

Fall 1992

Schema Theory and Application for the Content Teacher

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SCHEMA THEORY AND APPLICATION FOR THE CONTENT TEACHER

A Project Report

Presented to

The Graduate Faculty

Central Washington University

In Partial Fulfillment

of the Requirements for the Degree

Master of Education

by

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December, 1992

SCHEMA THEORY AND APPLICATION FOR THE CONTENT TEACHER

by

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November, 1992

Schema theory, research, and implications for the classroom were studied. Based on research, teacher resources, and curriculum demands, instruction was designed for a secondary teacher of United States History. During a workshop, four secondary teachers from three districts reacted to research and instruction.

A video tape was developed showing schema theory concepts, related research, application for the content teacher, and reactions from secondary teachers. Implications for the content teacher are discussed.

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CHAPTER I

BACKGROUND OF THE STUDY

Through the combined efforts of linguists, specialists in artificial intelligence, and cognitive psychologists, theories have circulated in the last two decades around the idea of "schema," or organized knowledge of the world (Anderson & Pearson, 1984), which attempt to explain the phenomenon Huey (1908) described as "the most remarkable specific performance that civilization has learned in all its history" (as cited in Singer, 1983, p. 332). The current theories are related to the concept of schema as proposed by Bartlett in the 1930's, but the Gestalt psychologists (beginning with Wertheimer in approximately 1912, and his later associates Kohler and Koffka) can also be credited with the earlier concept that mental organization tends toward coherence. This concept has been explained as the brain's attempt to represent a pattern in its own meaningful terms (Adams & Collins, 1985; Anderson & Pearson, 1984).

Bartlett's hypothesis (1932), that subjects will typically modify a story "to fit" their own culture, presupposed that subjects built schema for stories within the framework of their culture (Steffenson, Joag-Dev, & Anderson, 1979). Bartlett, in his book Remembering reported on English subjects' recall of the North American Indian Folktale, "The War of the Ghosts." As time passed, details were increasingly changed and added into the subjects' retelling. Usually, these modifications could be viewed as subjects' "rationalization of the text" (Anderson & Pearson, 1984, p. 258). The type of errors the subjects made in later recall were interesting to researchers not because they were paraphrased, but because the subjects made the Indian passages more like their own British texts by forcing their interpretations into what Bartlett supposed to be "preexisting knowledge structures," or "schema" (Weaver & Kintsch, 1991).

Anderson and Pearson (1984) have recognized the contribution of Horn (1937), Gray (1948), and Ausubel (1963) for recognizing the active agency of the reader, for suggestions that teachers "engage" children prior to reading, and for the concept that meaningful learning "anchors" new propositions. In addition, the fuller developed schema theories as

proposed by Minsky (1975), Schank and Abelson (1977), Anderson (1977), Adams and Collins (1979), and Rumelhart (1980) are acknowledged.

Despite the many schema theories which have been proposed, many of the major concepts and elements are compatible. The schema-theoretic model views the person as actively involved in seeking meaning and connections (Smith, 1988). According to this model, one makes assumptions and inferences based on the activation of certain schema, or "chunks" of schema, sometimes called "scripts" (Schank & Abelson, 1977). "Readers acquire meaning by analyzing words and sentences against the backdrop of their own personal knowledge of the world...conditioned by age, sex, race, religion, nationality, occupation--in short, by a person's culture" (Reynolds, Taylor, Steffensen, Shirey, & Anderson, 1982, p. 354).

Pearson and Fielding (1991) have stated that the most important concept researched during the last ten years that schema research offers to the content teacher is the understanding that new knowledge builds on old knowledge. "This concept emphasizes the intuitively important idea that learning is enhanced by relating new information to what one already knows" (Stein & Bransford, 1989, p. 769).

"Prior knowledge is a powerful resource that effective readers mobilize. Research has emphasized that not only does lack of knowledge about a topic impede comprehension, but the extent of knowledge influences the quality of understanding that a reader can construct" (McKeown, Beck, Sinatra, & Loxterman, 1992, p. 79). The general conclusion of several studies is that students with relevant prior knowledge of the text topic recall and comprehend significantly more information than do students with poor prior knowledge (Anderson, Reynolds, Schaller, & Goetz, 1977; Bransford & Johnson, 1972; Rumelhart & Ortony, 1977).

Statement of the Problem

The problem investigated in this project is one of finding ways in which content teachers are provided with sound theory and application to improve comprehension of their students in the content texts which assume an "unrealistic variety and depth of prior knowledge from target-age students" (McKeown, Beck, Sinatra, & Loxterman, 1992, p. 80). Secondary teachers need to understand the implications of schema theory and related research so that they can adapt instruction which builds

schema and takes advantage of the student's background knowledge. "In sum, secondary teachers generally work as specialists in their particular disciplines who have very little training in how to impart their knowledge to students" (Alvermann & Moore, 1991, p. 952).

Many content teachers educated in the past twenty years have been exposed to a vast array of ideas for bridging the gap between prior knowledge and new knowledge (Weaver, 1991). Despite the increased attention to prior knowledge in instructional research, content teachers seem to be continuing in traditional teaching practices (Goodlad, 1984) which do little to activate or build students' schemata-- much less excite students to learn.

Additionally, a "major concern among reading educators is the improvement of reading instruction in content area classrooms...secondary school teachers should be prepared to help students develop skills, techniques, and attitudes essential to reading and comprehending the materials they encounter in and beyond the classroom" (Smith & Feathers, 1983). Singer (1983) writes that "one resource that a reader must bring to a text is world knowledge"... "readers allocate attention among their

knowledge resources, and go back and forth from their knowledge to the data base of the text" (p. 336). He continues with many suggestions for the content teacher, but notes that teachers' attitudes are what determines whether any strategies for teaching students to read from texts become part of their instruction and remarks that "reading" is often seen by them as an instructional process for the primary grades. He urges a new slogan for high school instruction--"Every secondary teacher teaches students to learn from text" (p. 340).

Purpose of the Study

The purpose of this study was to develop a schema theory and application video tape for content teachers. Application of schema based concepts are demonstrated in a secondary teacher's presentation which specifically aims at building/activating students' background knowledge in United States History.

Significance of the Problem

Reading (and learning) is dependent upon the prior knowledge and expectations of the reader (and learner) (Smith, 1988). The content teacher and student need to be actively involved in the connection of old

knowledge to new knowledge regardless of what language arts medium, or media, (speaking, writing, listening, and here--reading) is used to convey the new knowledge.

The significance of understanding schema theories and research is to believe that all people can learn--and the vast majority can read when enough relevant background information is received (Smith, 1988). Large segments of learned and literate citizens means empowerment and liberation to the society and individual toward being able to live a life of choice (McLaren, 1989). For Hirsch it is "raising the living standard of families who have been illiterate; making our country more competitive in international markets; achieving greater social justice; enabling all citizens to participate in the political process...in short, achieving fundamental goals of the Founders at the birth of the republic" (1987, p. 145).

Limitations of the Study

This research project examines several schema theorists' writings and research with the idea of presenting a unified version of the common elements of schema theory; no one theory is propounded in depth. The

many schema based activities for the classroom which have been available to the content teacher for many years are not covered. Information can be found in The Handbook of Reading Research Volume II which includes a chapter by Alvermann and Moore examining six secondary reading texts, their learning activities, recommendations and research supporting the activities (1991). This research was limited to library research.

Definition of Terms

The following terms have been developed for clarification and usage within this paper.

Comprehension. An individual's successful interpretation of novel data by bringing to bear appropriate abstract schemata (Anderson, 1977).

Distortions. Inappropriate modifications of the text (data) in an effort to to understand material presented in text with other information from personal experience (Anderson, 1985).

