topic. It also showed that students were knowledgeable about the different tasks and topics that influence their participation in discussions. Students indicated that their participation in text-based discussions varied with the task and topic their teacher assigned. Students perceived discussion-worthy tasks to be interesting and demanding yet clearly defined, drawing on their abilities to reason and to evaluate ideas. Finally, students are cognizant of how classroom discussions help them to understand what they read. According to Alvermann, Young, Weaver, Hinchman, Moore, Phelps, Thrash, and Zalewski, the results showed that students saw discussion about readings that they had done as helping them to better understand the material. These included listening to each other, voicing their opinions / arguing, and attending to vocabulary. It not only allowed them to voice their own ideas and opinions but also allowed them an opportunity engage in mutually exploring ideas, and to learn and respect the opinions of others.

Guthrie and McCann (1996) described the use of idea circles, a peer-led, small group (three to six members) discussion of a concept or concepts using multiple text sources. The objective is for students to discover the facts, relations among facts, and an explanation of these facts and relationships. A simple question such as "What is a river?" forms the basis of their quest for information. Learning is based on an evolving consensus among the participants as they build a conceptual framework. Participants in an idea circle contribute information that is based on previous experience, recent reading, or discussions with other students. Several classroom examples of how the process might work are presented as well as a table showing the similarities and differences between a literature circle and an idea circle. While more research is needed, the authors expect that the benefits of idea circles will be that students will engage in a more sophisticated level of collaboration. Students will have more opportunities to: 1) gain literacy strategies such as searching for information; detecting the most important information and relevant details; the use of background knowledge; understanding word meaning in context, and summarizing units of text. They also learn to combine information newly encountered in text with what other students are finding. 2) conceptual understanding and application of learning to new areas. 3) collaborative processes including

turn-taking; maintaining participation of group members; checking comprehension and regulating progress; and providing feedback and help with achieving individual and group learning. 4) and intrinsic motivation such as individual curiosity, desire for involvement in interesting activities, and the need to feel connected to a group.

Hattie, Biggs, and Purdie (1996) used meta-analysis to examine 51 studies in which interventions were aimed to enhance student learning by improving student use of either one or a combination of learning or study skills. Criteria for inclusion of a study were that a) it was concerned with learning or study skills, b) it was possible to calculate an effect size, c) there was some type of intervention, and d) the outcome was either performance, study skills, or affective, they used the Structure of the Observed Learning Outcome (SOLO) model (Briggs and Collis, 1982). This model categorized interventions into four hierarchical levels of structural complexity (prestructural, unistructural/multistructural, relational, and extended abstract) and as either near or far in terms of transfer between training task and outcome measure. Outcome measures were also categorized. Academic performance measure such as subject-based tests and examinations, grade point averages, and tests of general ability were categorized as performance. Where outcomes measured change in either one or a range of study behaviors, the category study skills was assigned. Affect was used when the outcome measure was related to self-efficacy, self-concept, or attitude. Hattie, Biggs, and Purdie said results support the notion of situated cognition, that is, training other than simple mnemonic performance should be done in context, using tasks within the same domain as the target content, and promoting a high degree of learner activity and metacognitive awareness.

### **Summarizing**

Research in this area looked at how to teach students to condense what they had read into an accurate capsule statement.

Hill (1991) described why students had difficulties summarizing what they read. The author begins with three basic questions about summary writing: 1) What are written summaries and why do students need to write them? 2) What related variables are implicit in the task of summary writing? 3) What works in teaching summary writing? Summaries are short statements that condense information and reflect on the gist of discourse. Writing summaries helps students develop vocabulary, promotes critical reading and comprehension, and improves learning in general. Factors that make summary writing difficult are the difficulty of text, text organization, degree of comprehension, availability of text, audience, intended purpose, type of summary required, genre, and text length. What works in teaching summary writing? 1)

Linear time framework (First, this happened, Then this, Then this, Finally). 2) In content classes, student must learn to form concept maps of what they have read and then convert the concept maps into connected text.

Hill offers six teaching suggestions that appear to be supported by research. 1. Summary writing must be initiated from the text pattern with which the student is most familiar- narrative. 2. Initially, summary writing is most effective if it uses a narrative or time structure. 3. Direct instruction of summary writing has proven to be most effective. 4. When students are given a format such as enumeration and time sequence with text frames, they are usually successful. 5. A key concept map is an effective organizational tool for summary writing in content classes. 6. Most students, even adults, progress through developmental stages as they write summaries.

Hare (1992) outlined recent research (as of early 1990s) on summarization. Three types of summarizing are identified: 1) Recall output- what a student is able to remember of a story. 2) Main story event or plot – the main idea of the story. 3) The “essence” of the story- such as the moral in a fable. Summarization during comprehension occurs when a student lists major topics from each section of a story or text. Summarization after comprehension consists of selecting important ideas from the reading and condensing them, usually in a written summary. The authors identified factors that affect summarization:

1) Person Variables-

a. Views of the task- for some students the idea of summarizing consists of shortening the original text. Their goal is to get down enough words to fill a page (or whatever the length requirement the teacher had imposed) without real regard for the importance of the details.

b. Skill level- adult readers typically rely on three sources for cues to the importance of text: context or knowledge, text, and personal beliefs. Students in school generally lack experience with these types of sources to use them effectively.

c. Level of knowledge- the amount of prior content knowledge strongly biases the ability to comprehend and summarize.

2) Text Variables-

a. Length- short texts are basically easier to summarize than long texts.

b. Genre- narratives are easier to summarize, as are story structures that are more familiar.

Additionally, important and interesting details tend to overlap in stories. Expository text deals with more complex, abstract ideas and is less well organized than narrative text.

c. Complexity- the more difficult the text and the more unfamiliar the reader is with the text style the more difficult it is to organize and formulate an judgment as to what is an important idea and what is supporting material.

### 3) Task Variables-

a. Access-the quality of text summary declines if student do not have the opportunity to refer back to the text.

b. Purpose- summaries written by the student for their own use tend to be free-form in structure, and include personal elaborations and editorial commentary as well as major points.

c. Length restrictions- restricting length imposes greater selecting and condensing burdens on the summarizer.

Hare concluded that summarizing can be a very difficult task for students to perform. Teachers must learn to understand the interplay between various variables and pass these along to their students.

### **Thinking Skills**

Research on thinking skills focused on developing student's ability to use various method of thinking to solve problems, make decisions, and develop critical evaluation abilities.

