EXPERIENCES AND PICTURES: USING VISUAL IMAGERY AND BACKGROUND KNOWLEDGE TO IMPROVE READING COMPREHENSION

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Dedication

It is very important to view things from different perspectives. While walking with my daughter Darcy, she allowed me to see this concept very clearly. Darcy was under two when we went for a walk. She crawled under a large spruce tree and wanted me to join her. We both laid down on the ground under the tree and looked up into the branches. It had been many years since I had done this and it emphasized to me the importance of trying something different and seeing things from different perspectives. When she was just over two, Darcy showed me the importance of never underestimating a person. While walking, her dad said to her, "Look at the yellow flower." She looked at him and said "That's not a flower, that's a dandelion." Even at this young age, Darcy was showing me that she had a lot of knowledge. Thank you Darcy for reawakening things I knew but had forgotten. I have not forgotten those moments and try to keep those important points upmost in my mind while I am teaching.

My son Ben is a questioner. He is always wondering what would happen if … . In my classroom, I will raise these 'what if' questions to get students thinking. Ben has made me aware that we should never just accept the things that happen around us but to question why they happen and what would happen if one thing different occurred.

I would also like to thank my husband Robin for helping me to achieve a master's degree. For having faith in my ability to succeed and for letting me know that he thought I was a good teacher who made learning fun. He has always been there to share the frustrations and to bounce ideas off of. Thanks for the support.

Abstract

Background knowledge and visual imagery can be combined to improve comprehension through discussions, semantic webbing, retelling and summarizing. Both parts of the brain store experiences. Language ignites the left side of the brain which is sequential, while senses and feelings are stored on the right side which is abstract and wholistic. Both sides need to be activated when reading to develop comprehension to the fullest. By picturing a story in your mind, you activate schema that activates feelings, and sensory impressions of experiences you have had. Knowing how to activate, monitor and question or change schema is what makes a good reader. This case study is with a fourth grade boy who is reading independently at a mid-grade two level. The study consisted of 26, one-hour sessions conducted twice a week after school. Strategies using background knowledge and visual imagery were taught to improve his reading level to a fifth grade level as measured by Alberta Diagnostic Reading, 1986. Discussion brought forth the student's background knowledge. A semantic web of the plot, characters, and setting was drawn before reading of the text. Throughout the story, the student was asked to keep a movie of the story going in his head. Oral retelling, predicting and inferencing took place throughout the story with a full retelling of the story at the end. Character comparisons were made between the books and experiences the student had. A fully developed movie of the story was created by using experiences the student had and combining the sensory

and emotional events with the story to make it come alive and be more meaningful. The boy's reading comprehension improved from a mid-grade two to beginning grade five level.

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Chapter 1: Introduction

Learning to read is a very important skill in grade one. Many children come into the classroom in September wondering when they will be able to read. Throughout the year students come up to me and say "I read this book", or "See how many pages I read." Reading is a great accomplishment for young children and they want to share the news. But not all children learn to read in grade one.

I have taught grade one in a rural elementary school for over ten years. During this time I have found that most children learn to read following a certain pattern. But there are always a few children who do not follow this pattern. As a teacher, I felt there should be more that I could do to help these students learn to read. There should be other ways of igniting that reading magic or comprehension that I was not using. I entered the Master's of Education program to find some answers to this question.

I decided early in the Master's of Education program to do a case study of one student, whom I knew, who seemed to have a lot of potential in grade one to be a good reader but just never reached that level. After several years in school, this student was still not a good reader. I wanted to work one-on-one with a student so I could see first-hand how certain words, questions and techniques worked with this student and how I, as a teacher, responded to the answers or comments given.

Therefore, understanding and remembering what was read (reading comprehension) was the area of research that I wanted to explore. Furthermore, I wanted to use background knowledge and visual imagery to develop and improve reading comprehension by giving the student strategies to use. Action research seemed the best way to do this. By using action research, teachers can "improve not only what they do,

but also their understanding of what they do." (Kemmis & McTaggart, 1988, p.5). Once this case study is completed, I want to be able to use what I have found out, to improve my own teaching of reading skills in a grade one classroom. Action research allows me to examine the answers and comments given by the student as well as those given by myself. This process of examining and reflecting then changing, is what action research is about.

Activation of background knowledge helps improve comprehension in people at different ages and ability levels. Rowe and Rayford (1987) studied students in grades 1, 6, and 10 and Langer (1984) studied grade six students with reading levels of average, above average and below average. Both these studies found that comprehension could be improved by activating background knowledge before reading. I wanted to use background knowledge because all children come to school with a degree of this type of knowledge but background knowledge is very diverse and unique to each individual. How children interpret what they are seeing, hearing and feeling affects how that information is stored in their memory. By exploring the kind of background knowledge each child has, it should help me as a teacher give each child some ways of connecting what s/he has experienced with the stories being read or that will be read in the future, so that the stories are meaningful and enjoyable. Prereading discussion of a topic activates background knowledge. When this discussion is done with the whole class, it will also give other students in the class an opportunity to see different perspectives on the same topic. This discussion may also help clarify things in their own minds or help them connect what they are thinking to what others are thinking or have experienced.

Studies have shown that visual imagery can enhance recall and improve reading comprehension. Gambrell and Jawitz (1993), Gambrell and Bales (1987), and Sadoski (1983) studied students in grades four through six and found that the use of visual imagery produced favorable results. Visual imagery is an area that has always interested me. I am a very visual person. I remember things in the environment by the color they are or by objects that are nearby. Often when I ask students in my class to visualize something, they are unable to do so. Either the picture is in isolation without color or characteristics or no picture is created. I have often wondered how to create these clear, full pictures in the minds of my students. This case study will give me the time to explore how students create pictures in their mind and how these pictures can become connected to form a movie of the story.

The reason I wanted to use both visual imagery and background knowledge in this case study, was to explore how past experiences can be used and developed to affect the present and future. Paivio (1991) discusses how the brain uses a dual coding process to remember and associate happenings or events. Background knowledge is something each student brings to the schooling experience. It affects the way we deal with situations and topics. Background knowledge is stored in both parts of the brain, the left and right hemisphere. We experience background knowledge through all of our senses and store it in our brain combined with our feelings (Paivio, 1991) and where we are in our physical makeup at that point of our life (Anderson, Pichert & Shirey, 1993). Many of us are not aware of how we are storing knowledge, we are not visualizing it, it just happens (Sadoski, 1983).

Chapter 2: Literature Review

The literature review examines in-depth the two reading topics of background knowledge and visual imagery and how each area can be used to improve reading comprehension, especially for poor readers.

Background knowledge

Background knowledge or prior knowledge (these terms are used interchangeably with the same meaning) is the experiences that a person has, directly or indirectly, that is put into memory. So powerful is the influence of prior knowledge on comprehension that Johnston and Pearson (1982) and Langer (1981, 1984) have found prior knowledge of topic to be a better predictor of comprehension than either an intelligence test score or a reading achievement test score. How background knowledge is accessed and applied can be the difference between a good and a poor reader.

Anderson and Pearson (1984) noted that poor readers are likely to have an impoverished understanding of the relationships among the facts they do know about a topic. Arbitrary information is a source of confusion, slow learning, slow processing, and unsatisfactory reasoning. Poor readers are also unlikely to make inferences required to weave the information given in a text into a coherent overall representation.

Comprehension is the building of the bridges between the new and the known (Pearson & Johnson, 1978). Since reading comprehension is a mental dialogue between writer and reader, the reader needs to interpret and process what is being read in accordance with what is already known. It is difficult for a reader to learn something new if it can not be connected to something that is already known. Studies have shown that skilled readers who engage in text, link the knowledge and experiences already stored.

Poor readers do not. For this reason, background knowledge as one strategy to improve reading comprehension will be explored in this study.

Schema. Schema is the knowledge structure already stored in memory. Prior knowledge is organized into schemata (plural of schema). This prior knowledge can be a concept or a set of related concepts. It can be objects, ideas or phenomena (Pearson & Spiro, 1980). Readers use and modify their schemata at many points during the reading process. Looking at the picture on the cover of a book or reading the title should activate the reader's prior knowledge about the topic. Key words in discussions should allow the readers to choose the appropriate schema from their memory to build a context for the text. When the schema is activated and used to interpret some event, the slots are "instantiated" with particular information that the reader has experienced (Anderson, 1984). For example, a reader who is examining a book on dinosaurs should be able to picture some different dinosaurs along with the names of the dinosaurs. People who have watched cartoons and movies about dinosaurs will have a different background knowledge from a person who has studied or read factual books or watched information shows or videos about dinosaurs. One person may view a movie as factual if people and dinosaurs are interacting, whereas a person with a more diverse knowledge, would know that people and dinosaurs did not live at the same time so the movie must be fiction. Such knowledge is important in classrooms.

For instance, when we study dinosaurs in grade one, the dinosaurs and information from "Juriassic Park" (1993) and "The Land Before Time" (1989) videos always come forth in discussions. Many children think that "long necks" and "three horns" are actually the names for dinosaurs rather than characteristics of the dinosaurs

because of the way they are portrayed in these movies. This is the background knowledge that some of my grade ones display. Throughout the dinosaur unit, I need to develop the schema through assimilation of new knowledge and build a more developed schema for dinosaurs so the next time the topic is brought up, the schema for dinosaurs will include the names and characteristics for different dinosaurs.

Anderson, Pichert and Shirey (1993), through two studies they conducted, found that a perspective taken beforehand activates that schema which selectively enhances encoding, whereas a schema activated afterwards selectively enhances retrieval. In the first study, 215 male and female high school students from a midwestern city were told to take the perspective of a burglar or a homebuyer before they read a story. By activating prior knowledge and setting goals, like being a burglar in a story, a reader's schema begins working within a context or framework. If you are told to read a story from a burglar's perspective, you will be looking for different information than if you were a real estate agent. In the second study, 71 college students were asked to take either a burglar or homebuyer's perspective before reading the story. After the students had recalled everything they could about the story, they were asked to recall the story again but this time taking the other perspective. Both studies found that importance of information to the recall perspective resulted in a significant amount of information retained. Both studies show that subjects who shift perspective recall a relatively large amount of unrecalled information when the shift occurs shortly after reading. Those students without a set perspective scored lower on story recall. The schema activated during reading appears to influence, not only the likelihood that certain text elements will

be learned, but also their longevity in memory (Anderson, 1984; Anderson, Pichert & Shirey, 1993).

Keeping schema or prior knowledge active while reading is also needed. "Some students begin appropriately but somewhere along the way forget what they are reading about" (Pearson & Spiro, 1980, p.82). In this proposed case study, a semantic web will be created before reading the text to review the background knowledge that the student has and put it in a visual form that shows how ideas and topics are related or joined. While reading the text, we will be reviewing the semantic web and orally recalling what has been read so far as well as making predictions about what might happen next. This should keep the schema active and activate other schema that is related to the topic.