Elaboration. Extension and supplementation of the text (data) with information from personal experience (Anderson, 1985).

Encode. A mental representation of information as a result of slot instantiation (Anderson, 1977).

Framework. A network of related hierarchies built from old knowledge with slots for new information (Anderson, 1977).

Inferencing. An individual's subconscious connection of prior knowledge to new information from a text (Bartlett, 1932).

Instantiation. The process of assigning a slot specific values (Anderson & Pichert, 1978, p.2).

Interactive. The reader's use of graphemic input as well as prior syntactical and semantic knowledge to make hypotheses and to validate hypotheses about the meaning of the text (Rumelhart & Ortony, 1977).

Prior knowledge. Organized knowledge of the world which is sometimes called content knowledge, domain knowledge, background knowledge, or schema (Anderson & Pearson, 1984).

Retrieval. The recall or reconstruction of previously encountered experiences and information; when information and ideas are being remembered and used (Anderson & Pearson, 1984).

Schema (Schemata). A cluster of abstract knowledge structures whose elements are other schemata, and slots, and placeholders, or

variables which can take on a restricted range of values (Minsky, 1975; Rumelhart & Ortony, 1977; Schank & Abelson, 1977); organized knowledge of the world (Anderson & Pearson, 1984).

Schema activation. Bringing prior knowledge to bear upon novel data (Anderson, 1977).

Slots. Variables with a restricted range of values which are component elements of a schema (Anderson & Pichert, 1977, p.1).

CHAPTER II

Review of the Literature

As students enter secondary school, they characteristically encounter teachers who specialize in subject matter. Comparisons of teachers' self-reports reveal that secondary teachers more frequently accept and implement traditional, lecture-oriented teaching than their elementary counterparts (von Eschenback & Ley, 1984, as cited in Alvermann & Moore, 1991). Researchers have found that reading is neglected as many content teachers use themselves as the primary source of information and by-pass texts which are often seen as too difficult and poorly written (Smith & Feathers, 1983). Other researchers have found that the "textbook is the primary determiner of what is taught" (Glatthorn, 1991, p. 448). Most studies indicate that few secondary teachers identify goals and then select activities to achieve those objectives (Zahork, 1975; Sardo, 1982; as cited in Glatthorn).

Traditional methods of lecturing and relying on textbooks have not been successful in equalizing academic opportunities for all. As students progress through the educational system, this increased schooling

magnifies individual differences in performance (Just and Carpenter, 1987, as cited in Daneman, 1991).

Schema theory attempts to explain differences in reading ability and knowledge acquisition. Numerous researchers using subjects from third grade through college have found that students with relevant, prior knowledge of the topic recall significantly more information from the text than do students with little or no prior knowledge (Holmes, 1983; Lipson, 1982; Marino, Gould, & Hass, 1985; Taft & Leslie, 1985). The Schema-Theoretic model of reading posits that readers do not passively absorb information, but rather actively mobilize their prior knowledge to build meaning. According to Anderson and Pearson (1984) the reader brings to the text his particular knowledge of the world which interacts with the new information in the text. The interaction helps the reader make hypotheses and inferences, encode information in the brain, and retrieve the information from memory. In this chapter, schema theory research and the relationship between background knowledge and comprehension will be examined.

Schema Theory (Elements)

"Schemata are abstract knowledge structures whose elements are other schemata, and slots, placeholders, or variables which can take on a restricted range of values" (Anderson & Pichert, 1978). Higher level, more abstract schemata incorporate lower level, more specific schemata. For example, the schema category for "dog" would have a higher order than the more specific--"cocker spaniel," but dog is itself a "slot" in the higher, more general "mammal" category. Many categories and slots are represented in the cognitive structures of the brain.

A schema represents a set of relationships for all of an individual's knowledge (Smith, 1988). Each person has uniquely arranged and categorized experiences and knowledge about the world based on his interpretation of events. The arrangement of chunks of information, or schema, is the framework for further encoding, interpretation, categorization, and retrieval of information (Anderson & Pearson, 1984).

Schema Theory (How It Works)

Weaver (1991) explored an idea, suggested in the works of Pearson and Johnson (1978), which explained how schema theory worked. People's schemata for restaurants was examined.

When someone suggests going to a restaurant, several categories of restaurants could come to mind--truck stops, cafeterias, diners, gourmet restaurants, etc.--all places to "eat" which may be the larger schema. The schema is organized knowledge about the category which may include what is served there, how much the cost is, what dress is appropriate, how the food is served and many other operations and procedures. When one is invited to eat at a diner, one will almost unconsciously make predictions and inferences based on his prior experiences with diners. Those subtle hypotheses will possibly influence what one will wear, how much money will be brought, how much time will be allotted for lunch, what one may be considering to eat and generally whether one will find the invitation desirable.

If the invitation is accepted and the person's schema is adequate for the situation, all the "processing" goes smoothly. The slots which pertain to this type of restaurant are waiting to be appropriately filled by the expected type of food, cost, etc. and they are "instantiated" as expected.

Schema Theory (evidence for; relationship to comprehension)

An understanding of how this model works can be better understood when processing does not proceed smoothly. The incoming data does not

interact successfully with the hypotheses and the activated schema's slots cannot be filled. When the situation (or passage to be read) is outside the mental framework of the person, then the person will be totally baffled or will try to make the incoming data fit into the preconceived mental model (Anderson, 1985).

A study was conducted by Steffensen, Joag-Dev, and Anderson (1979) which determined the effect distortions and elaborations correlated to culture had on comprehension and memory of identical passages. Subjects from India and America read letters about an Indian and an American wedding. One passage presupposed the cultural framework of each group. The researchers felt that "every adult member of a society will have a well-developed system of knowledge and belief about marriage ceremonies. Thus, text about marriages should be well-suited to cross-cultural investigation discourse processes" (p.12).

Researchers noted that native passages were elaborated, foreign passages were distorted, and high percentages of omissions were noted in foreign passages. A sense of the distortions was represented in the following passage:

Did you know that Pam was going to wear her grandmother's wedding dress? That gave her something that was old, and borrowed, too. It was made of lace over satin, with very large puff sleeves and looked absolutely charming on her (p. 21).

This is what one Indian subject had to say about the American bride's dress: "She was looking alright except the dress was too old and out of fashion" (p. 21). The researchers felt that on the cultural basis that Indians attach importance to social status including wearing up-to-date clothes, this Indian subject evidently inappropriately concluded that the dress was out-of-fashion.

In addition to these types of distortions, other information related to comprehension and information processing were noted. Each group read their native passages significantly faster (suggesting that information was easier to process when it fit "smoothly" into a schema). Secondly, subjects recalled more text information rated as important by their cultural peers. These results supported the notion that cultural schemata was of crucial importance to comprehension and memory in this study.

A second study (Reynolds, Steffensen, Shirey, and Anderson, 1982) also

investigated the role of cultural schemata in comprehension. A passage (letter) was read by white and black eighth graders. The passage was a boy's "reflection" on a school day. Included in the letter was a short section which the researchers (Reynolds, Steffensen, Shirey, and Anderson) felt could be interpreted two ways:

Classes went at their usual slow pace through the morning, so at noon I was really ready for lunch. I got in line behind Bubba. As usual the line was moving pretty slow and we were all getting pretty restless. For a little action Bubba turned around and said, "Hey, Sam! What you doin' man? You so ugly that when the doctor delivered you he slapped your face!" Everyone laughed, but they laughed even harder when I shot back, "Oh, yeah? Well, you so ugly the doctor turned around and slapped your mamma!" It got even wilder when Bubba said, "Well, man, at least my daddy ain't no girlscout!"

We really got into it then. After awhile more people got involved--4,5, then 6. It was a riot! People helping out anyone who seemed to be getting the worst of the deal.