Collins (1991) who analyzed the effects of eight domains of reading and writing lessons designed to increase adolescent thinking ability. The study was conducted using four schools in a large metropolitan city in the southwestern U.S. One hundred sixty-eight subjects, 82 sixth-graders (40 girls and 42 boys) and 86 seventh-graders (45 girls and 41 boys) were randomly assigned to experimental and control classes. In the experimental class, lessons were taught on Mondays, Wednesdays, and Fridays from the second week in January through the last week of April. The week after instruction the students were tested using subtests from the Iowa Tests of Basic Skills as a measure of the effects of the instruction on students' scholastic achievement; writing samples used as measures of communication and thinking competencies; and self-reports measured students' transfer of thinking strategies to content areas and their lives outside of school. The experimental classes were involved in eight lessons using activities to build thinking ability during reading instruction. The eight lessons consisted of: Building basic reasoning skills; Fundamental thinking processes; Decision-making tools; Problem-solving strategies; Metacognitive strategies; Creative and innovative thinking processes; Thinking more effectively when working in groups; and Thinking more effectively when working alone. Findings of the study included that experimental subjects significantly outperformed untrained adolescents in many ways. Pretest results for both experimental and control

groups revealed no significant differences, but experimental subjects performed significantly higher on the posttest for reading comprehension. Analysis of post experiment writing samples found that the experimental group used all divisions of reasoning in their writing. The experimental subjects also significantly outperformed control subjects in scores on the Harter Self-Perception Profile for Children, the measure of self-esteem. Collins reported the findings demonstrated that the lessons introduced to the experimental subjects increased thinking abilities and scholastic achievement of middle school students, and also that the lesson positively affected students' self-esteem and communication skills.

Parker (1991) talked about the development of teaching decision-making and critical thinking skills in secondary school as a part of secondary curriculum. He began by reviewing four roughly defined programs of research that covering the periods of 1936-1941 (the propaganda studies), 1966-1970 (the Harvard jurisprudential studies), 1964-1966 (Taba's cognitive task studies) and 1988-1991 (Newmann's classroom thoughtfulness study).

The focus of the propaganda studies was for students to learn to resist pressure to shift one's attitudes on public issues by using knowledge of the rules of logical inquiry and argument analysis skills. This was accomplished through direct instruction in critical thinking skills rather than in instruction using regular course content.

The Harvard jurisprudential studies sought to teach students flexible analytic and discussion skills, to encouraged students to make value-laden evaluations of issues and decisions based upon prior knowledge, the nature of society and perceptions of right or wrong. The subject matter considered was selected public controversies set within the U.S. history curriculum.

Taba followed a similar line but focused on social studies in first through eighth grades. Three to eight concepts were developed per grade level and concepts were repeatedly presented in succeeding grades.

Newmann was more concerned with the apparent fact that students were not being challenged to consistently use higher-order and critical thinking skills in their social studies classes. He felt that there should be less emphasis on teaching discrete thinking skills, more emphasis on students thinking critically in social studies, and for students to be more aware of and evaluate issues encountered in the social studies. The main differences in these various approaches can be categorized as a concern for depth of coverage versus breadth of coverage. To what extent are discrete skills necessary when compared to general exposure to a wide range of historical situations? Can skills be taught in isolation or can they be effectively

taught by exposing students to repetitious examples from history? Obviously, the answer lies somewhere in the middle. Students cannot be expected to think critically without having some specific skills taught to them, but there must be some connection between the skills taught, presentation of content, and the students' frame of reference. A compromise between these two positions includes teaching a limited number of critical thinking skills and focusing on a limited number of important topics from history with neither the teaching of skills nor the presentation of content being ignored. Parker presented several suggested questions for areas of further research: 1) Which topics in which grades most warrant higher-order thought by students? 2) By what criteria ought these content selections decisions be made? 3) What are the varieties of thoughtful lessons on important social studies topics? 4) What are the effects of thoughtful lessons on students' higher-order thinking as well as on the subject matter understanding they construct as a consequence? 5) What metacognitive strategies are particularly germane to the construction of key social studies understanding, and how are those strategies best taught?

Beyersdorfer and Schauer (1992) offered an eight-stage activity that promoted critical thinking. The personality profile assignment is a two-week reading-writing-speaking project, which strengthens the student's understanding of adult motivation. Each of the eight stages has its own learning activities and goals.

Stage 1- students read novels, short stories, and nonfiction articles about intriguing adults and decide which conflicts, choices, relationships, and aspirations most influenced the characters' lives.

Stage 2- students evaluate the attributes of potential interview candidates and select a subject.

Stage 3- students learn interviewing techniques and a simplified notetaking procedure.

Stage 4- students write an interview script.

Stage 5- they conduct a face-to-face interview.

Stage 6- they assess their interview notes for meaning behind spoken message, identify the individual's perspective on historical events, draw inferences, and develop informed conclusions.

Stage 7- students write a draft of the profile.

Stage 8- they deliver the personality profile as an oral presentation to their classmates. Evaluation of student's progress occurs throughout the project.

Two formal assessments are conducted at the end of the project; the profile writing assignment is graded holistically and the quality of the oral presentation is evaluated. Each stage is presented with examples and suggestions as to how to go about organizing the project folder. For example, suggested

people that students can interview include coaches, religious leaders, relatives, friends' parents, and family friends. Choices are based on personal qualities such as someone who had had an impact on the student's life, or who displays tenacity, competitiveness, independence, or eagerness. Beyersdorfer and Schauer noted that the activity starts with analysis of literacy characters and culminates with presentations based on interviews of respected adults.

Cioffi (1992) advocated a strategy for developing students' ability to think critically while reading by involving them in tasks with perceived conflicts and discrepancies. One job for teachers is to make their students aware that frequently there are different versions of an event. The first step is making students aware of this fact. The second involves looking at the sources or texts carefully and evaluating them. Finally, students need to try to resolve the discrepancies. Cioffi presented several examples of ways for doing this starting with ads for common products and moving on to news reports and variants of literature both fiction and non-fiction.

Vardell and Copeland (1992) described the benefits of having students talk about text they have read and listen to others talking. They stated that when students transform their thoughts into words, they are better able to shape, organize, and understand experiences. Reading aloud is one way they proposed to bring reading and oral language together. Use of photographic essays, journals, and autobiographies are suggested. Characteristics to look for in selecting material to use include:

- 1) Visual appeal (Informative, well written, with full-color pictures).
- 2) Relevance (Books that contain topics of interest to students or will stimulate interest).
- 3) Person Growth (Providing facts about issues and a forum for airing concerns).
- 4) Story-like Nonfiction (Format incorporates a story frame into a nonfiction format).
- 5) Fact and Features (Books of trivia, lists of statistics, and collections of facts).
- 6) Familiar Format (Books that introduce unfamiliar information and terminology in a familiar format, such as *An Alphabet of Trees*).
- 7) Biography (Simplified versions of a person's life which paints a realistic portrait based on careful research).
- 8) Curriculum Connections (As supplementary content for content area subjects).
- 9) Dramatic Potential (Use of pantomime, performance, or readers theatre).