Schemata provide ideational scaffolding for assimilating text information as well as an orderly search of memory for details and sequencing (Anderson, 1984). Ideational scaffolding is when a reader is presented with some clues (a sharp object used in a murder) to predict that the object used is a knife. Later clues will confirm or change the identity of the weapon. Chi (1978) showed that children with strongly developed schemata recall, predict and monitor more like older students than their age mates with less developed knowledge. The ability to sort and select appropriate schema is something poor readers do not usually have. Discussions prior to reading may help to activate the appropriate schema or find the words that would activate a particular schema.

Good readers check to make sure new information is consistent with the information already known. If it is not, readers will either reject the new information or modify the old. Careful readers evaluate whether the source of the new information is credible or the evidence is persuasive before changing a schema. Lipson (1983) suggests

that even young readers will reject text information if it is not consistent with an already possessed interpretation that they believe to be correct. Poor readers do not consistently check new information to see if it is accurate. Some poor readers ingest the new information without evaluating it, while other poor readers do not compare what they know to the new information and adjust their schema as needed (Anderson, 1984). Both of these situations hinder comprehension for poor readers. In the case study, frequent predicting and retelling as well as explaining why the student predicted the way he did, should show the student how his prior knowledge can help him evaluate information to see if it appears accurate or not.

Prediction and inferencing. Another way to activate prior knowledge besides conducting discussions with young readers about the pictures and title of a story, is through prediction. When readers guess or make predictions about a passage content, they are using the background knowledge and vocabulary they possess to speculate and form questions about the story. Rowe and Rayford (1987) studied the use of predictions and questions and their impact on comprehension. Seventy four students, divided evenly from grades one, six and ten, were required to infer answers to test questions by integrating information across sentences and paragraphs. The researchers found that first graders activated related schemata, but their responses were frequently imaginative or involved providing personal narratives rather than general topic statements. Older students used general topic statements. Poor readers in higher grades may still be using imaginative or personal narratives rather than general topic statements. They may not be activating the relevant schemata for the topic or drawing connections between different experiences they have had. In the case study, I will be able to help the student draw

connections by using his background experiences and comparing the events or characters or sharing some of my experiences to show the connections.

Rowe and Rayford (1987) also found that activation of schemata that are unrelated to the topic occurs by reading a word incorrectly (for instance, reading water instead of writer). They also found that uncorrected miscues had a detrimental effect on students' initial efforts to bring to mind information related to the theme of the passage. When students were unable to pronounce the word, they were left with few clues to suggest which schemata would be needed to comprehend the upcoming passage. In the proposed study, the student will read the story aloud so incorrect words can be corrected immediately.

In order to predict, sometimes inferencing has to be used. Inferencing uses prior knowledge to fill in the missing pieces in a story. Readers can use a schema, in conjunction with the information recalled, to generate hypotheses about the missing information. Based on the cues in the text, the schema to be used for comprehension is selected. Sometimes the details for a schema are based on explicit information, and other times with slot-filling inferences (Anderson, 1984). A reader typically makes inferences when deciding that a particular character or item mentioned in the story is intended to fill a particular slot. For example, if a reader is reading a story about a person going to a baseball game and a strike is mentioned, the student would infer that the author is talking about the batter swinging and missing the ball. If the student did not have the background knowledge for a baseball game, the word strike would not activate a helpful schema. In the case study, I will be able to fill in the gaps or help the student fill in the gaps in his experiences and his vocabulary in meaningful ways. By working one-on-one with a

student, I will have a chance to see if the student has understood a particular word and can relate to its meaning by having him use the word later or retelling the events in his own words.

Vocabulary. It is often difficult to know if readers do not have any background knowledge about a topic or word or if the readers are just unable to express their knowledge in a way that is understood by others. Vocabulary creates meaning. If a reader is unable to understand the meaning of one or several words in a sentence, the meaning of the word and sentence may be lost. Beck and McKeown (1991) found that students acquire vocabulary knowledge through a wide variety of reading. They learn vocabulary from context, but need instruction about context to use it effectively and they profit from direct instruction in vocabulary. Nagy and Herman (1987) disagree. They found that some students, under certain circumstances, may profit from direct teaching of vocabulary; however direct teaching is not as powerful in achieving overall growth in vocabulary and comprehension as is general reading. Direct teaching may not allow the students to use their background knowledge to grasp the full meaning of the words and apply it to the situation which improves their comprehension. Nagy and Herman studied students in grades three, five, seven and eight. The students read silently without being told why they were reading a passage. Word knowledge was assessed immediately after reading and one week later (without the text). All the words were real words that the researchers felt the students would at least have partial prior knowledge about. Nagy and Herman (1987) found important qualities that appear to improve direct instruction of vocabulary. Words were taught in meaningful context that conveyed the particular meanings relevant to the text. If a word had a multiple meaning, only the meaning that

applied to the situation was taught so comprehension was not hindered. The teaching of vocabulary was integrated with the activation and development of prior knowledge. Words taught were related to the student's prior knowledge. Nagy and Herman found that reading grade level texts does produce small but statistically reliable increases in word knowledge. Daily reading allows a lot of new words to be read. Incidental word learning increases a child's ability to profit from potential word learning situations outside of vocabulary instruction.

Hansen (1981) divided the 24, average to above, grade two readers she was studying into three groups: the control group, the question group and the strategy group. The control group answered literal and inferential questions without any training. The other two groups were taught strategies to answer inference questions. The question group answered just inferential questions. The strategy group integrated new knowledge (from the text) and background knowledge, prior to reading. Before reading, this group was also asked to relate what they would do in similar circumstances and predict what the main character would do. Ten stories were used over ten weeks. The results show that both the questioning and strategy groups answered inferential questions better than the control group did. Apparently, guided systematic practice and feedback in answering inferential questions improved students' answers to both literal and inferential questions.

In a similar study, Hansen and Pearson (1983) provided modeling guided practice and feedback to 40 grade four students as well as strategy training. Through ten consecutive weeks of training, the teachers explained to students why they were going to learn a strategy and what they were going to learn and when the strategy was important to use. The students were divided into four groups, two groups of good readers and two

groups of poor readers. The poor readers were less than a year below grade level and the good readers were two years and more above grade level. Two days each week were used for project related activities. One day was for discussing the story before it was read and the other day was to discuss it after it was read. The control group for each reading level, good and poor, were just told what the story was about before they were asked to read it. The instructional groups discussed the topic using predictions and prior knowledge about the topic. After the story was read, the instructional group had to answer ten questions using information not clearly stated in the text. This was done so the students would view text as something to interpret not just remember. The control group answered two literal and two inferential questions for each story. The results showed little differences between the two groups of good readers but a strong difference between the groups of poor readers. There were differences on the literal measurement but a larger difference with the inferential measure. The poor readers in the instructional group answered inferential questions as well as good readers in the control group. Hansen and Pearson (1983) concluded that training is most effective for students who get frustrated performing higher level comprehension tasks.

The results of both these studies will be used in the case study. The student will be shown how to combine new information with prior knowledge as well as predict what the characters will do based on what the student would or might do in similar circumstances. Modeling and explaining why and how information can be used to improve comprehension will also be used.

Hansen (1981) found that not all grade two students she was studying, knew it was "OK" to use "their own words" to answer questions. Retelling the story using their own

words is a way for poor readers to understand what they read by combining the text with their background knowledge in a way that is meaningful to them. In the case study, the student will retell the story at various points throughout the story to allow me to see if story comprehension is occurring and see how the student is relating the text to his own experiences.

Students develop networks of words and their relationships through repeated experiences with the word (Beck, 1984). Repeated use of the word develops ownership of the word not just its meaning. This ownership allows readers to relate the word to their existing schemata or develop new schemata. Reviewing the words periodically and observing if the student uses the words in oral or written retelling will let me know if ownership has been established for new words we encounter in the stories.

Visual imagery

Visual imagery is the ability to create mental pictures. The old saying, *A picture is worth a thousand words,* may explain why comprehension is increased when visual imagery is employed. When children make visual images about information and stories while listening, the pictures may provide the framework for organizing and remembering the information (Gambrell & Bales, 1987).

The construction of mental images encourages the use of prior knowledge as part of creating vivid representations of prose. Many researchers have found that teaching children to construct mental images as they read enhances their ability to understand, construct inferences, make predictions and remember what they have read (Gambrell, 1981; Gambrell & Bales, 1986; Pressley, Borkowski & Johnson, 1989; Sadoski, 1983, 1985). Anderson and Pearson (1984) and Jacob (1976) have determined that poor readers

are lacking the ability to generate or use visual imagery in their attempt to comprehend written discourse. They found that this is the central factor in differentiating good from poor readers.

Imagery often plays an important role in allowing the reader to enter the secondary world of the text, thereby making the stories "come to life" for the reader. The meaning of a text is not inherent in the print of the page, but in the experiences the reader brings to bear on the message (Paivio, 1991; Rosenblatt, 1985; & Sadoski, 1985). Experiences that the reader has contribute to background knowledge. For instance, the same experience can be viewed differently by two different people directly involved in the same event. Being able to put oneself into another person's place or view things from a different perspective, help bring stories to life.

Conceptual peg hypothesis. Information that leads to comprehension comes in two forms, verbal and nonverbal. An important part of the nonverbal system is the "conceptual peg" hypothesis which asserts that "key images serve as mental "pegs" to which associated information is hooked for storage and retrieval" (Gambrell & Jawitz, 1993). The conceptual peg hypothesis of word imagery affects a reader's recall. Nonverbal images are initially generated from stimulus words, then regenerated from verbal cues during recall and finally decoded back into words. An example of this is in a story about a Labrador retriever dog. Sam is the name of the dog. The word Sam becomes the mental image used to create an image. Every time the word Sam appears in the story, the reader is able to mentally visualize the dog. As the story continues, Sam is mentally placed in the events in the text. The reader is now able to visualize Sam as a live character with feelings, a description and actions. Sam, for one reader, will be different

than Sam for another reader depending on prior experiences with dogs. The stimulus words need to be explicitly presented during learning. The most prominent characteristics of memory peg words are their concreteness and strong capacity to evoke images. "Concrete words evoke images much more easily than abstract words" (Paivio, 1991, p.261). The word "dog", for most readers, creates a clearer, more defined image than the word "unbearable". If a reader has never had personal experience with dogs, the conceptual peg for dog will not create as detailed an image as someone who raises dogs. Comprehension and recall are especially dependent on imagery evoked by the words used as retrieval cues.

Dual Coding. Paivio (1983) and Sadoski, Paivio & Goetz (1991) state that verbal and nonverbal information is represented in distinct, but interconnected, mental systems. This is called dual coding. The verbal subsystem is specialized for dealing with the printed, spoken and written language. Information in the verbal system is organized in a way that favors abstract and sequential processing. The verbal subsystem contributes to logic, order, direction and organization of thought.

In contrast, information in the nonverbal system is organized more in the form of holistic sets of information (such as images). The nonverbal subsystem is specialized for the representation and processing of information concerning nonverbal objects and events. Nonverbal objects include visual and manipulated objects while nonverbal events include sounds, tastes, smells and emotional experiences. The nonverbal system is relatively free of logistical and sequential restraints (Paivio, 1991).