All of a sudden, Mr. Reynold the gym teacher came over to quieten things down (p.359).

Responses provided information that confirmed that black subject were more likely to think that this was an episode involving friends than did whites. A greater percentage of white subjects thought the listeners in the story laughed because there was a fight than did black subjects. One of the black males was later told that white children understood the letter to be about a fight instead of "sounding" (also called "playing the dozens" --a form of verbal play among friends, primarily black, in which each tries to outdo the other with verbal insults for the enjoyment and favor of the group). The boy responded, "What's the matter-- can't they read?" (p.365). While this research provided evidence for schema theory, it also supported the conclusion that it was "clearly an advantage to young readers to possess accurate, relevant schema regarding the material to be read (Lipson, 1982).

In another study which dealt with the importance of background information, Lipson (1982) noted in her findings that young readers "produced many of the constructivist errors of omission, elaboration, and

distortion" reported in earlier studies (Steffensen et al., 1979; Reynolds et al., 1982) with older subjects" (p.454). Young subjects with strong religious affiliation (Catholic or Jewish) were given three passages to read. One was culturally neutral, one related to the Catholic religion, and the third related to the Jewish religion. Reading rate was more rapid, recall for explicit questions was greater, and comprehension of textually implicit questions was greater when students read passages from their own religious affiliation. Lipson also reported unexpectedly high scores on recall of the culturally neutral passage. She speculated that subjects "rejected a great deal of the information in the culturally adverse passage" (p. 456).

Other evidence supporting schema theory has been demonstrated through research in which schema was manipulated by either assigning ambiguous text or having texts read from different perspectives. In one study by Anderson and Pearson (1984) subjects were given two different passages to read. One passage permitted interpretation as either a convict planning an escape, or a wrestler trying to get out of a hold. The second passage could have been about four people getting together for card

playing or a quartet about to practice. Subjects who were physical education majors tended to select the interpretation of a wrestler in the first passage and music majors tended to select the quartet practice for the second passage. The researchers felt that support was evidenced for the reader's active participation in "choosing" a schema, making inferences based on that schema, and finding information appropriate to "fill slots" in that schema.

A study completed by Anderson and Pichert (1978) asked subjects to read passages from different perspectives. These researchers, however, manipulated schema after a passage was read to determine if additional items were recalled with a different perspective (which suggested that alternate schemata could be activated).

College students read an identical passage about boys playing hooky from school. They were told to read the passage from either a person interested in buying a home or a burglar. After reading the passage once, the subjects were told to write everything they could remember about the passage. Later, some subjects were asked to shift perspective and try to recall additional information. Subjects later remembered information

which was important to the new perspective, but could not be recalled from the previous perspective. Some subjects commented that the new perspective "jogged" their memories. An interesting excerpt from one subject's reflections (after changing perspective):

I just thought of myself as a burglar walking through the house. So I had a different point of view for different details, you know. I noticed the door was open... (p.69).

**Instructional research related specifically to
background knowledge and comprehension**

Marino, Gould, and Haas (1985) have experimented with building readers' prior knowledge before reading by using writing and imagination to enhance comprehension. Before reading a two-thousand word passage about western pioneers, fourth-graders were given thirty minutes to imagine themselves living with Sager (a boy in the passage) and then to write a letter to their grandparents about their experience. When the subjects read the required passage later, their comprehension was significantly enhanced. Writers made comments which revealed their

connection to the boy--"We fished together;" "We slept in the same tent;" and "We became really close"(p. 203).

Flood, Mathison, and Lapp (1989) have found that prior knowledge can be built by teacher presentations. Teachers can have an important role in enhancing the interaction of the text and student. In their study, graduate students received a thirty minute presentation prior to reading natural and degraded versions of two difficult texts, and then took a multiple-choice test over the material read. Results indicated that students who received the presentation outperformed the other students who did not receive the presentation. Interestingly, the subjects in this study were teachers and ninety percent of them were enrolled in M.A. programs--still they significantly benefited from a presentation. The researchers suggested that teacher enhancement in the natural classroom may be more important than the particular features of a text.

As previously noted, several researchers have found that prior knowledge profoundly affected the comprehension of a wide range of readers; others have found that poorer readers in particular tended to have more difficulty activating prior knowledge (Holmes, 1983) and in some

cases-- particularly middle school, readers resisted changing their incorrect prior knowledge to match new information in a text (Lipson, 1982; Lipson, 1983; Alvermann, Smith, & Readence, 1985).

Holmes (1983) suggested that poor readers may fail to use their existing knowledge as a framework for learning new information from the text. She noted that poor readers with adequate prior knowledge equaled good readers on text explicit and paraphrased questions, but were significantly worse than good readers at answering implicit questions.

Both Holmes and Lipson (1982) noted that the challenge in the classroom seems to be not only in drawing out what the students know, but in connecting this information specifically to the new information in the text. Lipson suggested that prior knowledge must be dealt with particularly at higher grades because poor readers with incorrect background knowledge continue to hold on to the incorrect knowledge if no attempt is made to draw out that knowledge and show it to be in contrast with the new information in the text.

Lipson (1982) reported on research primarily concerned with children's ability to learn new information from text. Her subjects were twenty-

eight third graders of average and below average reading ability. For all subjects in the study, recognition was powerfully affected by prior knowledge, but this was predicted (based on previous studies involving prior knowledge). Lipson was more interested in the finding that "subjects in this study were remarkably impervious to changing their schemata regarding familiar topics" (p. 259).

Very similar findings in regard to the persistence of incorrect old knowledge over new textual knowledge appeared in research by Alvermann et al. (1985). This research was done with fifty-two sixth graders of average reading ability. Again the researchers found that activated prior knowledge and experiences overrode textual information, when the information was incompatible. These researchers seemed to agree with Lipson (1982) that the problem "appears to be less the lack of prior knowledge than the failure to resolve conflicts between existing knowledge and new information" (p. 763).

Langer (1984) experimented in bringing forth misconceptions and assessing the difficulty of textual materials. He devised a prereading plan (PReP) which allowed students to give free associations and reflections

on key words that were central to the understanding of the text. This type of inquiry allowed students to bring forth what they already knew about a topic and group discussion crystallized conflicts between new and old information.

Crafton (1983) suggested reading as a schema-builder for reading. In her research, eleventh-graders with limited backgrounds substantially raised their knowledge for second passages after reading a related first passage. Crafton felt that "these results underscore the power of the reading process as an independent experience which provides background information--knowledge which can be used to enhance comprehension" (p. 590). Crafton presented the case for using multiple readings to accommodate the wide range of individual differences. She suggested the importance of reading as an activity which allows students to independently generate background information .

The studies presented in this paper have highlighted the theoretical framework which undergirds contemporary schema based research and examined recent studies concerned with the reader's background knowledge which may have application in the content classroom.

Experiments which document the effects of prior knowledge on reading comprehension and recall continue to be investigated. Some researchers are interested in determining if other factors besides background knowledge have influenced research results. For example, Marino et al. have indicated they will conduct further experiments to ascertain if the writing request "evoked an affective response" which caused enhanced comprehension. Other researchers are interested in accounting for implicit textual comprehension differences in individuals with equivalent background knowledge (Lipson, 1982). Independent strategies for provoking appropriate schema to interact with new knowledge have not been fully developed. Schema activation and application of knowledge are becoming greater areas of interest and are giving rise to hypotheses about differences in "knowledge about knowledge" usually referred to as metacognition (Daneman, 1991). More empirical work is necessary to establish a relationship between differences in individuals' performances of recall and comprehension on an inferential level, and differences in skills necessary for applying

background knowledge. If a relationship is found, then strategies for self-monitoring in assessing and applying knowledge will need to be developed and implemented in the classroom.