Other methods of integrating reading and talking include small-group conferences, whole-class sharing, and collaborative research and learning.

## Vocabulary

Research about ways to teach vocabulary, the importance of learning vocabulary, and its impact on learning included the following.

Blachowicz and Zabroske (1990) described the goal setting, assumptions, and instructional design of a metacognitive approach for using context-use strategies to develop at-risk students' vocabulary. The authors stated that direct instruction can account for some vocabulary growth, but much of what is added comes learning words from context. They presented the results of a series of meetings by a group of middle school remedial teachers who were attempting to develop a context-use strategy approach. The teachers identified three necessary components. 1) Students must know why and when to use context. They decided that students needed frequent and extensive exposure to a variety of examples and that teachers needed to talk their students through using explicit instruction and modeling. 2) Students must have a general idea of what kinds of clues may be provided by context. Over a series of classroom trials, students and teachers developed a list of the types of clues they found and charted them on wall charts in their own words. 3) Students must know how to look for and use these clues. McKeown (1985) identified that poor readers' hypothesis and test strategies are much less developed than able readers. They developed a strategy that directed students to: 1) Look- before, at, and after the word. 2) Reason- connect what they know with what the author tells them. 3) Predict- a possible meaning. 4) Resolve or re-do- decide if they know enough, should try again, or consult an expert or reference. At the end of the school year, Blachowicz and Zabroske reported that both teachers and students evaluated the approach favorably.

Chase and Duffelmeyer (1990) described VOCAB-LIT, a technique for helping students understand literary elements through vocabulary study. The authors stated that students in literature classes must learn to discern different levels of meaning to understand and appreciate what they read. This poses more complex comprehension problems than expository text. VOCAB-LIT allows students to choose which words they wish to study as they read a novel and was inspired by Haggard's (1986) Vocabulary Self-collection Strategy (VSS). VOCAB-LIT makes three modifications to the VSS strategy: 1) the submitter does not reveal why they think the group should learn a particular word. 2) Students must be aware of their personal level of knowledge about the word. 3) Students are guided to need to learn connections between an individual word and content. One criticism of both VSS and VOCAB-LIT is that the words selected may not point towards important aspects of the content. Chase and Duffelmeyer found that 6 out of 10 words students choose were found relevant to discussion of literary elements. They believed that the

VOCAB-LIT technique is an effective strategy for integrating vocabulary study and literature study. Students demonstrated they were proficient at recalling the meaning of words they identified using VOCAB-LIT.

Baumann and Kameenui (1991) looked at research on vocabulary instruction covering the period of 1970 through 1990 focusing on strategies for teaching specific words. Students can learn word meanings by rote vocabulary learning methods, such as definition or synonym instruction, and these procedures are sensible if the instructional objective is limited to partial knowledge of a fairly large number of words. However, other approaches may be more effective if a deeper and fuller understanding of word meaning is desired. If passage comprehension is the objective of vocabulary instruction, then it is unlikely that rote definition/synonym strategies will achieve this goal. The mnemonic keyword method is effective in teaching diverse groups of student's definitions or synonyms. It is unknown if students can learn and retain word meanings for large numbers of words according to the key word method, and the keyword's impact on text comprehension, if any is yet to be established empirically. Various semantic relatedness and prior knowledge approaches, such as semantic mapping and semantic feature analysis, are effective techniques for teaching new concepts to students of varied abilities and different racial and ethnic backgrounds. Further, there is evidence that these methods also enhance passage comprehension. The Beck and McKeown comprehensive program of rich vocabulary instruction has been shown to be effective in teaching fourth-grade students word meanings, and there is strong evidence that such instruction positively affects the comprehension of texts that contain taught words. According to Baumann and Kameenui, a summary of research on teaching transferable and generalizeable vocabulary learning strategies found:

1. Use of context clues is a relatively ineffective means for inferring the meanings of specific words; rather, semantic relatedness procedures and mnemonic methods are preferred approaches for teaching the meanings of specific words.
2. When definitional information is combined with contextual cues, students are more apt to learn specific new vocabulary than when contextual analysis is used in isolation.
3. Research on teaching contextual analysis as a transferable and generalizeable strategy for word learning is promising but limited. However, further research is required before statements about the effectiveness of contextual analysis instruction can be made with much conviction.
4. Additional research is needed on teaching morphological analysis as a transferable and generalizeable strategy for word learning.

There is some indication that students can be taught specific morphemes (e.g. prefixes) that may enable them to unlock the meanings of unknown words containing these elements; also, there is some evidence that teaching students the meanings of unfamiliar words enables them to infer the meanings of morphologically related words.

Sinatra and Dowd (1991) presented ways of using syntactic and semantic clues to learn vocabulary. They provided five reasons for the framework they are presenting: 1) It gives a comprehensive arrangement of context clues so that teachers can distinguish what makes each category different. 2) It helps teach grammar and gave teachers a clear strategy whereby the study of grammar can be integrated with reading and writing. 3) Learning about context clues gave students thinking tools to deal with the wide range of written material they will encounter. Teaching students about context clues sensitizes them to look for meaningful relationships. 4) It improves overall comprehension by teaching students to read between the lines and to process text on a deeper level. 5) The 15 categories of context clues provide teachers with a complete listing as could be culled from a number of resources. Six of the context clues are transmitted through grammatical structure (predicate nominative, coordinating conjunction “or”, direct explanation, series comma, appositive structure, and adjective structures) and nine are interpreted through intra- and intersentence meaning relationships (anaphoric relations, restatement, word explained through examples or illustrations, summary, experience, comparison/contrast, figures of speech, cause/effect, mood/tone). Sinatra and Dowd recommended that these be taught, not as a whole, but as random items when examples occur in classroom materials. They should be taught directly, strengthened by modeling on how the context clues work, followed by practice with further examples from the students’ text. They also recommended sentence-combining, constructing semantic maps, and writing strategies such as sentence rewrites and forming sentences to predict omitted words as useful follow-up strategies.