The importance of these two subsystems, verbal and nonverbal, helps to explain how readers sequentially process verbal material while the nonverbal system is holistic,

but random. Words create images and images can evoke words (Sadoski, et al., 1991). Verbal and nonverbal codes corresponding to the same object (e.g. pictures and their names) can have additive effects on recall.

In their study with 120 fourth grade students from three public schools, Gambrell and Jawitz (1993) found that students who used mental imagery and illustrations had enhanced comprehension compared to the other groups who used only mental imagery or illustrations. The students were randomly assigned to one of four groups: 1) general memory, 2) attention to text illustrations, 3) induced mental imagery and 4) induced mental imagery and attention to text illustrations. The general memory group was given text without illustrations and told to try and remember the story. The second group read an illustrated version of the story and were told to pay attention to the illustrations. The mental imagery group used text without illustrations. They were given instructions to induce mental imagery. The fourth group read an illustrated version of the text. They were given instructions to induce mental imagery and told to attend to the text illustrations. After silently reading the story, the students wrote what they could recall of the story. The group with instructions on inducing mental imagery and using text illustrations recalled the greatest information. These results suggest that when readers combine these two strategies, something happens apart from what occurs when only one strategy is used. For the proposed study, steps will be taken to ensure that the student is both reading aloud and visualizing.

Visual imagery and examining story illustrations may not work together always to enhance reading comprehension. In a study with 48 grade five students, Sadoski (1983) found that reported story imagery was frequently unrelated to story illustrations.

Students orally read a story then performed some reading comprehension tasks directly related to the story. Subjects were divided into two groups – those who reported an image of the story climax and those who did not. Sadoski found that images were reported in random order, seldom in chronological order. This is similar to Paivio's (1991) findings of nonverbal modes not being sequential. Frequently, an image of the climax of the story was reported. The group that did report a climax image scored significantly higher on the retelling and comprehension score. Sadoski also found an increase in miscues (words read incorrectly) during the climax, nearly three times as many during the climax compared to the rest of the story. Many subjects recalled the climax in much detail despite their increased miscuing. Some subjects even simulated the climax using their hands and acting out the situation. Linden and Wittrock (1981) called this dual or deeper processing. This deeper processing may be a result of using both sides of the brain (visual-one side, verbal-the other) to complement each other and create a whole that is larger than the two separate parts as indicated by Gambrell & Jawitz's (1993) findings. The ability to activate the verbal and nonverbal systems so they are operating separately some times and together at other times may not be something poor readers possess. In the case study, the student will be using both systems together and separately. We will discuss how one system affects the other and how prior knowledge can be used to enhance both subsystems.

Gambrell (1982) found that children as young as eight years of age were successful at employing visual imagery to increase reading comprehension after only twenty minutes of training. Pressley studied eight year olds while Gambrell worked with 29 first grade and 29 third graders. The grade ones were reading at a grade one level

while the grade threes were reading at least at a grade two reading level. Two versions of the same story were used with the reading level adapted for the different grades. The story was divided into five sections. After each section the students were asked a prediction question about what they thought was going to happen next. A probe was then used to find out if there was anything else. The control group for each grade was told to "think about what you read to help you remember it" while the experimental group for each grade was told to "make pictures in your head about what you read before each section." Students were directed to create an image in their mind of the interesting characters and the things that happened. They were told to recreate the images when they were retelling the story. Gambrell found that mental imagery does not enhance reading comprehension for beginning readers. She theorized that the reason could be that proficient readers benefit from induced mental imagery while for younger less proficient readers, inducing mental imagery adds an additional processing burden (processing mental images and print simultaneously). The grade three imagery group scored significantly higher for prediction and facts within the text.

Not all imagery is created equal. McCallum and Moore (1999) studied 33 students from grades two to five who read at or above grade level. The students were checked three times during the school year, fall, winter and spring. Each time, three expository passages (from the student's science or social books) were used. After reading the passages, the students answered main idea and guided imagery probes. McCallum and Moore found that not all the imagery contributes positively to comprehension especially with young readers. Each word in a text has an infinite number of connections which are related to a child's prior knowledge and experiences. This network of associations may or

may not facilitate comprehension. After each student read a passage, s/he was questioned about the main idea of the story. Then guided recall of his/her imagery in the passage was discussed using questions like "Did you make pictures in your head of this sentence or idea? Describe it." The student was then asked to generate a title for the passage and justify his/her decision. The imagery was checked using a three part system: 1)image reported and idea expressed, 2)no image reported, and 3)no reporting. The researchers found that the ability to capture the ideas expressed in an article and the main idea, develop over time. As students were able to understand the ideas expressed in the text, they were able to grasp the main idea of the passage. There were three types of imagery reported: 1)personal experience, 2)narrative imagery and 3)symbolic representation. The narrative imagery included the development of the story format for concepts and personification of those concepts (such as cartoon characters). Symbolic imagery did not have the other two types of imagery. This type of imagery was only given by students who exhibited successful comprehension of the main idea of the passages without capturing the ideas expressed in the text. The researchers then looked into the question of what type of imagery is associated with low main idea comprehension ability. They found that these students characterized the main idea by using a high degree of personalization of meaning into the passages. When students did not comprehend the passages, McCallum and Moore (1999) found that previous experience had been activated. This personalization of meaning in the passages often took the students farther and farther away from the meaning implicit in the text. Students that failed to report any imagery did not possess the background knowledge for them to picture something they knew nothing about. The students that reported lack of imagery were mainly grade twos.

These findings are similar to those of Gambrell (1982). In the case study, if the student does not possess the prior knowledge to create the images, I can provide it through modeling or relating it to similar experiences he has had. As the student is describing the images he has of the story, I will be able to keep track of the type of imagery he is using and redirect or model it as needed.

Costa and Skeen (1999) believed that one of the causes of low reading comprehension was a lack of prior and background knowledge. They studied a whole class of grade seven students from a middle class community. For sixteen weeks, they taught three strategies to the students: pre-reading, active reading, and post-reading. The pre-reading strategies included using a K-W-L chart, prior knowledge discussions, videos and cloze passages and predicting using the cover title and picture. Words considered important were introduced. The active reading strategies involved predicting, questioning what is happening, paraphrasing, inferring, creating and answering oral and written questions and reviewing the K-W-L chart. A think aloud model was demonstrated. The post-reading strategies consisted of group discussions, Venn diagrams, and reflective journals on the thoughts each student had about the characters and events in the stories. Each of the strategies was modeled. Each week all the students were tested to see if their comprehension scores increased or decreased. Over the sixteen weeks, the class average increased more than ten percent. Costa and Skeen also wanted to see if the student's general vocabulary increased as a result of their comprehension increasing. Out of the eight randomly chosen students, two showed no improvement, one student's vocabulary scores decreased and five students showed a marked improvement. Costa and Skeen did

not feel that enough students were tested to generalize their conclusions regarding the vocabulary results.

Disabled readers. Chan, Cole and Morris (1990) designed a study to examine the extent to which students with reading disabilities would benefit from instruction in the use of a visual imagery strategy. Thirty-nine upper-primary disabled readers and 39 third-grade average readers with the same word recognition ability as the disabled readers were randomly assigned to three groups: 1)visualization instruction, 2)visualization instruction plus pictorial display and 3)a read-reread control group. The training sessions were conducted in groups of four or five with the disabled readers and grade threes not being combined because of age differences. Four 40 minute sessions on consecutive days were used for training and testing. The results showed that the group that used visualization and pictorial display did better than the group using visualization alone or the group that was instructed to read and then re-read the text. The researchers state that to merely instruct disabled readers to visualize was not effective in improving performance. It appears that mere verbal directions to "make a picture in your mind while you are reading" may not be sufficient to activate the use of an effective visual imagery strategy. Adequate time and practice are necessary for mastery of the strategy. "Appropriate gradual fading of external support is critical to promote internalization and generalization of strategy use" (Chan, Cole & Morris, 1990, p.10). It is anticipated that the case study will be three months in length to allow the student time to internalize and generalize the strategies worked on.

Bales and Gambrell (1985) investigated the effects of visual imagery on comprehension with 124 poor fourth and fifth grade readers from five different schools.

The students were one to two years below grade level. The students were divided into two groups: a control group and a group that received instructions on using imagery. The training sessions were 30 minutes long with groups of eight to ten students. The students were instructed to "Make pictures in your mind." The training sentences and paragraphs allowed for vivid imagery. Students were asked "What did you do to understand _____?" The control group did not receive any training. Bales and Gambrell found that poor readers do not spontaneously employ mental imagery as a strategy for monitoring comprehension even when they encounter comprehension difficulties. The use of imagery enhances the reader's ability to evaluate the student's understanding of the text. They found that less than 1% of the students made visual images of what they were reading unless specifically instructed to do so. This suggests that many students do not spontaneously use visual imagery as a comprehension strategy (Gambrell & Bales, 1987).

Six learning disabled adolescents with at least a grade four reading level were involved in the study by Clark, Deshler, Schumaker, Alley & Warner (1984). The students were taught a visual imagery strategy and a self-questioning strategy to increase their interaction with the content of the text and to facilitate reading comprehension. All the reading material lent itself to the formation of visual images as the passages were read.

In this study, the total instructional time needed for students to master the two strategies ranged from 5 to 7 hours. The results indicated that all students were able to reach the criterion for ability level material and five of the six students were able to master the two strategies with grade level material. The criterion for mastery was not stated. This study demonstrated that improved performance did not occur until each

strategy had been specifically taught. The largest gain was made when the visual imagery, then self-questioning for ability level material, was taught. It would appear from the data provided that students created their own pictures, then questioned themselves to see if the pictures were fully developed. This is an example of internalizing and generalizing (Chan, et al., 1990) discussed earlier.

Danko (1992) worked with three learning disabled boys using visual imagery to improve comprehension. Six baseline tests were given at the beginning for baseline information and six tests were used in the posttesting. Three tests (each time) were at ability level and three were at grade level. Non-fiction prose and science material were used. The training sessions were 30 minutes long and held five days a week for six weeks. Pictures were omitted in the stories. The children were told to pretend that they were a video recorder and they needed to record what they were reading. At the end of each paragraph, the playback button was pressed. This meant that the students were to visualize the recording in their minds, then retell it. They were told to question themselves to see if they had all the important information needed for the retelling. Some of the questions were, "What do you see? (Tell someone else so they can see it too.) What is happening? How do things look?" The training sessions consisted of a researcher modeling what to do and subjects practicing what they were "seeing" as they read. All three students showed improvement in reading levels as well as noticeable improvement in attention to details. Reading the story and remembering what is happening will be like video-taping an event and then watching it again in the retelling.