CHAPTER III

METHODOLOGY

Purpose of the Study

The purpose of this study was to develop a video tape highlighting schema theory and application for the content teacher. Application of schema based concepts were demonstrated in a secondary teacher's presentation which specifically aimed at building/activating students' background knowledge in United States History.

Development of Design for Schema Based Instruction

Large differences found in student performance within the author's classes coupled with low student class participation created the initial interest in schema theory and new teaching methods. After researching schema theories in books and articles found through the library of Central Washington University, plans were created emphasizing prereading activities. These plans were based on the precept that many students lacked an appropriate cognitive framework for dealing with new information. Using the guiding principle of schema theory that knowledge is built by personal experiences (Anderson & Pearson, 1984), the author proposed to provide the students with personal experiences of historical

times and people. A setting was created by selecting and arranging artifacts and books. To represent the worldview of the times a representative character was chosen.

A design for instruction was developed based on schema instructional research which emphasized the importance of not only building appropriate background knowledge, but also activating and contrasting current student schemata (Alvermann, Smith, & Readence, 1985; Holmes, 1983; Lipson, 1982). The elements of the design were: analogy, group pretest, arrangement of artifacts and books, dramatization, reading and skimming materials to locate pretest items.

Procedures

After grouping the year's curriculum into eight timeframes or units, the author selected one character (real or "generic," for example, Christopher Columbus versus an indentured servant) who globally represented each of these time periods in terms of projecting desires, fears, and thoughts. Because of the novel, attention-getting, multi-sensory approach which played upon the imagination of the audience, as well as the global framework provided, the author considered the

dramatization to be the most important element in building schema for a new unit. This opinion was strengthened by noting the research of Flood (1989) on increased comprehension after teacher presentations; the research of Marino (1985) using imagination, and the ideas of Bartlett (1932) that the brain first builds a global framework and then fills in the details. The time surrounding the character was researched including fashions, food, music, furniture, and the character's life was researched by reading books, going to museum's and historical sites, viewing videos and movies, and talking to other researchers.

In looking for materials, an indentured servant dramatization was found which seemed adaptable for the colonization period and Jane Yolen's book, The Encounter, was adaptable as a dramatization for part of the Columbus presentation. A suitable folktale was found to dramatize Iktomi for the Native American Unit. Scripts were drafted for James Otis, Christopher Columbus, and Mrs. Lincoln. A dramatization for Columbus was chosen to be presented to an audience because an adjunct to Columbus Day and the celebration of the quincentenary was desired at the school.

The author wrote the final script for the desired audience using Diego

Mendez as a recruiter of sailors to make the second voyage to the "New World." Artifacts and books, food, music, and pictures were located. The author learned Spanish pronunciations by listening to a recording of the script being read by a voice coach. Fashion books were consulted on hair, shoes, and clothes. Close approximations were found by shopping in antique stores, costume outlets, and reworking some items.

The core of the instruction was the dramatization, but before the new framework could be developed, old schemata was considered. The problems of poor students not activating the schema they already have (Holmes, 1983) and students with incorrect schema often resisting new conflicting information (Alvermann et al., 1983; Lipson, 1982) was studied. The research highlighted the need for invoking a learning device which would clearly contrast old schema with new and allow for the students' awareness of conflict. In the author's opinion, the most efficient device seemed to be a **group pretest** (2-4 students) which enabled students to discuss the answers and bring forth conflicting knowledge within the group. After reading the ideas of Langer (1984) and the PReP approach, the author considered group pretesting as a

compatible if not superior substitute because of the greater likelihood of full class participation.

Another advantage of the written pretest was that after the dramatization, students were motivated to prove their own or disprove other responses to pretest items by looking in easily accessible research books. This served several purposes. Students corrected wrong ideas, learned new information, and read the surrounding information as they were looking for proof. They were reading materials related to the new unit before they realized it. Additionally, Crafton (1983) found that comprehension improved upon a second reading of different materials about the same subject. When students later read the text, it was their second exposure to some of the material.

The author chose to incorporate analogy as a prereading activity. Inherent in schema theory has been the idea that old knowledge is the framework for new knowledge which is another way of saying that new knowledge is inferred on the basis of what is known. After assessing what all students have experienced, analogies were chosen which related to new material.

The final element of the prereading plan involved "hands on" schema building and activation. The author wanted to insure that students would notice artifacts and books related to the upcoming unit. In order to direct their attention, the author designed a time for "artifact arranging"--so that students themselves built and were surrounded by a "new world."

Artifacts and books were found which related to all eight timeframes. (seven characters were selected):

Native American (preColumbian) - Iktomi

Explorer (in "New World") - Columbus/Taino Arawak

Colonization (1600's and 1700's) - an indentured servant in Jamestown

Revolution -James Otis

New Nation (freedom documents through War of 1812) - James Otis

(presentation still representative of this era)

Reformers -Thoreau

Westward Movement - woman on Oregon Trail

Civil War - Mrs. Lincoln

After these prereading activities, the design for an actual unit called for students to sign up for presentations, research presentations, give presentations, discuss presentations, receive a "wrap-up lecture", review

for test, and finally test. Only the prereading activities were filmed for this project.

The first schema based presentation was given to a joint class of sixty juniors in English and U.S. History at Cashmere High School on October 12th, 1992. The session was filmed. Instruction started with an analogy noting behavior differences between the genders. The students were asked to discover any possible connection to "the encounter" (the Arawaks meeting the Spaniards) and "the battle of the sexes."

A pretest on Columbus was handed out (at appendix A). Students were given seven minutes to discuss their answers. Papers were kept at their tables.

Two dramatizations were given by the author. The first dramatization was an adaptation of The Encounter and the second was an original script featuring Diego Mendez (friend of Columbus). Before each dramatization, a single gender group dug into a trunk or creel, removed artifacts and books, and arranged them in their own unique way.

The dramatizations were aimed at juxtaposing the world view, hopes, and fears of the Indians and explorers. Indians were portrayed as trying

to accommodate to the impressive strangers; the Spaniards were depicted as lusty adventurers who looked for fame, fortune, and to spread their Catholic religion. (Scripts are appendix B).

After the presentations, the girls and boys "battled" to prove answers to pretest questions by searching in surrounding texts. The battle ended by each gender giving both oral and written responses to questions and statements which called for opinion and support.

The tape was then edited and shown to teachers. A group of four secondary teachers working in three districts were selected to discuss their beliefs about current teaching practices, hear about schema theory, view the edited tape, and evaluate schema theory and application for the secondary classroom. Their remarks were videotaped.

The third tape was made with the help of a professional production studio. After the author edited the first and second tape, wrote a script for the third tape, and designed a rough storyboard of audio and video frames, the third tape was filmed. The author located images and provided diagrams for video segments of the third tape which explained schema theory and incorporated tapes showing application for the secondary classroom and reactions from teachers.

CHAPTER IV

The purpose of this study was to develop a schema theory and application video tape for content teachers. Application of schema based concepts was demonstrated in a secondary teacher's presentation aimed at building/activating relevant background knowledge in United States History. Teachers from three districts were recorded reacting to schema theory and application.

This chapter contains the video script, three United States History dramatization scripts (Explorer Era--Columbus and Diego Mendez, Freedom Documents Era--James Otis, Civil War Era--President and Mary Lincoln), and materials related to the Columbus presentation at Cashmere High School (pretest, artifact list, and adaptation of The Encounter). The video tape is to be held with these materials as part of chapter four.