Ruddell (1992) presented a strategy for teaching vocabulary that provides a clear focus on vocabulary acquisition and development as an integral part of subject matter learning and vocabulary acquisition and development as long-term retention of language of an academic discipline. The Vocabulary Self-Collection Strategy (VSS) is initiated by the teacher asking students to nominate one word or term that they would like to learn or know more about. The teacher also nominates one word. Students are encouraged to find words/terms that are important to the topic at hand and are required to tell: 1. Where they found the word, 2. What they think the word means in this context; and 3. Why they think the class should learn it. Student teams of 2-5 people can effectively do this. When they are ready, a spokesperson presents a

nominated word, tells where they found it, what the group believes the word means, and why it was chosen. The teacher writes the word on the board, leads a discussion to define each word, first from context and then from any available reference. A final class list is created by eliminating any doubles, any word the class felt they already know, and any word that does not appear to be appropriate. Words that are chosen are circled or somehow identified, while eliminated words are left alone. Chosen words are redefined and written with definitions in a vocabulary journal. Students may record words not chosen for the class list on a personal vocabulary list. The teacher must design follow up activities. Some guidelines include:

- 1) Activities should allow students to use new words in a meaningful way such as open-ended or focused writing assignments, journal writing, response group summaries, lab reports, quick-writes, and extended narrative and expository writing.
- 2) Activities should allow students opportunity to associate new words and concepts with their own experience, such as semantic mapping.
- 3) Activities should develop associations with other words. Examples include semantic mapping, semantic feature analysis.
- 4) Activities should encourage higher-order thinking, which requires deeper processing in which students make more cognitive connections between new and known information.
- 5) Activities should lead students to many different resources. Word treasure hunts.
- 6) Activities should acknowledge and capitalize upon the social nature of learning such as cooperative and collaborative groups.

Ruddell believed that VSS had many benefits. Its use after reading or discussion makes sense since we can't really know what words we need to know until after reading.

Parry (1993) reports a longitudinal study case of a Japanese university student's acquisition of vocabulary in English. The student was asked to record all the new words encountered in the reading assigned for an anthropology course at an American university, and to also record her guesses as to what the words meant. Results showed she was remarkable successful in her guesses, much more so than studies of first language vocabulary acquisition would lead us to expect. Her success is attributed, first, to the student's experience and knowledge as an adult. Second, to the breadth of context in which the vocabulary was encountered. Her word lists showed significant problems with syntax and morphology, suggesting that this student, at least, needs to adopt a more analytical approach to vocabulary. The study provided

evidence that even though words may be understood quite well in context they cannot be said to have been learned in the sense that they can be individually defined. According to Parry, this study suggests that teachers of English as a second language should provide as rich contextual support as possible for the vocabulary they teach, as well as giving some explicit instructions on syntactic and morphological analysis. Traditional ESL teaching has consisted of conscientiously teaching only the two thousand or so most frequent words encountered. Less frequent words are glossed in ESL textbooks when they crop up, but the purpose is to facilitate comprehension of the text as a whole rather than to teach individual word meanings. Vocabulary acquisition problems is probably unconscious, a new word is often not noticed because it appears in a text of which the general sense is understood. Some students are able to make a guess at the meaning of a very large proportion of words by putting meaning into what they read. A rich store of background knowledge can provide a wider range of potential meanings for a new vocabulary word and a stronger sense of what might be plausible. Difficulty discerning the correct meaning of a word was enhanced when there was no equivalent vocabulary word in the reader's native language. In this particular study, Parry determined that the subject demonstrated that she could and did derive representations of meaning from context. While a guess from context was usually in the right general direction of meaning, it is also more often than not different in some way from the generally accepted interpretation. The fact that a word is encountered and its meaning is guessed does not mean that it will be immediately learned. Vocabulary learning is a gradual business, but if context is sufficiently broad, this is less of a concern for acquiring understanding.

Wheatley, Muller and Miller (1993) shared three teachers' experiences writing their own computer-assisted instructional materials to improve the vocabulary development portion of a course designed to help at-risk first-year college students develop vocabulary and contextual analysis skills. Guidelines for the program focused on four characteristics of approaches that have proved superior with college-age subjects: 1) the use of mixed methods, 2) vocabulary in context, 3) student interest, 4) the active role of the learner. They discussed theoretical foundation, program design, development and implementation of the software, program effectiveness, and practical considerations. The initial list of vocabulary words was selected by other content area instructors from the textbooks assigned to students in their classes. Instructors were asked to avoid content-specific vocabulary and select more generic terms. The result was 240 words by context clue type: definition, contrast, linked synonyms, examples, inferences, description, and general context. Each exercise consisted of 20 items- one per word- presented

in the form of questions. Every word was presented in the context of a sentence gleaned from one of the texts assigned in other classes. Following the lesson tutorial, students were to study any words they did not know, and then take a quiz over the lesson material and score a 95% to receive credit for the lesson. The results of the first use of this software program were that there was a marked improvement in student knowledge of the specific vocabulary covered. Almost all the students knew over 90% of the words at the end of the course, where typically they knew fewer than half the words. Wheatley, Muller and Miller were disappointed that despite the tutorial portion of the program instructions there was no measurable improvement in students' ability to use contextual analysis to derive meaning of new words. One note they make is that based on feedback from students, they felt that the number of words presented per lesson could have been dramatically increased. Students typically average one minute per word and there was no real time restriction for completing the entire set of lessons. Wheatley, Muller and Miller stated that one lesson they learned from the end of lesson quizzes is that student frequently took the quiz without studying and then retook the quiz after they had studied the words they did not know. They instituted a change to a single retake policy and required that students score at least a 60% the first time in order to retake a quiz.

Baker (1995) discusses recent research on vocabulary development, highlighting issues related to diverse learners. The review included studies of students who were low performers; learning or reading disabled; remedial readers; high achievers; and students who are culturally disadvantaged, language delayed, and linguistically diverse. Areas of convergence in the research literature on vocabulary acquisition are identified: vocabulary size differences among students; factors that contribute to individual differences in vocabulary development, including generalized linguistic differences, memory deficits, and poor word learning needs; and the relation between vocabulary knowledge and reading achievement. Baker discussed issues concerning the direct instructional approach to word meanings along with the use of semantic mapping/feature analysis and keyword and computer-assisted methods. A chart provides information on the studies reviewed, identifying the author(s) and year, number and type of study participants, the vocabulary dimensions and the purpose of the study.