Teaching strategies

There are several strategies for improving reading comprehension which focus on the building and using of background knowledge and using visualization. The strategies provide students with ways to independently improve their comprehension. The three strategies to be used in the case study for building background knowledge and improving visualization will be presented. Each of these strategies use role models to act out or explain how they are using their background experiences to improve their understanding of the story. Strategy training or learning strategies are "techniques, principles, or rules that will facilitate the acquisition, manipulation, integration, storage and retrieval of information across situations and settings" (Alley & Deshler, 1979, p.13). In a learning strategies intervention program, rather than teach students specific content, teachers teach students *how* to learn that content. Students maintain active involvement with the content as they manipulate and integrate information through use of a learning strategy.

Flaro (1987) believes that background knowledge and visualization can be used together. His 5-W (who, what, why, where and when) questioning strategy stresses the need to explain the purpose, rationale and each step of the strategy to the students. Modeling by the teacher is important so the students hear the teacher verbalize his/her thoughts. Twenty-four grade four and five students identified as exhibiting moderate to severe reading comprehension deficits (at least two years below grade level) participated in the study. The students IQ was in the normal range. The instructions took place over a fifteen week period. A researcher met with a student on a one-to-one bases in the preassessment phase of the study. Later the students were put into groups of three or four for the instructions. To begin, students read a sentence or a paragraph. Then they are

instructed to create a mental picture of what they have read based on what they already know about the subject or on the illustrations and drawings provided in the story. Prior knowledge is accessed and activated through the use of verbal and nonverbal cues. After creating a mental image, the students ask themselves about the content of the material using Who, What, Where, When and Why. The five questions should help the students create a more visually complete mental image, thus making the content more meaningful. The teacher should provide the student with immediate verbal feedback regarding visualization and verbal mediation strategies. This allows the teacher to fill in the gaps and help bridge the concepts between prior knowledge and story events. Use of the visual imagery and verbal mediation technique with learning disabled students helped create meaningful associations between reading text and prior knowledge (Flaro, 1987). Over the fifteen weeks, students showed a significant gain in reading comprehension of eight months grade equivalent.

Davey (1983) suggests teachers go further in their modeling than Flaro does and use the *think-aloud* procedure to teach children to learn to use visual imagery. In this way, the teacher verbalizes thoughts about using visual imagery as a passage is read aloud.

As the teacher reads the passage aloud, the students listen to how the teacher thinks aloud about the use of visual imagery. The teacher thinks aloud about the words and events s/he has experienced and how this creates images to build on in the story. The think-aloud procedure is based on the belief that if teachers model their own strategy use (so the students can see a mind responding to a particular passage using a particular strategy), the students will realize how and when to do the same thing (Davey, 1983).

Semantic mapping. Semantic mapping (webbing or networking) is a visual way of categorically structuring information. Manzone (1989) and Johnson, Pittelman & Heimlich (1986) state that semantic mapping improves comprehension by showing the relationship between ideas and characters in a visually graphic way. Semantic mapping combines the words and ideas that students know about the topic with any new vocabulary or concepts the teacher wants to teach. It can be a prereading activity and a post reading activity that motivates and actively involves learners in the thinking-reading-writing processes. These are explained as follows.

As a prereading activity, the procedure of mapping a topic provides students with a means for activating and enhancing their knowledge bases regarding the specific topics and words discussed. The topic or key word is put in the center and the categories are lines coming out from the main word. Through discussions and brainstorming, words and ideas about the topic are presented. The map graphically puts these written words into a clear, easy to understand order. Students are able to see how concepts and ideas are related by using category headings and drawing lines to show how different categories elate to each other. A completed semantic map provides the teacher with information about what the students know and reveals anchor points upon which new information can be assimilated or combined in a meaningful way. By activating students' prior knowledge of a topic, they are better able to understand, assimilate and evaluate the information in the material they will read (Johnson, Pittelman & Heimlich, 1986). The predicting can be related to the characters or plot. The teacher can aid the student with prediction ideas through discussions. Students can be asked to describe what they would try to find out during reading.

Once prior knowledge has been activated, prediction can be used to guess about the plot or characters. By having students predict aloud, teachers have the opportunity to keep a schema active throughout the story. The semantic web can be reviewed throughout the reading to check predictions and review concepts and vocabulary. Having students state why they predict or infer an idea helps them check their own background knowledge as well as gives the teacher an opportunity to add information or activate a different schema that the student had not used.

The semantic map can also be used as a post-reading activity to emphasize the main idea. More words discovered while reading, can be added to the map. New categories can be added. Semantic mapping can be used with any content area reading material. It gives the students the opportunity to recall, organize and visually see pertinent information that has been read. It shows how concepts and ideas are related to each other. It can be used as a whole class activity or with small groups or individually.

Semantic mapping teaches vocabulary in a meaningful way by using what students know and building on the information or "building bridges between the new and the known" (Pearson & Johnson, 1978). Teachers can use semantic mapping to find out the vocabulary students have and add new words or ideas to the various categories. By putting the new words under the headings on the map, students get to see how the old words and new words can be combined under a similar topic. Discussions about the new words can help clarify the meaning and combine it with the background knowledge students have. Researchers recommend teaching vocabulary before, during and after reading depending on the text to be read and the students involved (Beck, McKeown, McCaslin & Burkes, 1979). In the case study, semantic mapping will be used with each

story. The map will be built before the story is read then reviewed during the story and after the story is completed. By looking at the setting, characters and events in the plot, the 5-W questioning strategy will be used. The student will be encouraged to voice the reasons for why he thinks events in the story will occur or why the setting or characters will be who he thinks they will be. By having the student thinking aloud, I will be able to add my experience to expand the knowledge base or ask questions that will get the student thinking in a way that will use his background knowledge to predict events or help to visualize the events or characters more fully.

Summary

In this literature review, the research cited and the authors quoted were chosen to provide a diverse background of issues to consider when setting up a case study of how background knowledge and visual imagery can be used to increase reading comprehension, especially in poor readers.

The importance of schema theory, the many facets of it, and how schemata are activated and used, appear to be very important to teaching and understanding comprehension. Poor readers do not appear to automatically monitor their reading and know when to use a certain schema or how they should activate it. They do not always know if they are missing important pieces of information when they are reading. The importance of verbal and nonverbal cues must also be considered when designing a program for teaching reading comprehension.

From the literature presented, it would appear that readers' comprehension improves when prereading discussions and semantic mapping take place. The mapping provides students with the categories and visual links. The discussion activates

background knowledge and allows the teacher to enhance or build on this prior knowledge for those students needing it by including pertinent vocabulary and bridging gaps between present knowledge and new knowledge. The visual and verbal aspects of mapping provide dual ways of coding what students are learning.

The combination of background knowledge and visual imagery skills appears to be a beneficial combination for improving reading comprehension. Background knowledge provides the groundwork needed and gets the students actively involved in their learning. Visual imagery uses a reader's prior knowledge of events and characters to develop pictures in the mind which help clarify and enhance the stories and recall. Various levels of learning can occur at the same time as both sides of the brain are actively encoding, reviewing, analyzing and summarizing to make sense of the material that is being read. It appears that combining background knowledge with the story events or characters, to fill out or enhance the images and allow the students to transact with the text easier, is a worthwhile and effective method of teaching reading to students.

Chapter 3: Methodology

Case Study Craig

Craig is a ten year old grade four boy who lives on a farm in rural Alberta with his parents, two sisters and a brother. They have livestock, dogs and cats. He enjoys the outdoors and spends a lot of time outside. He likes to build things, repair old bikes and be with the animals.

I taught Craig in grade one. At that time, he seemed to have the potential to be a good reader but never achieved this goal. He seemed to generalize information well and seemed eager to learn. He was chosen for this study because he was more than one grade level below his grade in reading. He does not appear to have any learning disabilities and he is able to work at a task until he understands it. This perseverance was necessary because the one hour sessions were after school, which meant a long day of learning.

To get a full picture of Craig's learning style for reading, I talked to his present and past teachers and the teacher assistant who has worked with him. These following strengths and weaknesses in Craig as a reader, were perceived by them. Craig points to words as he reads them. He is weak in summarizing stories, and the details he provides about what he has read, are very limited. His expressive language is weaker then his receptive language, meaning he can understand more than he is able to express. His comprehension is better when he reads aloud rather than silently because he seems to skip words and sometimes lines. If he does not know a word, he will skip it. He does not appear to use any reading strategies and he does not seem to visualize the story. Craig's strength, according to other teachers who have worked with him, is that he is a curious boy who is good at inferring meaning. He is patient with others and takes suggestions

from adults and students well. He is very sensitive to others' feelings. He looks at the pictures in books and seems to check for sentence meaning when reading.

I tested Craig's reading level using the Alberta Diagnostic Reading (1986). He read two stories aloud as I observed. No corrections or help was given while he was reading. Immediately following the reading, I asked him the questions in the teacher's guide and then recorded his answers. The first test was 2A-2 where he scored 8.5/10 which put him between an independent and instructional level at the grade two level. The next one, 3A-1, Craig scored 6/10 which is a frustrational level for the mid grade three reading material.

Some of the observations that I noted while he was reading, were similar to those made by other teachers regarding this student's strengths and weaknesses. Craig pointed to the words. He looked at the picture before reading. With the first story, he seemed to check the words he was reading to see if they made sense. He used self correction immediately or within a few words if he made an error while reading. Things changed with the second story. Half way through (the eighth sentence), he said, "I'm getting mixed up." His sounding out of words and word identification was not close for several words. For example, he inserted "instantly" for "against" and "different" for "delicious". Twice in the story, he tried to sound out words but did not get a word he was familiar with, so he kept on reading, leaving the words that he did not recognize or could not sound. His answers to the questions showed that he did not understand the story. This indicated to me that Craig was reading predominantly at a grade two level.

While discussing the stories after the initial testing, Craig said that he likes to choose stories that he can picture. He also said he thinks about the title after he reads it

and he thinks about the story as he reads it. He thinks about how it will end up and what kind of trouble there will be. This indicates that he is aware of some reading strategies. However, when the story is finished, he does not review the story. He said he sees pictures sometimes when he is reading and occasionally hears sounds with his picture. He also indicated he uses feelings (emotions) the most when he is identifying with the characters. This was evident with one of the story questions. When asked what the baby deer did when frightened by the dark shadow, Craig replied, "*He was scared,*" rather than tell about the fawn's actions. Finally, in our discussion, he says he found science the hardest to read. He also said, *"I'm not the best reader. It doesn't bother me."*

Materials

Because of Craig's interest in and experience with animals, I felt that a book about animals would be a good place to start. Most of the books used in the sessions were graded books meaning they were designed to be read by students at particular grade levels. The level of the books proceeded from a mid-grade two to a grade four level, getting progressively more difficult as the sessions advanced. The leveling of the books was done by the publisher. Eleven books were used in the twenty six sessions. I chose the first two books to be read. For the next four books read, I chose several books at a grade two/three reading level, then Craig chose the one he wanted to read from my selections. After we had worked on six books, Craig chose two books himself from the school library. The second book remained unfinished because the text was too difficult. This difficulty was discovered two pages into the book. Two to three sessions were needed to complete the reading and discussing of a book. A complete list of the book titles and authors are in Appendix A.