Script for video

(title frame-Schema Theory and Research: Application in the Content Classroom)

(talking head) Only four years ago, I learned how to achieve forty percent student failure and total class boredom while teaching U.S. History to eighth graders.(picture of students reading) The secret is to read the text together. Twenty five percent failure can be achieved by avoiding reading altogether and lecturing.(**picture** of students listening to a lecture)

I asked teachers from three different districts if they felt teachers were presently using these methods. (tape 1, 15:09-16:26, 16:39-17:35, 18:06-18:47)

(talking head) I decided to reform my traditional instruction, after I learned about schema theory and research.

(talking head) The profound insight that I gained from schema theory can be stated in a simple sentence which has deep underpinnings --(show

statement, read) **PEOPLE TRY TO MAKE SENSE OF THE WORLD**

(frozen frame of teachers, tape 1) These teachers are verifying that statement. They are being told that various items can be matched to people in the group. They use their knowledge of the people and the task to arrange the items in a way that seems justifiable. (play tape 02:47-3:07, 6:30-6:58)

(flash "people try to make sense of the world" on again)

Let's look at the different elements in this assertion. The first proposition --(show words with people try being **circled**) that "people try" (**picture** of constellation as this part is being read) asserts that we don't merely react to stimuli, but rather, we aggressively act on data in an effort to make it meaningful--to make sense. We don't see isolated dots in the sky, but a constellation.

(show words with make sense **being circled**) We make sense by arranging data in 2 particular ways.

(talking head) Each person has their own mental filing guides, but everyone uses two methods.

First, we mentally file data into categories by matching descriptors (**action picture** of file folders labelled with descriptors i.e. "wings,

flies"--put pictures of several different kinds of birds into folder?).

Eventually the categories build down and up into networks of hierarchies (show **hierachy** of canary, bird, animal)

Secondly, we file chunks of data about procedures and events like shopping for groceries, eating out, and receiving flowers, into mental folders with sections or slots (**action picture** of large folder with sections; fit data in--use "say it with flowers" theme). Successful filing occurs when all the specific information smoothly slides into each generic section leaving no slot unused. When this occurs, we comprehend the data.

For example, if we have had experiences with events like (show **picture** of files for these topics with slots) shopping for groceries, going to church, and "eating out," we have created mental folders for storing those chunks of knowledge.

Our mental folder for "eating out" might looks something like this. (show **eating out folder**, read?)

or this (show **second folder**, read?)

(talking head) Our mental folders act not only as our unique system for arranging and storing data, but also as our basis for interpreting future data.

For example, when I was invited to have lunch with a teacher friend, I wore (start drawing **action picture** here e.g. "Cathy") jeans and tennis shoes, brought five dollars, and scheduled forty minutes away from my tasks. She wore a dress and heels, had her checkbook, and had scheduled a couple of hours out.

This type of confusion highlights that: (**chart**, read) Consciously or subconsciously

1) **Inferences are being made**

2) **Inferences are being made on the basis of prior experiences**

Examples in reading comprehension have highlighted that:

1. As the brain attempts to make sense of novel data, (show **action picture** of distorted data being crunched and stretched to fit into slots) data that does not smoothly fit into schema slots will be distorted or elaborated, in an attempt to force processing.

For example, this passage was given to people from India to read about an American's bridal gown. (show passage, read while it is being shown--

Steffensen, Joag-Dev, Anderson "A cross-cultural perspective on reading comprehension" (1979)

Did you know that Pam was going to wear her grandmother's

wedding dress? That gave her something old, and borrowed, too. It was made of lace over satin, with very large puff sleeves and looked absolutely charming on her (p.21)).

An Indian was later asked to recall his memories about the gown and wrote (show reply, read).

"She was looking alright except the dress was too old and out of fashion" (p.21)

2. (talking head) The brain cannot force processing when it can find no file folder to open or schema to activate, the information cannot be filed or comprehended. For example, (show passage, read) even though the wording is quite simple, few can find meaning in this passage

Bransford and Johnson "Contextual prerequisites for understanding: Some investigations of comprehension and recall (1972)

The procedure is actually quite simple. First you arrange it in different groups. Of course one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities that is the next step; otherwise you are pretty well set (p. 720)

But schema is immediately activated when the title (show passage again with title) "Washing Clothes" is added to the passage.

To restate the important conclusions from schema theory for the classroom (show **chart** and read)

NEW KNOWLEDGE BUILDS ON OLD KNOWLEDGE (picture?)

OLD KNOWLEDGE IS THE FRAMEWORK FOR INFERENCE ABOUT NEW KNOWLEDGE (picture?)

(talking head) In addition to the many studies which have found a direct relationship between relevant background knowledge and comprehension and recall, recent schema based instructional studies provided ideas to help me design a program for my content. (make **charts** of bold passages below, highlight the info in italics which will be read, rolling script?)

Lipson (1982) and Alvermann, Smith, Readence (1985) research indicated that poorer students are more likely to resist new information if it differs from prior knowledge, and Holmes (1983) that poorer students have more trouble activating relevant background knowledge

bring (chart)

These findings led me to notice the work of **Langer (1984) in bringing**

forth relevant information and misconceptions before reading a text.

Flood, Mathison, and Lapp (1989) used teacher presentations and Crafton (1983) used reading of a related passage to build schema and increase comprehension.

Writing was used to enhance imagination and trigger background knowledge--Marino, Gould, and Haas (1985). Using the students' imagination intuitively impressed me as a salient stimulus for activating schema as well as an exciting approach for learning.

(talking head) Based on schema theory and research, I designed instruction tailored to me and my classes.

(talking head) The curriculum was regrouped into 8 integrated units. Each unit begins with the following:(chart-each item individually of bold)

- a. analogy - to connect to their present knowledge
- b. pretest with partner(s) - to activate schema and bring conflicting information within the group into focus
- c. setting arranged with artifacts and books -to use a "hands on" approach of directing attention to specific schema-building stimuli

d. dramatization - (done by teacher or students) to build a global framework for the new unit. A significant figure(s) is chosen to represent the era in terms of people's hopes, fears, and world view. A script is written, found, or adapted.

Artifacts and costumes are used.

e. reading to prove pretest items - to engage students in a short reading of material related to the unit. They are also skimming through other related material to locate their answers.

f. sign up for project - to set a purpose for additional reading and study

(talking head) In my own classroom, students are exposed to this design over several days and are primed for the process.

(frozen frame of tape 2 presentation) The tape you will see is an edited version of a Columbus Day presentation which I gave as a guest speaker at Cashmere High School to sixty juniors. Since they are not actually studying explorers, the process is completed in one day and the students have no follow-up project.

(show the design on tape 2)

(frozen frame) I chose the gender differences in our culture as an analogy

to understanding the cultural differences between the Taino Indians and Spaniards. (cut first part of directions and first part of arranging until girl comes out with several items in arms)

teacher presentation 1 - (freeze frame after showing a small portion) In this presentation, I did two dramatizations. The one you are seeing now is adapted from Jane Yolen's book, The Encounter, and is told from an Arawak perspective. Pictures from the book were shown on the opaque projector.

(boys arranging artifacts, cut directions except related to the music)

teacher presentation 2 - (let tape speak for a few frames then lower voice on tape to hear the narration) I chose a loyal friend of Columbus to meet the students as prospective sailors for his second voyage. They were given instructions as to what they would find in the new world and sailing conditions, but more importantly they were hearing the hopes, fears, and world view of the Spanish explorers. (cut to the last few frames of Diego talking)

(show rest of tape until last scenes, freeze)I asked the teachers to react to schema theory and application

(scene 9 shows teachers reacting to schema theory-tape 1, 51:29-55:22, 1:00:11-1:01, 1:01:40-1:02:20)

(frozen frame of teachers' discussion, tape 1) The first step in innovation is discovery. The second step is putting the discovery to practical use. A great deal of lag time can pass between those two steps. (different frozen frame of teachers, tape 1) In education, much of that time may hinge on teachers' attitudes.