Baker, Simmons, and Kameenui (1998) looked at research basis for vocabulary acquisition. They stated that there is no evidence that any single method or comprehensive program seriously decreases the vocabulary gap that exists between students with poor vocabularies and those with rich vocabularies. Their review of vocabulary research included 7 secondary sources and 18 primary sources listed in a table located on pages 211 through 215 of the article. Two independent reviewers read and coded each primary and

secondary source. Two of the textbook chapters and one of the articles, were read and coded by only one reviewer because they were not included in the original vocabulary search. All references were coded on three dimensions: general conclusions, learner characteristics, and instructional implications. Reliability was attained by combining independent reviews, intercoder comparisons of data categorizations, coding clarification and refinement, with reliability checks on all sources. Baker, Simmons, and Kameenui concluded that vocabulary acquisition is crucial for academic development. Not only do students need a rich body of word knowledge to succeed in basic skills areas, they also need a specialized vocabulary to learn content are material. A foundation of vocabulary knowledge must be in place early if children are going to perform successfully in school. Some specific findings identified by Baker, Simmons, and Kameenui included:

- 1) the large difference between the number of words known by students with poor vocabularies versus students with good vocabularies, which can be identified as early as kindergarten in some cases. This gap tends to increase significantly throughout school and this gap has strong implications for students' long-term educational success.
- 2) There are multiple factors that contributed to differential rates of vocabulary growth. A strong relation was found between environmental indicators such as SES and vocabulary knowledge, indicating home factors may contribute substantially to the students' level of vocabulary knowledge.
- 3) Nearly all strategies for increasing vocabulary knowledge, such as semantic mapping, semantic features analysis, key word method, and computer-assisted instruction, result in greater learning than occurs during typical opportunities.
- 4) Direct teaching of word meanings does not adequately reduce the gap between students with poor versus rich vocabularies. It is crucial that students learn strategies for learning word meanings independently.
- 5) There is a strong relationship between reading comprehension and vocabulary knowledge.
- 6) The development of strong reading skills is the most effective independent word learning strategy.
- 7) Words need to be encountered in text multiple times before the meaning becomes part of a student's vocabulary.
- 8) Improvements in beginning reading instruction are crucial if students are to develop the skills necessary to engage in significant amounts of independent reading.

Blachowicz and Fisher (2000) laid out the implications from research that they felt represented shared insights for a "general theory" of vocabulary instruction. They also looked at research examining

practice and materials to see if these implications had influenced the classroom and if so, how. Thirdly, they proposed an alternative way of looking at research-to-practice issues, and finally, they looked at adaptive practices in vocabulary instruction in the content areas and students with reading difficulties (ESL and poor readers). Blachowicz and Fisher concluded that the nature of vocabulary instruction in the content classroom is a complex issue that does not have a simple “correct way” that applies to all content subjects. That teachers must know the amount of subject related information that their students already possess so they can teach their students how to make the connections to new learning. They also recommended that research efforts not try to come up with a single general theory but a multiplicity of theories to match varying instructional contexts.

Nagy and Scott (2000) described how school children add words to their reading and writing vocabularies and how they learn the meaning of new words. They discussed the complexity of word knowledge and how children gain information about words from context, word parts and definitions, noting limitations and potentials of each source. Nagy and Scott concluded that if students are to become active independent learners in the area of vocabulary, they need to have some understanding of the area that they operate in. That understanding depends on explanations by teachers who themselves have some grasp of the complexity of word knowledge. It also depends on the type of vocabulary instruction they receive. The quality of vocabulary instruction must be judged not just on whether it produces immediate gains in student understanding of specific words, but also on whether it communicates an accurate picture of the nature of word knowledge and reasonable expectations about the word learning process. Nagy and Scott stated that children are taught to read so that they can understand what is in text. Therefore, what matters most in reading instruction matters because it ultimately affects whether the student develops into a reader who can comprehend what is in text. Reading instruction is effective in stimulating student comprehension abilities to the extent that it stimulates students to process texts as good readers do. It is important to understand what those processes are.

## Chapter 6— Findings, Implications, Conclusions, and Recommendations

The purpose of this study was to identify the research related to methodologies of teaching content area reading reported in major research journals and research reports during the period between 1970 and 1999.

There were three research questions that I tried to answer:

1. Did the body of existing research in content reading identify critical skills that needed to be taught in the social studies classroom in order for students to be successful? (Was there a basis in research to support the reported literature in methods textbooks?)
2. What existing research in content reading had been generated over the past 30 years and to what extent were these findings reflected in college methods textbooks? (Are method textbooks used to train teachers reporting relevant research findings as found in research journals and research reports?)
3. What themes exist in this body of research literature concerning the teaching of reading skills in content areas? (Was there a need for greater emphasis in teacher education preparation and professional development programs in the teaching of reading strategies in the social studies classroom?)

### **Findings**

The articles that make up the majority of citations written over the period of 1970-1999 in professional journals looked at the following themes:

- Learners acquire meaning from the printed page through thought rather than just sounding out words.
- Reading can and should be done for different purposes using a variety of materials.
- There are a number of techniques that can be used to teach word recognition and other reading skills.
- Reading materials need to be selected according to changes in a child's interests.
- Reading ability is the level of reading difficulty that students can cope with. It depends on ability rather than age or grade level.
- Readability of material contributes to both the reader's degree of comprehension and the need for the teacher to provide the reader with assistance when reading difficulty exceeds the reader's capability.
- Reading instruction, in some form, needs to be carried on into the secondary grades.

Research findings from the 1970s were concerned with reading strategies, reading skills, reading comprehension, readability, attitudes towards reading, vocabulary, study skills, and content area reading programs.

In the 1980s research cited in content area reading books tended to look at reading comprehension, reading skills, vocabulary, learning strategies, curriculum issues, purposes for reading and writing, content area reading programs, readability, schema theory, thinking skills, summarizing, comprehension strategies and cooperative learning.

By the 1990s more research cited in content area reading books focused on reading strategies, curriculum issues, how to read documents and graphs, reading skills, vocabulary, attitudes towards reading, reading comprehension, and activating background knowledge.

This study focused on changes over a 30-year period, and represents a sampling of the most widely used content area reading textbooks. There were twenty-four textbook editions written by five authors or sets of authors analyzed for this study.