Procedure

Everyone has unique background knowledge and/or prior experiences. The type of experiences each of us has differs but how these experiences are accessed is similar. I felt I could identify with some of Craig's farm life experiences and would be able to draw these experiences out and be able to relate the story events to Craig's experiences because I too was raised on a mixed farm with siblings and my parents in rural Alberta. I knew Craig's family and a bit about their lifestyle so I considered this an asset.

The seven teaching strategies I used were: 1) discussions to relate the stories to Craig's experiences and activate schema for the topic of the story, 2) creating a semantic map stressing the plot, characters and setting, 3) prediction and checking predictions, 4) inferencing, 5) working with vocabulary, 6) visual imagery of the story events and characters and 7) retelling of the story. The goal was to have Craig internalize each of these strategies. Paivio (1991) discusses using both the sequential linguistic and the wholistic sensory sides of the brain, separately and together, to improve comprehension and memory.

Before we began reading each story, we used the teaching strategy of discussion to talk about the picture and title of the book and to discuss what he knew about the topic. This strategy was used with each of the books. After the discussion, Craig or I would draw a semantic map (see Appendix B) with the setting, plot and characters outlined on it. The discussion ideas as well as prediction ideas were used to plan the setting, characters, and plot. Predicting and checking the predictions was the second teaching strategy that was used in this project. Sometimes vocabulary was included on the

semantic map before reading the story and sometimes it was added to the map during the story.

After the map was made, we would begin the reading of the text. All the books were read aloud. If Craig did not know a word or appeared unsure while reading, I would tell him the word or have him reread a sentence. I told him the word because I was less interested in developing phonic skills and more interested in developing story comprehension. Rowe and Rayford (1987) found that activation of schemata that are unrelated to the topic by reading a word incorrectly, does occur. Discussions and predicting continued throughout the story. At the end of a page we would discuss topics that came up on that page. I would check to see if Craig understood the meaning of various words and expressions used on the page. At the end of the page, or every two or three pages, Craig would summarize what had happened in the text. Throughout the story, I would have him retell the story orally. This retelling was combined with visualization or developing a movie of the story. This was the third teaching strategy used. The visualization involved seeing objects and characters in a setting complete with sounds, smells and feelings. The senses were used whenever possible because Craig had said that he uses feelings or emotions the most when he is identifying with the characters in the story. I used this strength to help him identify with the characters in the story and make them more realistic to him. I also used emotions to aid him in visualizing the characters in the story as well as to aid in prediction.

At the end of the story, Craig would then retell the whole story to me. In later sessions, he would think about the whole story himself and then write down the important events. He had the option of retelling the story orally or through pictures. The option of

drawing pictures was used because Craig's art work is very detailed and I felt this would be a strong way for him to express his ideas. He always chose the written form over pictures.

Another strategy I discovered when reviewing the research, were utilizing predicting and summarizing. Predicting and checking predictions was a planned strategy but I did not realize that I used prediction and summarizing with each page until the results were analyzed. I always had Craig predict what was going happen on the page he was about to read. When he finished reading a page of text, he was to summarize what had happened and check his prediction. I would also ask him why he predicted the way he did or why he thought something might happen that way. Sometimes the answer was in the text but often his reasoning came from something that he had experienced directly or indirectly. Sometimes I used the phrase, "Has that ever happened to you?" to get him to compare the story to events with which he was familiar. An example of this, from the first story, is when the dog fell through the ice and I asked him how the dog would get back out. He said that the man might pull him out like his dad pulled him out once when he fell through the ice. Pearson and Spiro (1981) discussed this strategy in their research on focusing on the text and keeping the schema active throughout the reading. I encouraged Craig to remember that guesses about what might happen, were okay. It didn't matter if they were right or wrong. These kinds of guesses, during our sessions, get the brain thinking about what is going to happen.

Similar strategies and practices were used throughout the reading of all the books during our sessions. Therefore, I will use examples from three of the stories read to show how the strategies of discussions, predicting and checking predictions, and using

background knowledge to activate schemata made it easier for Craig to identify with the characters and plot of each story. Visual imagery was developed through the use of story pictures, discussions and activating background knowledge to create a wholistic movie of the story. The use of visual imagery and background knowledge together for each story, allowed dual processing to occur in order to improve reading comprehension. Vocabulary was developed to improve the understanding of the stories. Results from the first, fifth and ninth stories are used to demonstrate growth and change over time and also check to see if the strategies worked on were being internalized by Craig.

Each session was tape recorded then transcribed by myself to preserve confidentiality. The hand written transcriptions were given to a typist to put on the computer. The transcribed stories and discussions resulted in 215 single-spaced pages of information. I made very few notes while the sessions were taking place. I would jot down key words about experiences I wanted to discuss or vocabulary that might need clarification. After the session, I would record my feeling or things I had noted during the session. I reviewed the sessions to aid in the development and evaluation of the strategies I was using. Strategies worked on in the reading sessions were discussed with Craig's parents and teachers, to see if the strategies were being generalized from the one-on-one sessions then used at home and at school in the regular classroom.

Key

Examples of the stories are presented. Words that I spoke are in regular type and words that Craig spoke are in italics. A star,*, will be used to show pauses. Each star represents one second. For longer periods of time, the seconds will be stated using brackets. Underlined words will show that the word was emphasized.

Story Summaries

The first book Balto (Standiford, N., 1989) was about a sled dog. The story is about children who get sick with diphtheria in a frontier town at Nome Alaska. Their medicine is shipped out on the train but when the train becomes stuck, a dog team relay was set up to get the medicine to the sick children. Along the way, many things happen to slow down and hinder the delivery.

Dust for Dinner (Turner, A., 1995) was the fifth book we read. It is a fictional story about a family who suffer through three years of drought and dust storms which force them to have an auction sale and sell off most of their possessions. The family then travels west to California, living in a tent or out of the truck and finding jobs as they proceed. They finally reach California and the dad gets a job so the family is finally able to find a house to live in again.

The ninth story, Dinosaurs Before Dark, (Osborne, M., 1992) is a story about two children who find a tree house full of books. The boy, Jack, is looking through a dinosaur book when he wishes he could see this particular dinosaur. His wish comes true as the children are carried back into time where they encounter several different dinosaurs, some friendly, some not so friendly. Jack is able to wish them back to where their journey began just as the tyrannosaurus rex is smashing the side of the tree house that they are in.

A complete list of the books used in this study is in Appendix A.

Chapter 4: Findings

The findings of this research are organized and presented according to the seven major teaching strategies used throughout the study. This method of organization has been used to facilitate the use of these strategies in teaching other struggling readers.

Discussions

Each of the three stories was quite different in terms of context, but our discussions revealed that Craig had prior knowledge about each topic. The discussions were used to connect his background knowledge with the stories to make them easier to relate to and remember. Johnston and Pearson (1982) and Langer (1981, 1984) have found that prior knowledge is a powerful influence on comprehension. This is why discussion is the first strategy worked on with each story.

Discussions were used to activate prior knowledge about the topic before the text was read. Discussion was used throughout each story to relate story events to personal experiences, to predict and explain the reason for the prediction, as well as to clarify and make vocabulary meaningful. Johnson, Pittelman and Heimlich (1986) found that by activating prior knowledge of a topic, readers are better able to understand, assimilate and evaluate the information in material that they will read. Before reading Balto, I asked Craig if he had any experience with dog sleds. He replied that he did not. Since he had never seen sled dogs, but had horses at home that pull a wagon or sleigh, I used this comparison to help him relate to the story. I compared harnessing of the dogs to his experience with the horses. In the example following, I will show how the ideas in the initial discussion are continually reviewed throughout the book. The comparison of a horse team to a dog team are continually used.

Do you know anything about dog sled teams?

Not really.

But you do have teams at home right?

Nope.

Don't you have horse teams?

Yah.

Okay, so when you hook up your horse teams, what do you have to do?

You have to hook them up.

So what do you do when you hook them up?

Then you get on the wagon.

Okay, first of all you have to catch the horse.

Um hm.

After you catch the horse what do you have to do?

Harness em.

Okay what is your harness? What does that mean when you say harness them?

What do you have to do with the harness?

Put it on the horses.

Do you think a dog team would be similar to that?

Um hm.

How many dogs do you think would be in a dog team?

Sometimes one, two, * * *six. (*a * indicates a one second pause)

Would you ever have that many horses in a team?

Um hm sometimes.

In this initial discussion, I did most of the talking and directing of the conversation. In later stories, less directing was needed and Craig's answers were longer.

Later in the story, I used discussion about his experience with horses to help him create a visual image and relate his experiences to the story.

Notice the harness on this dog (referring to the picture on page 21). Have you ever seen a dog harness before?

Um hm.

Do you have one?

Nope.

Where have you seen a dog harness?

In town.

You can see how this harness goes. Is it similar to a horse harness? Does it go around their neck and across their chest and then back over their back?

Yep.

So it's quite similar except it's smaller for the dogs and does it just have one line coming back?

No, it has two lugs.

Okay and are they across his back or where are they at?

There's one right there (points to the side of the dog). It's clipped on and one on the other side.

So one on each side.

Yep.

So this harness is going to be a little different then because it just has one coming back.

Um hm.

Pearson and Johnson (1978) found that reading comprehension occurs when the reader is able to interpret what the author says and relate it to what the reader already knows. Although I was directing our discussions to this point, it appears that our discussions were meeting Pearson and Johnson's criteria for developing comprehension.

Later in the story, discussion was used again to help Craig relate the story about Balto to his own experiences.

Have you ever taken your horse teams out in the winter time?

Um hm.

Have you driven them yourself?

Um hm.

As you are driving the team along, what are some of the things that can happen?

Get spooked by some of the spruce grouse that we have.

Do you think that will happen in this story?

Um no.

Why?

**** um *** I don't see very much *** spruce trees.*

In the story Dust for Dinner, the family is having an auction before they move to California. I compared the farm auction in the story to farm auctions Craig had been to. By activating the schema about auctions, Craig's mind should be able to instantly bring forth what he has experienced about auctions (Anderson, 1984).

Have you ever been to a farm auction?

** *um yes.*

What kinds of things do they do at an auction?

*Um they sell the barn and sheds and ** some of their machinery.*

What's happening while they're selling, or what are the people doing while they're there?

*** *um they're bidding.*

Have you been to lots of auctions or just a few of them?

Lots.

When you go to an auction, what's the first thing you guys do when you get there?

*We look around and sometimes we get ** little numbers on them.*

Why do you need a number?

So they can write you down if yuh bid the highest.

What happens when you're bidding?

*** *um ** um we bid against other people.*

Okay so you're going to say how much money you're

Um hm.

Going to pay for something.

After reading about the auction in the text, I asked,

Is that kinda what an auction is like that you've been to?

No.

How is that different?

** *well they load up the cows and* **

Rather than what?

Leading them.

Anything else that's different?