(talking head) A preponderance of research clearly links background knowledge to reading comprehension and general learning.

(frozen frame of Diego, tape 2) We can put that discovery to practical use in our content classrooms in a variety of ways which are tailored to our needs and personalities. (frozen frame of kids working, tape 2) We have the need to, and the means for, transforming the traditional content classroom. (frozen frame of student talking about Columbus, end of tape 2) To understand schema theory is to believe that we can teach all students to learn.

Columbus dramatization (Diego Mendez recruits men for second voyage)

(Mendez storms into the room loudly)

Attension, silencio, por favor, men and boys of Cadiz!

Gracias, mi amigos, let me speak.

I am Diego Mendez, loyal friend and shipmate to the great Admiral of the Ocean Seas, **Cristobel Colon**, you men from Genoa know him as Cristoforo Colombo, and those of you read Latin know him as Christopher Columbus.

I know why you are here senors. But where were you last year, anno domini 1492, when Colon himself and Martin Pinzon had to beg even among the prisoners and Jews for men to crew our 2 small caravels, the Nina and Pinta, and our flagship, Santa Maria?

Oh, but you are here now, yes, senors? **You have now heard of Colon's success.** It is quite true, compadres. Colon did sail West to avoid the Muslim infidels and reached Las Indias, the East.

So, now you are eager to leave your worthless lives behind to become **blessed bearers of Christianity** to the heathens (choose one person)

Yes, senior? (slap on the back)

More likely muchachos now you are ready to reap the riches of Cathay and Cipangu. (choose 1 person) **Do you want to be rich, muchacho?** (ha, ha)
(choose another) Do you want to see the roofs of gold that Marco Polo described, senior? (ha, ha)

What exactly do you expect to find there, seniors--**spices**? Do you know spices, muchachos?

Here what is this, boy--ha, ha, this is cinnamon, compadre. What is this, mi amigo, --ha, ha--this is ginger, boy. Can you identify this, senior, --ha, ha--this is the nutmeg, mi amigo. Of course, you know these, hombre, ha, ha, these are peppercorns. Senior, do you know this most profitable of all spices? A rich man of Venice will trade you his land, for this spice to use on his putrid meat--ha, ha--this sir, is the clove.

Yes, hombres, we want to bring back chest of spices and much more! Do you know these valuable products, muchachos? What is this that only the little worms of Cathay can weave--ha, ha--this is silk, hombres. And cloisonne, tapestry, and most of all--do you know this, compadres--ha, ha--this is gold, mi amigos, **GOLD--ha, ha.**

I am not laughing at you, muchachos. I love you and Admiral Colon wants you boys to sail with us. He says you work hard and don't complain so much. But let's be practical, ninos. What do you know of life aboard ship; what can you do?

Let us discuss **food**, boys. We mostly eat hard biscuits, salty meat or fish, and peas. (Give sample to a person) What do you think, boy, pretty good, no? Here, dig in like a man, muchacho. (push food in own mouth or theirs).

The food provided by Admiral Colon is excelente, muchachos, but extra ingredients become available as the voyage continues.

On our last voyage, men had to eat at night to avoid seeing the worm infestedhardtack. Good men do not complain about food, muchachos.

What goes in, mi amigos, must make a little noise, and then come out, comprende, compadres? We all have these bodily functions which we share together. We use the bucket and then toss the products overboard. **The bucket is also convenient**, after a few weeks, for pouring agua over your body, but we do this very little. We are used to our manly odors.

You will quickly learn to **sleep** aboard ship, muchachos. You can bring one blanket; we will provide another. At night, take your blanket (demonstrate on hard floor or table), put one under your head to soften the deck and the other for your warmth.

At first you will close one eye, but keep one open. Soon you will have the pleasure of observing the **little rats at play**. We have many cats aboard, too, muchachos. The cats and rats frolick the nights away.

While we discuss sleeping, muchachos, you will see how the Indians sleep--in nets tied to trees--they call their bed **hammocks**. I have, myself, slept this way quite comfortably.

Clothing, senors, we do not provide uniforms. You have what you wear and may bring another set if you have it. No shoes are necessary, but get a good woolen hat. We sailors like red. The temperatures are mild, but the fantastic tradewinds are magnificent.

Admiral Colon knows the **winds and seas like his own skin**. He will direct us to our friends in La Navidad. There we will start a colony to trade with the Great Khan, when we find him, and the local Indians.

We must think now muchachos, **what can you do?** Do you have skills for carpentering, caulking, coopering, boatwain, ship's boy? We will pay you up to 1000 maravedis.

I know that some of you older men will want to **keep your present occupations** --farmers, soldiers, craftsmen when we arrive in La Spanola. Believe me, you will be tempted to stay in paradise forever, senors, for

the handsome brown señoritas walk about as naked as the day they were born!

Now, we are ready señors and muchachos to take **1500 of you** aboard our 17 ships. Kiss your mamas goodbye.

May the name of **Cristobel Colon ring through the ages** and may we spread the word of our great God to all the heathens in the name of her majesty Queen Isabella and King Ferdinand.

Adelante, mi amigos, **choose your fame!**

Script for James Otis

What's this, who's calling for ole crazy, killed by lightning James Otis? You've called me back here at Pioneer Middle School in 1992! Oh, well, I really have nothing better to do except to drift over the land and see how the 216 year old Americans are doing. Americans, I love the sound of that word. And to think someone like me, old James Otis started the whole thing.

Let's get one thing straight right from the beginning. I certainly didn't fight to free the country of the infernal Redcoats or over the tax business. I didn't even fight for Americans, though I do love you. I fought for the rights of men, women, and children all over the world--the peasants of France, the serfs of Russia--people who were more like animals than men. I wanted to show those animals what it was like to truly be men as their creator intended for them to be.

Animals have to walk on 4 legs. Animals can be put in a cage and beaten.

The proudest animal can be put in a cage with a roof on it. The animal may

beat himself bloody to get out of that cage at first. Then, even, the finest animal will give up after time. He will come to accept his situation, he will learn who is his master. After a period of time, even when the roof is taken off of his cage, and he could easily leap the fence enclosing him, he will not. Why? Now he believes he is supposed to be in a cage, that someone is his master. EVEN IF SOMEONE HELPS THE POOR DEVIL, BY PICKING HIM UP AND LIFTING HIM OVER THE FENCE HUNDREDS OF TIMES, STILL THE ONCE PROUD DOG MAY NOT BE ABLE TO LEAP THE FENCE BY HIS OWN CHOICE. He is an animal.

Men are not animals. Our creator has endowed us with natural rights which no other man can take away from us. Tyrants would treat men as animals as if their dignity and rights can be taken away at will. Tyrants will say that some men can be treated better than other men. That some men whose skin is red, or yellow, or brown, can be treated hardly better than animals. Tyrants will say that some men whose fathers have property and wealth can be treated better than others. Tyrants will say that strong men can scare and bully weak men.

Tyrants can tell for so long that men forget the truth. They forget that they are men, not animals. They can choose to stand up.

When they do stand up. They see that they are not grovelling on all fours. They see that they have two free hands to write with and to fight with. They learn to fight with debates, newspapers, petitions, boycotts, and guns.

When the men stood up on Lexington Green and the shot was fired that was heard around the world. We put the whole earth on notice that men remembered how to stand up, they remembered they were proud, free men all given equal rights by their Creator from the moment they were born. When men stand up--though they may die, they feel honored. Not every generation is as lucky as we were to have a cause worth enough to die for.