Alexander									
Teaching Reading	1978	1983	1988						
Richardson, Morgan, & Fleener									
Reading to Learn in Content Areas	1990	1994	1997	2000	2005				
Robinson									
Teaching Reading & Study Strategies	1975	1978	1983						
Roe, Stoodt, & Burns									
Secondary Reading Instruction	1978	1983	1987	1991	1995	2001			
Vacca & Vacca									
Content Area Reading	1981	1987	1989	1994	1996	1999	2003	2005	

These were 2,234 significant articles or other textbooks cited in these 24 textbooks. After eliminating repetitive entries there were 929 distinct entries that comprise the body of knowledge for this study. A majority of the entries are single citations that appeared only once in any of the 24 textbooks. A few references appeared more frequently (Table 4). Twenty-three entries appeared more than eight times, and there were eighteen additional entries that appeared seven times.

**Table 4 Frequently cited journal articles**

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Among the most cited references were:

<i>Teaching Reading in Content Areas</i> (Herber, 1978)	16 times.
<i>Fry's Readability Graph: Clarifications, Validity, and Extension to Level 17</i> (Fry, 1977)	13 times.
<i>From Theory to Practice: A Prereading Plan</i> (Langer, 1981)	12 times.

Cited nearly as frequently were:

<i>REAP- A Strategy for Improving Reading/ Writing/ Study Skills</i> (Eanet & Manzo, 1976)	11 times
<i>Direct Instruction of Summarization Skills</i> (Hare & Borchartd, 1984)	11 times
<i>Teaching Reading Comprehension</i> (Pearson & Johnson, 1978)	11 times
<i>Content Area Reading: An Integrated Approach</i> (Readence, Bean, et al, 1981)	11 times
<i>Content Area Textbooks</i> (Armbruster and Anderson, 1981)	10 times
<i>Thinking Aloud- Modeling the Cognitive Process of Reading Comprehension</i> (Davey, 1983)	10 times
<i>A Dictionary of Reading Related Terms</i> (Harris & Hodges, 1981)	10 times
<i>-How Do You Know What You Know? Metacognitive Modeling in the Content Areas</i> (Heller, 1986)	10 times
<i>Guided Reading Procedure</i> (Manzo, 1975)	10 times
<i>Comprehensive High School Reading Methods</i> (Sheperd, 1973)	10 times
<i>Fostering Cooperative Learning in Middle and Secondary Level Classrooms</i> (Wood, 1987)	10 times
<i>Cueing Thinking in the Classroom: The Promise of Theory Embedded Tools</i> (McTighe & Lyman, 1988)	9 times
<i>Use of Top-Level Structure in Text; Key for Reading Comprehension of Ninth Grade Students</i> (Meyer & Brandt, et al, 1980)	9 times
<i>Teaching Learners About Sources of Information for Answering Comprehension Questions</i> (Raphael, 1984)	9 times

**Table 4 continued**

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Less frequently cited references included:

<i>The Jigsaw Classroom</i> (Aaronson, 1978)	8 times
<i>Selective Reading Guide-O-Rama: The Content Teacher's Best Friend</i> (Cunningham & Shablak, 1975)	8 times
<i>Readability, Readability Formulas, and Cloze: Selected Instructional Materials</i> (Hittleman, 1978)	8 times
<i>Assessing Readability: The Checklist Approach</i> (Irwin and Davis, 1980)	8 times
<i>Teaching Reading Vocabulary</i> (Johnson & Pearson, 1984)	8 times
<i>Three Principles of Effective Vocabulary Instruction</i> (Stahl, 1986)	8 times
<i>The Use of Vocabulary as an Advanced Organizer</i> (Barron, 1969)	7 times
<i>K-W-L Plus: A Strategy for Comprehension and Summarization</i> (Carr & Ogle, 1987)	7 times
<i>Team for Success: Guided Practice in Study Skills Through Cooperative Research Reports</i> (Davey, 1987)	7 times
<i>How Do Classroom Teachers Use their Textbooks?</i> (Davey, 1988)	7 times
<i>Maximizing Reader-Text Confrontation with an Extended Anticipation Guide</i> (Dufflemeyer, Baum, et al, 1987)	7 times
<i>What Classroom Observations Reveal about Reading Comprehension</i> (Durkin, 1979)	7 times
<i>Reading Comprehension Instruction in Five Basal reading Series</i> (Durkin, 1981)	7 times
<i>Meeting the Reading Demands of the Real World: Literacy Based Content Instruction</i> (Feathers and Smith, 1987)	7 times
<i>Teaching Content Area Reading Skills</i> (Forgan & Mangrum, 1976)	7 times
<i>A Readability Formula for Short Passages</i> (Fry, 1990)	7 times
<i>The Coming Attraction: Previewing Short Stories</i> (Graves, Prenn, et al, 1985)	7 times
<i>How to Develop Independence in Following Written Directions</i> (Henk & Helfeldt, 1987)	7 times

**Table 4 continued**

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<i>Strategy Use by Good and Poor Comprehenders Reading Expository Text of Differing Reading Levels</i> (Kletzien, 1991)	7 times
<i>Underlining and Notetaking: Some Suggestions from Research</i> (McAndrew, 1983)	7 times
<i>KWL in Action: Secondary Teachers Find Applications That Work</i> (Ogle, 1992)	7 times
<i>Alternative Formats for Evaluating Content Area Vocabulary Understanding</i> (Simpson, 1987)	7 times
<i>Content Literacy in High School Social Studies: Two Case Studies in a Multicultural Setting</i> (Sturtevant, 1992)	7 times
<i>Who's At Risk in Reading?</i> (Vacca & Padak, 1990)	7 times

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## **Implications**

In reviewing the research found in the textbooks, it became apparent that there were and are problems with some of the research cited.

Content area textbooks have some inconsistencies in citing referenced works and errors. There were a large number of citations that contained errors in the volume number (volume 12 instead of volume 21) and/or issue number/publication quarter (1, 2 /Fall, Winter) cited. Page numbers listed for most articles were accurate, although some cited journal articles did not list all the pages that comprised the entire article, only a specific portion of it. I attributed this to a desire to spare interested teachers from having to read numerous pages of background material when the “nugget” was actually located on the seventh page of the article.

Many content reading authors attribute content area reading difficulties to the overuse of basal readers in elementary schools. Changes in teaching made for improvements in this area, although questions and skill-development does not appear until the mid 1980s. From this review of content area reading it appears that there was a lack of significant research finding that were reasonably applicable to teachers' content area reading needs. There was a volume of material published under the general heading of “reading” but much of this material could not be used by a content teacher to maximize instruction.