Again I was relating personal experiences to events that happened in the story to make the story more realistic and easier for Craig to identify with. The differences between his experiences and the story can be developed once he has an understanding of the event taking place. Another example of this is later in the story.

What other things do you think the kids could help with on the farm?

Clean them (the chickens) out.

They might, anything else?

Help Momma.

What other chores or jobs do you have at home?

** um ** getting wood.

Anything else?

**** *helping my Dad feed cows.*

Personal experience helps him predict what may happen next.

To help with story character identification, I often asked Craig how the characters felt and how he knew they felt a particular way. I used character identification whenever possible to make the characters more real and easier to identify with. I used such questions as "How is the man feeling? Anything else? Why do you think he'd be lonely?" I wanted to relate the auction back to the characters in the story. I used emotion to help Craig identify with the characters.

Okay so these people are going to have to sell their farm in an auction. Looking at the Dad there, (page 23) how's he feeling?

Sad.

Why?

He's losing his farm.

What about the other members of the family? What do you think they're feeling?

Sad too.

In your mind are you picturing them sitting around the table

Um hm.

Talking, feeling sad. They don't want this auction to happen. But there's no money so they need to have it happen.

Feelings were again discussed as the family is loading up the truck.

How's the family feeling on this page?

*Um ** sad and happy.*

How can you be feeling happy and sad?

You're sad because you're leaving the farm but you're happy because there's no dust.

How do you know they're happy?

Um, they're singing.

Throughout this story we had been discussing the feelings of the different members of the family. Craig's ability to identify with the feelings of people may have caused this answer which contrasts feelings.

The usefulness of relating the story to personal experiences to make it more meaningful for Craig and easier for him to identify with, was shown at the end of this story. I asked Craig to pick out the most exciting thing that happened in the story and found that this event could be connected to an experience that he had had.

Now if someone said to you, "Craig pick out the most exciting thing that happened in the story", what would you say?

*Um *** where they celebrated.*

Okay why?

*Um it was fun ** um **** they celebrated with cookies.*

Have you ever celebrated something with cookies?

Um hm.

What?

Um when we're done haying.

Did you just have cookies or did you have something else?

Cake and cookies and coffee.

I knew Craig had studied dinosaurs in grade one and at that time he had been quite interested in learning about them. Before reading Dinosaurs Before Dark, I wanted to activate the schema and check prior knowledge to find out what he remembered or knew about dinosaurs so I said,

What do you know about pteradycles? Check your background knowledge, what do you know about

*Mm, ** bit, they fly.*

Okay.

They're pretty big birds.

Later in the story, Dinosaurs Before Dark, discussion was used as I attempted to make the story more meaningful to him by taking an event in the story and relating it to his experience.

How do you know if an animal spots you?

** *looks at you.*

Okay anything else?

Sometimes runs away.

Let's say you're walking around by the barnyard and the horses spot you. They'll look at you. Do they do anything while they are looking at you?

No ***

Do they perk up their ears?

**yes.*

Okay they kinda stand up towards you and they kinda stare at you don't they?

Um hm.

That's how they knew the triceratops had spotted them.

At one point in Dinosaurs Before Dark, Craig could not figure out why something was happening so I connected it to his experience to help him understand and clarify the meaning.

Did you learn anything important on that page?

*Nno *** not really.*

There was something.

*Well if a dog comes, bow your head and pretend to eat,** chew.*

Okay why would that be?

**I don't know.*

Are you a threat to them if you're busy eating?

**** no.*

Have you ever tried to stalk deer or go catch horses and instead of just trying to walk up to em, you pretend that you're ignoring them?

**** um hm.*

What kind of things would you do?

*** just walk towards em slowly.*

Are you looking at em at all?

No.

Where are you looking?

*** somewhere else.*

Do you walk straight towards them or do you just kinda angle towards them?

Angle.

So you're just kinda out walking, pretending you're just walking not interested in them at all?

*** um hm.*

And then just slowly work your way towards them.

Um hm.

I think that is what Jack is trying to get them to do here.

Kayp.

I moved from the text to experiences then back to the text to help him relate to the story as well as provide the visual imagery needed for the movie.

Throughout the eleven stories, discussion of the story events and relating these events to experiences Craig had, then connecting this activated schema back to the text, was continually used. The use of story pictures was a visual cue combined with the verbal discussion to relate and connect experiences to text for predicting, checking, clarifying and visualizing. Gambrell and Jawitz (1993) found this strategy of using text illustrations and mental images to produce the best recall of the text read.

Semantic Mapping

A semantic map or web was made after we discussed the topic using both the story title and picture to stimulate background knowledge. It was a visual tool to guide discussion and prediction, and to help categorize the plot, characters and setting. The discussion of the title and picture helped to build the three parts of the semantic map dealt with for each story. The plot, setting and characters were used in the semantic map each time. Vocabulary was occasionally used with the discussion but often added to the map as the story we were reading developed. The reason I chose the setting, plot and characters for the map was that they are the necessary parts of a story. The setting would help to set the frame work for Craig to remember and identify with the story. The characters and plot were related to his experiences where possible.

In Balto, I asked

Now what do you think will happen in this story?

*Um *** it's about a race. He might win or lose.*

If there's a race, what do you think will happen in the race?

Some people could freeze.

Okay so some people are going to freeze maybe, anything else?

*Um **** not that I can picture in my mind.*

Now if there isn't a race, what else might happen in the story?

He might just be having a trip someplace.

Where might he be going on a trip to?

*Um ** to his cousins.*

Okay, now what might happen on that trip?

*Hm ** a big grizzly bear comes in front.*

These predictions were recorded on the map for future reference (see Appendix B).

The semantic map was reviewed throughout the story and either added to or changed as information was discovered in the story. For example in Balto,

We'll just continue with this thing you made last time, the web. You talked about the trip to the cousin's, has there been a trip yet?

No.

Has there been a grizzly bear that they've come along on the trip yet?

Nope.

Have they had a race yet?

Nope.

Do you think there's going to be a trip or a race yet?

**** not really a race.*

No? Okay do you want to clarify that? What do you mean by that? You said not really a race.

*They're not going to race each other but they might *** um not sure.*

Do we have some people freezing?

No.

Not yet. Has there been between 6 and 12 dogs?

Yes.

Okay so you've got some of these so far. Do you think there's any new predictions? What do you think is going to happen in the rest of the story?

Um dog might die.

Dog might die, okay. Let's add this here (to the map). A dog might die (said as writing). Anything else?

They might meet some new people.

Kay.

They might go on for the medicine too.

Who, who is they?

The new ones, the other ones.

So the new people will go for the medicine too?

Maybe.

Kay, that's okay. Guesses are fine. It doesn't matter if they're right or wrong. They just get your brain thinking about what's going to happen. Anything else that you think might happen in there?

Um some people might get new dogs.

Okay so there might be new dogs that are needed.

More dogs.

Okay, new dogs or more dogs. Anything else?

Uh ***

Do you think there might be any dangers in there?

Yes.

What kind of dangers could there be?

Wolves maybe.

What might happen with the wolves?

*They might attack *** the dogs.*

So what do you think is going to happen when the medicine gets there?

They're all going to have a meeting and the guy who went the farthest might get some money.

Do you have any more guesses or should we start reading?

***** *there might be a dog that falls through the ice.*

Hm, okay.

And get back out.

Kay what makes you think that?

*Sometimes there's ** ice that's not quite frozen.*

Has that ever happened to you?

Um hm.

And have you had trouble getting back out or was it easy to get back out?

Trouble (followed by a little laugh).

So what did you do? How did you get back out?

My dad helped me out.

So you were with your dad at the time?

Yep.

And if this dog falls through the ice, how do you think he'll get back out.

Um Gunnar might pull him out.

Okay, so he would sorta be helping him out like your dad helped you out.

Um hm.

Predictions and thinking about the story led to a discussion about personal experiences and this was related back to the story. Throughout the sessions, this process was continually interwoven – predicting, checking predictions, discussing experiences and connecting the discussion about experiences to the story plot or characters. Then we would continue reading the story, explaining or discussing vocabulary and relating it to experiences, then relate this discussion back to the story. Recall and visual imagery were connected back to discussions and experiences. This was a continual process using the various strands at different times rather than using these strategies in a circular motion.

As we were building the semantic map for Dust For Supper, Craig was asked to write down three things that he thought were going to happen in the story. After he was finished writing, I asked him to explain why he chose these predictions (see Appendix E). I wanted to see what clues he used and how he related them to his experiences.

Now looking at the three predictions, are those predictions plot, setting or characters?

Um plot.

They might get dust for dinner, what do you mean by that?

Well, they might have a dust storm and then they might be able to drive there and they might have a dust storm.

Okay what gives you clues about that or where did you get that idea from?

*Um ** the title.*

They might have cows on the farm.

Um hm.

Why do you think it is going to be about a farm?

Um how they're dressed and the background.

Looking at their clothes, is it a story that would happen today?

No.

Why?

*Um ****

Why do you know that that's in the olden days?

*Where uh, their hats and ** their bonnets I guess.*

Okay so where do you think the setting is for this? You said it's going to be on a farm. Any idea what country or where it would be at?

Maybe Canada.

Could be, what part of Canada? Would it be around here?

** *southern.*

Why do you say southern?

It's hotter down there.

So if its hotter down there, what would that mean?

*Um * more dust storms.*

Any more clues that it might be down south?

There are a lot of cows.

Okay but we don't see any cows here although there is a fence. ** Is there any other clues in that picture that tell you it could be down south?

There's a windmill.

Why would they need a windmill?

Pump water.

Any other clues?

Mmm not very much trees.

Right, we have a lot of trees around here. Now what season is it?

Um fall.

Okay what gave you that idea?

The tree right there (points to the tree on the cover picture).

What's the clue that that's fall and not spring or summer or winter?

The tree's bare.

The discussion of Craig's predictions led to the activation of various schemata. Craig used very few pauses which indicates the information was easy to retrieve. The setting and characters were two components of the semantic web. To establish the setting, we looked at the book cover to find clues. Craig used the picture and his prior knowledge to develop a setting. Once the setting was established, we looked at the characters.

Now in here, what do you think's going to happen to these kids?

Mmm might get in a dust storm.

So are they close to the farm when that happens? Or where would they be at?

They might take a walk.

They would take a walk where?

*Um ** far away from the buildings maybe.*

Okay, so do you think the setting in here is just going to be around the farm?

Um, yah.

Now getting into the characters. Who do you think the characters are going to be?

Um maybe Bill.

Craig continued to give names to the girl and dog who were on the cover along with the boy. The setting and characters were placed on the semantic map (Appendix E). Then to see what other predictions he had, I asked,

Do you think there's going to be any other characters?

Um, the mom and dad.

Anybody, else?

*** *no.*

To make sure I had accessed all the information Craig had about dust storms, just before we left the semantic web and began reading the story, I asked Craig,

What do you know about dust storms?

* *um* * *they can do damage sometimes.*

Okay tell me about it, what kind of damage?

Do damage to your farm.

What would they do?

Your crops.