When your generation stands up; it may be in a place like your uncles and brothers who went to the Persian Gulf. More surely, it is when you remember who you are, as good as anyone on this earth. Finally, it is when you help others remember who they are--all equals. I'm saying it is when

you stand up for yourself as well as the downtrodden and homeless of your world. When you keep reminding the whole world that a MAN CAN STAND UP.

Write that well on an essay and you'll get an A. Do that well in your life and you'll be an American.

Script for Mrs. Lincoln

I'm Mary Todd Lincoln. Yes, the wife of the 16th President of the United States, President Abraham Lincoln, **a man dedicated to the proposition that all men are created equal.**

He led us through the horrible and heroic Civil War when more Americans were killed than in any war. **He established that the greatest experiment on earth would endure. Now, that he's dead everyone seems to think he was a great man.** Thirty seven years ago I thought I wanted to be married to a great man.

Thirty-seven years ago, I had this very dress on and I carried this very hat box. I was 21 and I was leaving Kentucky to go live with my sister in Illinois. **It would be in Illinois that I would meet Abe.** No, it wasn't love at first sight. Abe was 10 years older, tall and thin, with a rather high pitched voice. I would not have called him handsome or dashing, **but we were right for each other.**

Together, we were a nice balance. Our balance was only achieved after a good deal of arguing, however. I must be truthful and let you know that we argued our entire married life, but it was our way.

I was attracted to several things about Abe. He had the funniest way of putting things. I remember being impressed that he was in the militia that fought Chief Blackhawk. He must be very brave. I asked him to tell me about it. He said, well, Mary, I must say I fought a good many bloody struggles with the mosquitoes .

He was honest and the people called him "honest Abe", but he **wasn't always as friendly** as people said. I can remember many times even in our courting days when he would be very moody, but I just said "I've got no time for moody men; take me home if you need to stew."

Sometimes I wondered if he was **thinking about those other women** in his life. I certainly wasn't his first love. I know especially about one other Kentucky girl who turned Abe down.

Can you imagine? **She missed her chance in the White House.**

Although, I would have gladly given her my days there.

Many people in the capitol hated me, and I can tell you there was no love lost. **My husband never seemed to be bitter about the mean things people did and said to him, but I would put them in their proper place.** They say that's why I have no friends, I let my temper get the best of me. I'll tell you, nobody needs friends if all they do is talk behind your back.

They'd say ridiculous things about me. They said I was disloyal to the Union and some even said I was a Confederate spy. It was true that I hated the War. How could I like it? I'm a Kentucky girl. Kentucky sits right there on top of Tennessee, the last state to secede from the Union and beside Kentucky is Virginia, with the capitol of the Confederacy. Four of my brothers fought for the Confederacy. My little brother was killed. 2 of my sisters had husbands fighting for the Confederacy--and here I was with the husband who was leading the War for the Union.

They forget that Abe was born in Kentucky, too. He hated the War as much as I did. It had to be done. Abe believed the greatest experiment on earth had to continue. Government by the people for the people like Jefferson said. The Southerners couldn't decide just to leave the Union because they didn't get their way. That's not how democracy works. Abe was right about that.

Most people thought the war was about slavery and it was about that, too.. Abe believed Jefferson was right when he said all men were created equal with certain unalienable rights such as life, liberty, and the pursuit of happiness.

Of course, my family thought the slaves were happy and secondly, they didn't really think they were people. They were their valuable property in the South practically since Jamestown. Why a good buck could be worth \$1800. I knew how the South felt, but I was not a spy, I loved the Union and despite mine and Abe's arguments- I loved him.

I could never understand those spiteful backbiters in Washington, D.C. Why were they determined to show no mercy on me? I had suffered the loss of my little 4 year old son, Edward. And my God, right there in the White House during the whole devastation of the War -- our sweet, little prankster, Willie, died from an infection.

Life in the White House was then perfectly miserable, hateful people, the War, no husband to speak of with all of his work running the war, my little Willie's death at only 11. The only enjoyable moments I really remember after Willie died were the little carriage rides we sometimes made around Washington and the several times we could go to the theatre.

I was truly excited to get to see John Wilkes Booth play his part in the show, "Our American Cousin" we were going to see it at Ford's theatre. We were celebrating the happiness of Grant and Lee signing their peace treaty at Appamatox Courthouse in Virginia just the week before.

Of course, you know that Booth came us to the president's viewing box, the guard had just left for a drink, he shot my husband in the back of the head. I sat over his body as he lay dying in a bed across the street. At that moment I think if I'd had a gun I would have shot the whole world and then myself, no not the whole world-- I did still have my two sons. But cruel history would not pass me by. I lost my 18 year old son, Tad.

I could not bear the tragedy of just living. I had lost 3 of my sons, my husband, and my brother--please , God release me. I told my son, Robert to put me somewhere just to get away. He sent me to a sanitarium. That was last year.

Now, I am on my way back to my sister's as I told you. I wear the same hat, the same dress, and I carry the same hatbox. But my life has totally changed, I have given my heart and my family to your history. You cannot escape history I know that.

I'm not here for you to feel sorry for me. I'm here to ask you to remember my husband's words at Gettysburg,

that we here highly resolve that these dead shall not have died in vain
that this nation, under God, shall have a new birth of freedom--
and that government of the people, by the people, for the people,
shall not perish from the earth.

Please remember my husband, he tried to give you America, land of the
free. Help this nation so conceived long endure.(Play Battle Hymn of the
Republic)

Columbus and explorers/Native American and Taino pre-test

1. Did Columbus make more than one voyage to the Americas? T/F
2. Columbus sailed for what country?
 - a. Italy
 - b. England
 - c. Spain
 - d. France
3. Columbus was made Admiral of the Oceans Seas after his voyage in 1492. T/F
4. Columbus was the Latinized name of:
 - a. Cristoforo Colombo
 - b. Cristobel Colon
 - c. Kris Kringle
5. In 1492 Columbus sailed the ocean blue in 2 caravels and 1 nao. Name them.
caravel 1 _____
caravel 2 _____
Nao _____
6. Columbus was not a particularly good navigator, consequently it is good that he had all the latest instruments aboard including astrolabe, compass, sextant, quadrant, and hourglass. T/F

7. Name three things that start with a "g" that motivated the explorers in Columbus' time:

g_ _ _ _

G_ _

g_ _ _

8. Name the King and Queen who financed Columbus' voyage.

King _____

Queen _____

9. Columbus began his great adventure to "the Indies" when he was about:

a. 20 b. 30 c. 40 d. 50

10. Columbus wanted to sail West to reach the East because many knew that the world was round, but nobody really knew how large the world was. What items did Europeans want especially from the Orient?

s_ _ _ , s_ _ _ _ _ , g_ _ _

11. Why did they not go overland or around Africa to get to the Orient?

12. Europeans knew about the items in the Orient in two ways particularly. One was a book written by a Venetian explorer that remember often when we swim together. His name was M_____ P_____

13. The other way they knew about many of the items was because of an event that had lasted for several hundred years since about 1096 and involved the "holy lands"--the C_____.