There was evidence that some experimental research results warranted careful consideration. Among the evidence was:

- Some of the experimental results have questionable validity based on the degree to which we might expect to find the effective experimental treatment in actual classroom settings. One example was experiments that required students to read a passage and then recall the content orally. In this situation, the student is prevented from looking back at a previously read text, something that would be less likely to happen in a classroom setting on a regular basis. Another is experimental situations where students were extrinsically rewarded for participation for answering a question, also not something that habitually occurs in the classroom.
- Low incidents of teacher input during the design and implementation of a majority of experimental treatments make results questionable since known student variables that might have affected the outcome results were not considered.
- There are questions about the nature of the texts students were given to read. Texts used in many research studies were either borrowed from another source or written specifically for the experiment. The

shortness of text length used is not representative of texts routinely found in secondary classrooms and it cannot be assumed that an effective strategy from a brief experimental passage would be equally effective with longer texts. Many experimental reading topics were on subjects for which the students had no available background knowledge. Without appropriate background knowledge, students typically had difficulty in generating questions of their own. The difficulties students have when they lack sufficient background knowledge center around being able to identify what information is most important and what information is supportive. This may interfere with students' abilities to focus on or effectively use the strategy under investigation. It seems unreasonable to expect a student to apply a particular strategy if they had little or no previous experience in using it.

-Much of the research focused on single-factor impact on reading comprehension. No single reading activity provides the answer to guiding students' active and critical comprehension of difficult text concepts. Instead, teachers will achieve their greatest successes by combining learning from text strategies creatively (Bean and Ericson, 1989, 340).

Some specific problems included studies in which:

-Populations were too small and inappropriate to accurately generalize result obtained to the larger educational setting.

A study done which involves 3 third grade classrooms, in a suburban school located near a large mid-western city can hardly be used to evaluate results for all students in the district, much less for a third grade classroom in an inner city school located in the southeast.

-Any type of a longitudinal study involving students which could document change over time would be prohibitive to conduct and equally prohibitive to replicate.

-The research in content reading books often lacked any real evaluation of research cited.

If the author of a journal article reports being able to dramatically alter students' scores on a reading assessment test by using a particular edition of the textbook, that may be useful information but it does not provide any insight into "why" that edition worked better than another. It also does not identify if there was any significance to the reported findings. It certainly provides an opportunity for someone to do further research into possible reasons or to replicate the study for additional validation of the results, but it is meaningless from a research point of view.

- The structure of the experiment is contaminated in some studies. Polluted dependent variables, age of materials used, differences in SES, and homework help all contribute to disparity that can occur in research

results. The researcher being involved in the delivery of instruction in the classroom(s), an evaluation instrument that does not measure what the researcher was investigating, or the study was compromised by the experimenter in some other way, as opposed to being blind.

-The problem of the generally one-sided presentation of successful programs and methods. It is unlikely that the results of unsuccessful approaches that were tried will be reported in research journal articles. When an article is written, the results reported present both the program and the researcher in the best possible light. This means that we are exposed to “studies that worked out” and we do not get to see “things that went wrong.” Yet, it is these experiences that would point to methods that are not working, sub-groups for which research findings do not apply, and possible avenues to making learning better for students.

-Finally, there is always the possibility that the researcher failed to grasp the significance of the research findings obtained. An example is the research by Dodd (1973) which tested student comprehension of three subject area passages of equal readability. Although Dodd concluded that there was a difference in nature of content writing and independence of readability, she failed to note that the primary emphasis of reading instruction in elementary school is literary in nature. This would indicate that elementary teachers were more successful in teaching their students how to read literature than in teaching them to read science or social studies materials. One might conclude that if students received more instruction in how passages in science and social studies were written, they might refine these skills over time and be more successful at comprehension in these areas.

### **Conclusions**

The very nature of historical research limits the researcher to data that is already in existence. The researcher cannot generate new data, but must induce generalizations and draw conclusions only from what is available. A major focus of this study (question #1) has been to determine if relevant research related to methodologies of teaching reading in content areas was making it into textbooks used to train teachers. Does the research that is available speak to the needs of teachers in the classroom? Is there relevant published research available that is being ignored by the writers of textbooks used to train teachers? This study does not address whether teachers ignored available research. No answer appears in the literature reviewed. In fact, almost any method that a teacher used in the classroom whether applied from an article read in a professional journal, an idea shared between two teachers, a handout received at a professional conference, or a teaching guide developed by a school or school system would have some basis in relevant, and most likely recent, research. More importantly, whether the teachers are aware of who did

the research and what theory was behind it is probably not the issue. Classroom teachers are not operating in a void, and the requirement that teacher recertify in the content area they teach should indicate that they are being exposed to some current research findings, even if it is only once every few years.

In response to the second, this study does address whether or not the literature speaks to the needs of the classroom teacher. It would appear that much of the literature and journal articles that have been written consists of “how to” strategies and studies that examine the application of these strategies under a variety of classroom conditions, both realistic and artificial. Even findings that may be soundly based in research tend to be “sugarcoated” like “good” medicine that tastes “bad” to make it more appealing to teachers. The “boring” or uninteresting research study which would be overlooked or ignored by the classroom teacher, is refined down into strategies which can be more easily be implemented into daily classroom situations. Rather than having to sift through endless pages of background and statistical data from a research study, the teacher is provided with something called the “E-Z Reading Comprehension Strategy.” This strategy, described in simple terms and endorsed by the author(s), explains how it “is suppose to work” and how in the described research setting it “raised student’s scores on the (fill-in-name) test by “x” number of points.” Some of the research findings are a little bit like an act of religious faith or a random act of kindness: It cannot be proved empirically nor is it necessary to do so in order for it to work. There is not necessarily a need to do extensive research in those cases where something like “best practice” seems to be working. In fact, many educators are not really interested in finding out the research basis for a classroom methodology. Too many times, the statements: “Just tell me what I need to do” or “Just tell me what I need to know” exemplify what educators want.

For the third question, was there research that is being ignored by textbook authors, the evidence from the literature reviewed here is that most textbook authors desire to create a quality product that will meet the needs of university faculty for acceptable textbooks and prospective teachers for a useable resource after the course is over. Therefore, they can be said to be using the most pertinent and sound research findings available.

It is difficult to isolate the causes of reading difficulties in the content areas because of the complexity of factors involved. Based on the results shown in chapters three, four, and five of this study, there is no single cause, no single skill or technique that works. Each student comes into the content classroom possessing differing abilities, background knowledge, interest, and skill sets. While we try to teach all students the same content and skills, each student possesses this knowledge to a differing degree,

making the process of instructing in the content classroom just that much more of a challenge. Through using best practices, we have a series of methods that seem to improve students' chances of mastering subjects in school. All we have to do is to teach them these strategies and use these methods in all classroom environments.