Okay what would happen? How would they damage them?

They would be so strong that it would sometimes blow over and stuff.

Blow what over?

*The hay ** and the grain.*

Okay, do you know anything else about a dust storm?

** *no, there's a lot of dust.*

Okay there is a lot of dust, right.

*** *um you get really dirty.*

Yah you would get that.

Um, I'm not sure.

From this discussion, I found out what Craig knew about dust storms. He was using the picture on the cover to draw clues from as he was establishing background information about the characters and setting, then applying his experience to fill in the missing parts of the story.

Later in the story, we reviewed the semantic map. I said, "Let's go through the map we made and see if we can add anything else or go through it and change anything." The story was reviewed as I read each of the parts of the semantic map and then Craig said whether or not certain events occurred or whether information we had discussed was incorrect and needed to be changed. Craig had written that there would have been cows on the farm. While reading the story, we found out the family had horses, sheep and a dog as well, so that was added to the map. Before any text was read, Craig had provided names for the boy and girl as well as the dog. We changed the names to the correct ones for the story. Once we had reviewed everything on the map, I asked,

Anything else that might happen?

***** *twister.*

Okay that's quite possible. It looks like it could be summertime and that's when twisters usually occur. Was there anything else?

*Um *** work for people.*

What kind of work do you think they'll finally get when they get to California?

*** *um maybe packaging some eggs or something.*

Would both Momma and Papa do this?

** *just Momma.*

What would the Dad do then?

*Hm ** might work on the farm.*

And what would the kids do?

*Um **** haul bales.*

These predictions about the jobs that the family members would have, probably resulted from schema activated earlier in our discussion about jobs that Craig's family do on his farm and how in his family different people have specific jobs or chores to do.

When we reached the ninth book, Dinosaurs Before Dark, I left the making of the semantic map up to him, just using questions to help him create ideas. I had a lot of trouble getting him to vocalize plot ideas for this story. This may have been due to fatigue and the time of the year which was just before Christmas break. As he was building the semantic map, I asked,

Dinosaurs Before Dark, what do you think it'll be about?

*** *uh *** I'm not sure.*

Okay take a guess. *** Think what the plot might include.

*********mm ** might be * dinosaurs * when the kids come from * school, they might see dinosaurs in their back yard.*

Once the semantic web was made (see Appendix F), I read the back of the book and we discussed what it said then added more information to the semantic web.

What is your setting?

Backyard.

Okay on the back it said they were going to be taken away so, where are they going to be taken away to?

Somewhere in the jungle.

Jungle might be a good guess. **** What do you think the monsters are going to be that they meet?

****** *dinosaurs.*

There's probably going to be some dinosaurs in here. Do you remember your dinosaurs at all? Which dinosaurs might they meet?

mm * tyrannosaurus rex.*

Okay **

*Stegosaurus **** lots of em.*

Do you think they're going to directly meet them *** or are they going to go talk to them? Or be close to them or

Be real close to them.

Throughout the story we would review the predictions and see if they were confirmed or changed. Craig sometimes used the semantic map to aid in his retelling.

The semantic map discussions, both in the initial creation and in the reviewing of it, involved discussion of the text events related to prior experiences then reexamining the text. The discussions appeared to help access Craig's schema of various experiences and knowledge and relate it to the story. The discussions also provided him with a framework to store the story information in a way that he could recall, retrieve and relate it to his own experiences. Manzone (1989) and Johnson, Pittelman & Heimlich (1986) state that semantic mapping improves comprehension by showing the relationship between ideas and characters in a visually graphic way.

Predicting

Predicting was a useful strategy throughout all the stories we read together. Anderson, Pichert and Shirey (1993) found that by activating prior knowledge and setting goals, a reader's schema begins working within a context or framework which enhances encoding (the reading of the text) and retrieval (the recall of the story). We began to use predicting while making the semantic map, when Craig guessed at the characters, plot and setting. Prediction was connected to experiences, too. These predictions provided the framework for Craig's schema to be organized. For example, some predicting was done by asking Craig in the Balto story,

> "What are some of the things that can happen when you are driving a team of horses? Could the same thing happen with a dog sled team?"

Anderson (1984) discussed ideational scaffolding for assimilating text information as well as an orderly search of memory for details and sequencing. Ideational scaffolding occurs when an activated schemata is presented with some clues in the text. The clues linked to the experience the reader has, allows the reader to predict what will happen

next. Prior knowledge is compared to text information to provide an educated guess based on the information given.

Sometimes, while predicting what was going to happen, I would have Craig explain his reasoning for the guess.

What do you think's going to happen?

They might slide off the track.

Why did you guess that?

Because it's icy.

Could be, it talked about ice already didn't it?

Um hm, snow and ice.

If it slides off the tracks, then what is going to do?

Nothing, well they can't do anything.

So what do you think is going to happen in the rest of the story if they go off the tracks?

They could die too.

Maybe, do you think the medicine is ever going to get there?

Yes.

How?

Maybe that one team of dogs will come and see what they're up to, and climb up on the train.

Examining chapter titles, along with discussion, were also used for predicting clues. In Dust For Dinner, I said,

Chapter two is called?

** *Sold.*

What do you think is sold?

Um, the house.

Why would they have to sell the house?

Because the house, the dust storm went, could go through it and stuff and the barn maybe.

Okay ** and so if the dust goes through it, they'd want to sell the house?

***maybe.*

Can you think of anything else that might be sold?

*Um, * maybe a cow or a horse or ** the dog or sheep.*

The word "Sold" in this chapter title appeared to open the schema for things that could be sold and why. Our discussion showed that Craig's background knowledge led to predictions. Craig then focused on the story to see if the predictions were correct as the events in the chapter unfolded.

When Craig seemed unable to predict some of the things that might happen on the trip to California in Dust For Dinner, I connected the trip to California with a long trip that he had had.

What else do you think is going to happen on their trip to California?

****** *(no answer given)*

Take a guess. What do you think might happen?

*Um **** I'm not sure.*

Have you ever been on a long trip?

** *yah.*

What are some of the things that happened to you on a long trip?

*** *mmm.*

What are some of the things you did on the trip?

** *we bought stuff. We bought food *** and coffee and *** we saw antelope.*

We briefly discussed that the family in the story had very little money so they wouldn't be buying unnecessary things, then I asked,

Now what kind of trouble or problems do you think they might run into?

*** *truck might run out of gas.*

Good for you, anything else?

*Mmm *** wheel might pop.*

If they run out of gas, what do you think they're going to do?

*I don't know (scrunched together) ** walk to someone's house.*

And then what?

Ask them for gas.

Are they going to have money to pay for it?

No.

So what would they have to do then?

They'd work for them.

That's possible. What about if their tire breaks down or pops, they get a flat tire?

Um.

What would they have to do then?

** *maybe go ask somebody for work for them for a couple of weeks.*

He was able to come up with more ideas when his experiences were associated with the story. Running out of gas and having a wheel pop (go flat) could be considered prior experiences or background knowledge.

Pictures were also used to aid in the predicting. On page twenty-four of Balto, we were looking at the picture and predicting before reading. The picture shows a person walking ahead of a dog team with ropes or a harness crisscrossed across his chest. The harness leads back to the dog team. It is snowing heavily.

We have something different happening.

** *a dog might have died.*

Why do you say that?

Because he's up there pushing, pulling too.

Another example of activating prior knowledge to explain a prediction was,

So what's the weather like?

It's cold.

How do you know?

It could be cold because he's wrapping it (the medicine) in fur, and he doesn't want it to freeze.

Craig used his background knowledge about needing to wrap liquids to help retain their heat and not allow the cold to penetrate as quickly, to develop the setting for the story and allow him to identify with the event.

By the time we began the ninth book, Dinosaurs Before Dark, I wanted Craig to be predicting on his own and checking his predictions throughout the entire story. To

check to see if this strategy was being internalized, when he read the title of the first chapter, I asked,

Did you think about the title after you read it?

** *um hm* **

What was your thought? What did you think about?

** *in the woods, * like deep in the woods.*

Okay so that was your thought, deep in the woods. Did the picture help you with that?

*Mm a little ** sort of.*

What I've been trying to get you to do is when you start something or go into a story, think about what it is that's going to happen. Now when you read a title, titles usually tell you what's going to happen in there. So something should happen in the woods or they need to go into the woods for some reason. So what do you think's going to happen on that page?

um * *might be dinosaurs in there.*

Okay, go ahead, read the page, see if your prediction is right. Think about what the page is telling you.

As well as internalizing the predicting process, I wanted Craig to check his predictions then make new ones. This began early in the first story, Balto, with me saying to him, "As we're going through the story we're going to check to see if these guesses (predictions from the semantic map) are right." Internalizing this cyclical process would keep the brain continually focused (Pearson & Spiro, 1981) and keep Craig actively involved in recalling and remembering the story which would result in improved reading

comprehension. To check his predictions, I said, "So go ahead, read the page, see if your prediction was right." In Dinosaurs Before Dark, the children saw a rope ladder in the forest. I asked,

What did that page tell you?

*Um ** nothing really.*

Except for the last line.

** *that there was a ** rope ladder.*

Okay ** so what do your thoughts say?

Tree house.

Could be. Are they going to ignore the rope ladder or are they going to climb up it or are they going to pull on it or what are they going to do?

They're going to climb up it.

Go ahead and see.

Craig's inferring that the rope ladder led to a tree house and that the children were going to climb it proved correct. The inference led to a new prediction.

Sometimes I would ask Craig to explain why he predicted as he did. In Dinosaurs Before Dark, Jack had to make a decision about what he was going to do next.

Okay he's looking at his options isn't he? ** What did he choose to do? ** If you were him, would you just choose to wait?

Yes.

Why?

*Cause I wouldn't want to ** I wouldn't want him (tyrannosaurus rex) to chase me.*

Throughout the stories we read, Craig had been continually asked to predict what he thought might happen, then check to see if the predictions did occur. I encouraged prediction saying that it is never wrong. Perhaps your guess does not agree with what the author has written, but it helps the brain think and remember better. To help Craig internalize the predicting strategy, I asked him if he knew why I kept asking him to predict.

> Do you know why I keep asking you what you think is going to happen, or why this would be?
>
> *I don't know.*
>
> It's to get your brain thinking ** because when your brain is starting to think about what's happening, it remembers things a lot better, it understands things better.
>
> *** *kay.*
>
> So that's why I keep asking you questions all the time. Just to get your brain so when it's reading ** it's always thinking ahead. Always asking questions.

Flaro (1987) discusses how some students may not understand a process until it is explained to them and they know what to do and why they are doing it. I explained the strategy to him in detail and provided the reasons for using it. I had been telling him this since the beginning of the first story, but until this time, I may not have been clear as to why he should predict.

I used my knowledge of story patterns to give him examples of story foreshadowing that he could use for future predictions. In Dinosaurs Before Dark, I said,

I know this is a make believe story and ** thinking about what the back (cover) said, ** when I heard you read that, you know what I started thinking about?

What?