14. Columbus was the one who called the Tainos--"Indians" because he thought he had reached "the Indies." T/F

15. Columbus's proof of sailing to "the Indies" was in bringing back captured "Indians."

16. The Tainos were a fierce, cannibalistic tribe who lived on the first island that Columbus landed on. T/F

17. All of the pre-Columbian Indian tribes were quite primitive and disappointed the explorers in their search for gold. T/F

18. Columbus was led by the Tainos to Florida's mainland--this is where he established his fame as the one who discovered America. T/F

19. Columbus proved that the world was round. T/F

20. The explorers gave the Indians smallpox and the Indians gave the explorers syphilis--therefore the exchange was terribly tragic for everyone involved. T/F

items for Columbus trunk and presentation (artifacts)

items that students need: pretest, essay question

Columbus and explorer books

replicas of boats

artifacts: Bible, cross, farm animals, sword, maps

items to eat: peas, hard biscuits, briny meat, wooden bowl

items from the Orient: ginger, cinnamon, cloves, pepper, nutmeg (spices)

gold, silk, tapestry, cloisonne or china, large gems

items needed for presentation: Vangelis or other renaissance music/tape

player, opaque projector (prints from The Encounter), screen, copy of the

script for The Encounter for the person who is changing pictures, timer,

Men Are from Mars and Women Are from Venus book for analogy

Mendez' costume: cross, hat (red silk), red silk pants, pointed toe boots,

wide belt, tunic top, puffy sleeved shirt with tie top

trunks or containers (to keep artifacts for arranging)

old man's clothes-woolen pants, puffy shirt, wool cape, wig?, brown make-

up? (no shoes or socks), gold nose-ring?

Native American books

items to eat: potatoes, tomatoes, corn

pictures of Indians, mandela, kachinas, baskets, totem poles, blankets,
mocasins, clothing, beads, spear? bow?, pottery, maps

adapted from Jane Yolen's book--The Encounter

(start with picture 1, big picture of Columbus; end with it also)

I am now an old man, all alone, dreaming no more dreams, wearing a stranger's cloak, counting the stranger's bells on a string, telling my story.

(picture 2--big birds) All dreams are not true dreams my mother said, but once I dreamed of the three great-winged birds that rode the winds of our bay. Sharp, white teeth filled their mouths. The great birds gave birth to babies which sailed to our shores.

(picture 3--men & flags) The babies spit out strange creatures--men, but not men. We did not know them as human beings, for they hid their bodies in colors, like parrots. Many of them had hair growing like bushes on their chins. Three of them pushed sticks into the sand. I was very afraid.

(picture 4--flying men) Our chief said," See how pale they are. No one can be that color who comes from the earth. Surely they come from the sky.

(picture 5--boy in hat & beads) Our chief gave the strangers balls of cotton thread to bind them to us in friendship. He gave them spears that they might fish and not starve. He gave them parrots, too--which made our young men laugh behind their hands--knowing that it was our chief's little joke, that the strangers looked like parrots.

But the strangers behaved almost like human beings, for they laughed, too, and gave in return tiny smooth balls, and woven things that fit upon a man's head. For awhile I was not afraid.

(picture 6--around the fire) So we build a great feasting fire and readied the pepper pot and yams and cassava bread and fresh fish. Our chief rolled tobacco leaves and showed them how to smoke, but they coughed and snorted and did not know about these simple things.

(picture 7--men looking at gold piece) Then I leaned forward and stared into their chief's eyes. They were blue and gray like the shifting sea. I drew back from the feast and watched how the sky strangers touched our golden nose rings and our golden armbands, but not the flesh of our faces

or arms. I watched their chief smile. It was the serpent's smile.

(picture 8--boy touching sword) One of the strangers let me touch his sharp silver stick. To show I was not afraid, I grasped it firmly, as one would a spear. It bit my palm so hard the blood cried out.

(picture 9--boy talking to small statue) I ran back under the trees, back to the place where my zemis stood. I fed it little pieces of cassava and prayed. "Let the pale strangers from the sky go away from us." My zemis was silent. It spoke only in dreams.

(picture 10--in boats with parrots) The next day the strangers returned to their great birds. They took five of our young men and many parrots with them. They took me. I was brave and did not cry out. But I was afraid and when we were close to a strange shore I slipped over the side.

(picture 11--boy and adults walking) Many days I walked, following the sun. All along the way I told the people of how I had sailed in the great birds with the pale strangers from the sky. I said our blood would cry out in the sand, but no one listened, for I was a child.

So it was we lost our lands to the strangers from the sky. We gave our souls to their gods. We took their speech into our mouths, forgetting our own. Our sons and daughters became their sons and daughters, no longer true humans, no longer ours.

May my dream be a warning to all the children and all the people in every land.

Chapter V

Introduction

Despite tremendous advances in theories of reading and learning (Pearson & Fielding, 1991), traditional practices of lecturing and reading from the text with no prereading activities or comprehension instruction are reportedly entrenched in the content classroom (Durkin, 1978; Goodlad, 1984). Research shows that schema theory offers an explanation of knowledge acquisition, that prior knowledge is strongly related to increased comprehension and recall, and that successful instructional methods can be employed to build and activate relevant background knowledge before reading a text.

The purpose of this study was to develop a schema theory and application video tape for content teachers. Application of schema based concepts was demonstrated in a secondary teacher's presentation aimed at building/activating relevant background knowledge in United States History.

Based on research and teacher resources, instruction was developed. Four secondary teachers from Cashmere, Wenatchee, and Cascade School Districts were recorded reacting to instruction, theory and research.

The final tape explaining schema theory, with segments from the application tape and the teacher reaction tape, was developed for content teachers.

Conclusions

Schema based instruction offers much promise for greater comprehension and recall of textual as well as presented information. Using knowledge of schema theory, instruction can be developed which is tailored to the individual practitioner's needs and resources.

The four teachers interviewed felt that schools were in transition, but guessed that at least half of the secondary teachers were mainly teaching in a traditional format of reading the text, lecturing, and testing with little regard for "readiness" activities. After viewing the first tape and listening to schema theory information, the teachers responded positively and regarded the application of schema theory concepts as "good teacher common sense." The teachers felt that most importantly, schema theory underscored the necessity of practitioners understanding students. The author suggested that perhaps some secondary teachers have operated using paradigms which viewed the student as deficient or a passive

receptacle needing to be filled with information. The teachers agreed that if students were seen as active agents already full of information, valuable connections between the content and students' lives could be achieved with analogies and examples.

Surprisingly, most of the teachers seemed able to imagine themselves presenting a dramatization, but believed that most teachers would not be interested or able to "ham it up." The author pointed out that the intent of this presentation was not to suggest that all teachers apply the same components, but rather that they become aware of schema theory and its application in one setting as an impetus for developing their own instruction.

Two of the teachers had seen the live presentation and remarked that this approach seemed to require a lot of time on the part of the practitioner. Considering the large extent of present practitioners' workloads, the teachers agreed that a district would need to make a commitment to giving more prep time. The author reminded the teachers that activities aimed at building schema in a global sense may only be required a few times. For example, only eight dramatizations were planned for the entire year in her United States History class.

All of the teachers interviewed liked the added excitement and multi-sensory approach employed. They felt that students responded to enthusiasm and that different interests of the students were addressed. The author agreed that practitioners probably share more excitement when they have strongly invested their time and energy in producing a lesson.

The teachers interviewed seemed reluctant to believe that successful application of schema based instruction would insure success for all in terms of all students achieving mastery of content. They agreed that some students would always choose to fail. Additionally, they felt that not all teachers would be receptive to change, but agreed that there was "hope" -- that teachers needed "exposure" to schema theory.

Recommendations

Based on pertinent theory, research, and this project, the following recommendations are offered for building all students' comprehension and recall in the content classroom. Teachers should become aware of schema theory and research so that they can appropriately tailor theoretically based instruction. Before the new unit or major concept is directly taught

or assigned for reading, they should use their resources to accomplish the following tasks.

- 1) Bring forth students' present knowledge of topic.
- 2) Assess the present knowledge base and design

plans for:

- a) contrasting incomplete and inappropriate schemata.
- b) building a broad framework for new information.
- c) connecting old and new information.

Implementation of these recommendations would offer increased opportunities for all students to learn. Teachers would have more positive attitudes toward students viewed as active agents with much knowledge. Students would have healthier attitudes about themselves and school as they reestablished their expectations for achieving meaning in the content area.

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