There were five general findings that are presented across the span of these three decades, and which continue today as valid recommendations.

1. When teaching students to use various learning strategies, the procedures need to be presented concurrently with the delivery of the content. Students need to see how the strategies aid them in learning the material and this cannot be done in isolation.
2. Learning is not reading assigned pages in the text and answering questions at the end of the chapter. They must be guided in preparation for reading, they need to be guided to read for selected ideas or concepts, and they need reinforcement after they are finished reading to reinforce the material they have read for aiding retention.
3. Reading is just one of the processes by which students acquire knowledge. Listening, speaking, thinking and writing are also valuable tools for students to learn content and should be used in the classroom as well.
4. While lecturing is the predominant method of teaching, one of the most effective methods is small group instruction (Wood, 1987).
5. Implementation of learning strategies takes time and effort. This involves the teacher learning the strategies, figuring out appropriate opportunities to implement learning strategies, and practicing the strategy with student to ensure they understand and can perform the tasks required. Only after necessary changes have been made and the teacher is confident in the ability of the strategy to achieve the expected goals can it become a successful part of teaching.

### **Recommendations**

This study was broadly focused on a 30-year period for the purpose of determining: Did a body of research exist that identified critical skills. What research had been generated and was it incorporated into college method textbooks. What themes existed in the body of research?

The next step is to continue to monitor major themes that dominate content area reading and to focus on further research that addresses both areas that need research validation and the need for additional research concerning strategies, techniques that work and can be used to teach students to process text more

effectively.

Researchers need to use current technology to verify the accuracy of citations they use in texts and journal article bibliographies.

More research based studies need to be done to continue to develop a strong foundation for Content Area Reading. Over the past 30 years, the study of effective strategies in teaching reading comprehension has been a research topic of some importance. The emphasis of the research finding over the period of this study (1970-1999) has been that reading comprehension can be improved if teachers use and teach their students to use certain strategies when they encounter obstacles to comprehension in reading. These are the skills that teachers in the content areas need to emphasize because these are the skills that represent an active engagement format.

Fielding and Pearson (1994) identified the following things that good readers do:

- Use existing knowledge to make sense of new information.
- Draw inferences from text.
- Ask questions before, during, and after reading.
- Monitor their comprehension.
- Use “fix-up” strategies when meaning breaks down.
- Determine what is important.
- Synthesize information to create new thinking.

The focus of research studies need to continue to be on meeting the needs of teachers in the classroom but can also address educational concerns that have been previously identified. Researchers who want to address ways of improving comprehension in the content areas need only look to these previous research findings to identify research questions that need further investigation.

The 1998 National Assessment of Educational Progress Reading Report Card indicated that while the percentages of 8th and 12th graders scoring above proficient levels had increased 33% and 40% respectively since the last reading report card, the results still suggest that most secondary students have not attained high levels of literacy. Some research indicated that an emphasis on reading solely as a cognitive process had not adequately addressed the needs of adolescent readers as they face learning from texts in the various subject areas at the secondary level. Students had difficulty reading and understanding in most subject areas, but especially in the social studies. A lack of literacy contributes to increased difficulties in succeeding in the social studies. This is supported by three reports that influenced the direction of teaching

social studies in the 1990s: The National Council for the Social Studies Task Force on Scope and Sequence (1984), The National Council for the Social Studies Task Force on Early Childhood / Elementary Social Studies (1989), and the Curriculum Task Force of the National Commission on the Social Studies in the School (1989).

The NCSS Task Force on Scope and Sequence said, “Social studies programs have the responsibilities to prepare young people to identify, understand, and work to solve problems that face our increasingly diverse nation and independent world.” (NCSS Task Force 1984, p. 251).

The NCSS Task Force on Early Childhood / Elementary Social Studies (1989) focused on basic skills such as reading, writing, and computer literacy and addressed strategies such as cooperative problem solving, critical thinking, and formulating positive attitudes about self and others.

The Task Force of the National Commission on the Social Studies (1989) developed a series of goals as part of the social studies curriculum in schools. Included among the goals were developing civic responsibilities; developing an understanding of other peoples, their traditions and culture; and developing an understanding of the history, geography, economics, political, and social institutions, traditions, and values of the United States and the world. Such goals would reflect an understanding of both the unity and diversity of the United States and the world.

The National Reading Panel (2000) listed seven categories of comprehension instruction that met the panel’s criteria for strong research support:

- 1) Comprehension monitoring
- 2) Cooperative learning
- 3) Use of graphic and semantic organizers
- 4) Question answering
- 5) Question generation
- 6) Story and text structure
- 7) Summarization.

This finding would indicate that there are a variety of methods that can be applied to learning situations that may contribute to effective learning. While trying to identify one specific approach that will work for all students would be unrealistic, these are a set of skills that will increase student’s ability to master content in the classroom these need to be taught as a part of the course curriculum.

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## APPENDICES

## Appendix A

## Other Significant Journals for Evaluating Reading in the Content Area

*American Educational Research Journal*

*Child Development*

*Educational Researcher*

*English Journal*

*Journal of Adolescent & Adult Literacy*

*Journal of Educational Measurement*

*Journal of Educational Research*

*Journal of Reading Behavior*

*Language Arts*

*Learning*

*Learning Disability Quarterly*

*Journal of Literacy*

*Reading Research and Instruction*

*The Reading Teacher*

## **Appendix B**

CONTENT AREA READING TEXTBOOKS

7                    8                    8                    9                    9                    0  
 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5

Teaching Reading & Study Strategies  
 Robinson

7                    7                    8  
 5                    8                    3

Secondary Reading Instruction  
 Roe, Stoodt, Burns

7                    8                    8                    9                    9                    0  
 8                    3                    7                    1                    5                    1

Teaching Reading  
 Alexander

7                    8                    8  
 8                    3                    8

Content Area Reading  
 Vacca & Vacca

8                    8                    8                    9                    9                    9                    0                    0  
 1                    7                    9                    4                    6                    9                    3                    5

Reading to Learn in Content Areas  
 Richardson, Morgan, Fleener

9                    9                    9                    0                    0  
 0                    4                    7                    0                    5

## **VITA**

Peter Andrew Wilson was born in Brooklyn, New York on April 29, 1950. He was raised in Coral Gables, Florida and went to grade school at Coral Gables Elementary School and junior high school at Ponce De Leon Junior High School. He graduated from Coral Gables Senior High School in 1968. He received a B.A. in Social Psychology from Park College in 1976, an M.Ed from Boston University in 1980, and an M.A. from the University of South Florida in 1989.

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