"The wind began to blow." ** sometimes when stories move from a real story into make believe or jump into something else, something happens. ** Either a big wind starts or something starts to whirl around ** something changes ** and I just wondered when you read that, if that's what it is going to be. * The wind began to blow so suddenly. ** They were going to become part of the pteranodon's world.

Predicting was a teaching strategy used throughout each story. It began with the semantic map and ended on the last page of the story. Predicting, thinking about where the prediction came from, then checking to see if the prediction was correct or if the information had to be modified before the next prediction was made, was a process I wanted Craig to internalize. Research has shown that good readers do these things (Johnson, Pittelman & Heimlich, 1986).

Inferencing

Inferencing, tied to experience was also used to help Craig develop comprehension skills to be used in reading. Inferencing allows the reader to fill in the information the author does not include in order to complete or flesh out the story. This is done using the reader's own experiences. This allows each reader to relate to the story slightly differently. Anderson (1984) states that details for a schema are based on explicit information, and other times with slot-filling inferences. An example of this is in the

Balto story. There is a blizzard in the story and Gunnar, Balto's master, cannot see the trail.

So how would he (Balto) know if he can't see?

*** *he might have memorized it or* ***

Do dogs use anything else to find their way?

Scent."

Craig knew from experience that dogs use scent to help them trail things or find their way. The author did not say how Balto knew the way, therefore, Craig used his own experiences to infer the answer.

Craig's ability to infer meaning was also demonstrated in the story Dust For Dinner. The sand was blowing around in the dust storm. The children were huddled together in the house with Momma. I asked, "Do you know why Momma gave them (the children) a wet cloth to put over their faces?" Without hesitation, Craig replied, "*So that the sand wouldn't get through.*"

Later Craig used inferencing to figure out what the title, Dust for Dinner, meant.

Did they have a storm?

Yes.

What kind?

Dust.

Did they get to eat dust for dinner?

Um hm.

What did that mean when they had dust for dinner?

*There was a dust storm * and um * there was dust coming all over and they got it in their mouths.*

Inferencing had been used to help create visual images of the events in the story but it was also used in Dust For Dinner to help establish the mood of the people. Craig had trouble figuring out the mood so I helped him establish it, as can be seen in the following exchanges.

Why do you think Momma said that?

**um they liked the radio and they liked dancing to it.*

How come they weren't doing very much dancing any more?

It was too hot and not very much rain.

I don't know if it was any hotter, there wasn't very much rain, you're right.

There were dust storms.

But why weren't they playing it?** And why weren't they dancing?

Forget.

It didn't tell you exactly in there. It gives you clues.

*Um hm ** I'm not sure.*

When the story started, how was the family feeling?

** *happy.*

You're happy and usually when you're happy, you like to dance and you play around and have fun.

Um hm.

Is the family feeling happy now?

No.

If you're not happy, you probably don't want to dance and have fun do you?

Um hm.

And that's probably why they haven't been dancing very much.

Craig used inferencing to aid him in figuring out feelings too. When asked,

Why would they (Momma and Papa) look worried?

Um they might not get another job.

He was using the information in the story about the parents having a hard time getting work to aid his inferencing. This may have also been based on personal experience.

Later in this story inferencing was used again. The family was beginning to pack up the truck for their move to California.

Think about it. If you're going to be going some place, what are some things you're going to need to take with you?

** *um* ** *your stuff.*

Okay be specific. What do you mean your stuff?

Um.

How would you know what to leave behind and what to take?

** *your important stuff.*

What do you mean by important stuff?

Like if one of your great Grammas and Grampas left something for you, you keep it.

In the story, nothing was mentioned about the exact items that were taken or left behind. Nonetheless, heirlooms or things given to you by grandparents were considered important stuff to Craig.

Craig's knowledge of how different jobs are performed by certain people in a family helped him infer later in the story. At another point in the story I asked him,

Where was Momma helping?

In the house.

What kinds of things would she be doing?

Cleaning the house.

Okay, so what kinds of things would she be doing?

Um washing the windows.

Okay what else?

Um washing the floor.

Anything else?

** *washing dishes.*

Now when Papa's in the orchard, what do you think he's going to be doing in there?

*** *um * maybe pick some berries.*

Okay anything else that would have to be done in an orchard?

**** cut the lawn.

Craig gave quick answers about Momma's job of working in the house because he was familiar with these jobs. He paused more when describing Papa's job. He appeared less familiar with the jobs done in an orchard. He may have used some discussion ideas about what an orchard was and things in it and what he knew about orchards to infer what Papa might do.

An example in Dinosaurs Before Dark, when I was checking for inferencing, I asked, "Why'd he put a question mark after small brain? *He's wondering if it is".* It was obvious that he knew the meaning. Then to continue to connect the information, I asked, "… so what kind of person would take notes about animals and stuff? *Scientist."*

Inferring meaning and predicting are connected. Realistic predictions may just be based on the story information but the prediction may be inferred from the story event and prior experience. Both predicting and inferring meaning can be closely connected and can even overlap without the reader being aware of which process is being used.

Working with Vocabulary

Vocabulary was discussed immediately following the page where a particular word was found. Sometimes I stopped Craig's reading of the page of text to explain a word using an experience he had had or to be sure he knew the meaning of a word so the rest of the page was more meaningful. An example of this is in Dinosaurs Before Dark when he came to a page full of print. I had been encouraging Craig to keep the visualizing process going as he was reading. To check this part way down a page I asked him,

What does it mean "Annie nudged him?"

** *pushed him.*

Yah, if you kinda nudge someone, you're pushing on them, * not real hard. Okay keep reading.

I wanted to be sure that he had the picture of this word in his mind.

Sometimes vocabulary words were put on the semantic map when it was being made. This was done if I felt that the direct teaching of specific vocabulary would help

comprehension. Beck and McKeown (1991) found that students acquire vocabulary knowledge through a wide variety of reading, but they may profit from direct instruction in vocabulary. Explaining the meaning of a word in the context of a particular event in the story, seemed to make it more meaningful. Nagy and Herman (1987) found that words taught in meaningful context that conveyed the particular meaning relevant to the text, would result in a greater overall growth in vocabulary and comprehension. Furthermore, Nagy and Herman taught vocabulary by relating it to the student's prior knowledge.

Here is an example of how the new vocabulary was connected to experiences. In Balto, the runners on the dog sled were compared to the skis on the horse drawn sleigh. In another example from this story, I used a comparison between a dog sled relay and a track and field relay at school to show the meaning of relay race.

Do you know what a relay is?

Nope.

Have you ever seen a relay? You remember, at track meet day, at the end of the day when there are four kids that are running. And they have that stick they have to hand to another person. That's called a relay race. Now if they're going to have a dog team relay, what do you think that's going to be like?

Almost the same thing.

Okay, can you explain it to me? What do you think is going to happen there?

That one team will travel behind them more, I'm not sure.

No idea what it'd be like?

No.

Rather then pursue the concept of a relay here, I waited until we were further into the story before referring back to the school track meet relay race. Craig was retelling the story.

Okay when we left off last time, in the story, what had happened?

They had a meeting.

Okay, what did they decide at the meeting?

That they're going to have a relay.(Craig used the word in his retelling)

Do you remember what relay meant? What was it?

*It was when *** when the ***I forgot.*

Remember we discussed what a relay was, they have it at the track meet.

If somebody got tired they would go and another person got tired, they would go.

Okay, how would they know when the next person was supposed to go?

*****not sure.*

Remember the relays we talked about at the track meet. How does the next runner know when to go?

They hand the pole to them.

Okay, do you think they'll do that with the dog sleds?

*Um ** yah.*

I referred back to our previous discussion to aid recall, then added more information to help create a picture of the meaning. Then I moved from the example of the school track meet back to the story and the dog sled relay.

Another way of explaining vocabulary that I used, was to relate an unknown word to Craig's experiences. In Dinosaurs Before Dark, I asked Craig,

What does that mean, he loped off.

*** *he ran off.*

What kind of run is a lope?

Mm **

Do you have any animals that lope?

Um hm.

What?

Horses.

And how is that compared to other ways of moving?

*** *it's not* **** *mm* * *I don't know.*

Is it faster or slower than a walk?

*** *it's faster than a walk.*

Is a lope faster or slower than a trot?

Faster.

And so is it faster or slower than a gallop?

*** *I'm not sure* *** *um* *** *it's faster I think..*

Actually it's slower. It's like a real slow gallop.

Later in the story I asked Craig,

Do you remember what loping meant?

Um hm.

What?

Sorta running.

Craig recalled the meaning and explained it in his own words.

In Balto, diptheria is a disease that some of the children in the frontier town contracted. I explained the word by comparing it to other life threatening diseases.

Have you ever heard of diptheria before?

No.

Do you know any serious diseases where if people get them they might die?

No, not really.

Do you know anybody close to you who has died?

Um hm.

Who was it?

My Grandpa and my Grandma or my aunt.

What did they die from?

Old age.

Both of them?

Well my Grandpa had cancer in his leg.

And was there any medicine they could give him to get rid of that?

Um, no.

Have you ever been sick and had to get medicine to make you better?

Um hm.

So you know what it's like then.

In Dust for Dinner, the family is going west to California in the early 1900s. We had been discussing the food they would take with them. Craig was having trouble figuring out what they could take that didn't need a fridge or freezer to keep it from spoiling. To relate the food to something he was familiar with, I asked,

Do you know what dried meat is?

Beef jerky.

Have you ever dried meat at home, ** or made beef jerky?

Um hm.

Or jerky out of other things? What kind of jerky have you made at home?

Beef jerky.

Okay and have you done it yourself?

Um hm.

What do you do when you make jerky?

Well I cut little slices up then I put it in the dryer for a couple days.

And when you're done with it, where do you keep it?

In a jar.

So it doesn't have to be put in the fridge, it doesn't have to go in the freezer does it?

Another example still associated with food, had to do with bannock. Craig knew that you mixed the eggs, flour and water together but he didn't know the word for it.

What do you call that when you mix all those together?

Batter. **

What'd you do with the batter?

I don't know.

Once I provided the word bannock, the schema opened up.

Have you ever made bannock?

Yes.

What do you do with it once you've mixed it all up?

You let it set over, in somewhere. You don't make buns, but you can make buns, you make little sorta squares.

His own experience with bannock was associated with the story to make it more meaningful.

Phrases were also explained using comparisons. In Balto, the phrase 'racing against time' was not known to Craig. I explained it by using a comparison he had experienced.

Remember the doctor said that he figured it would take fifteen days to get there and he didn't know if there was enough time. Have you ever heard the expression –racing against time?

** *um hm.*

Do you know what that means?

* *it's trying to be timed.*

You've got to do it fast. Kinda like when dad is hauling trees out of the bush. Does he ever have to go across muskeg? ** (Craig nods) What about in the springtime when it starts to melt, can he go across it then? ** (Craig shakes his head negative) So in a way, whenever he has a bunch of trees to get out across that muskeg, he's gotta do it before it melts in the spring doesn't he? So he's racing against time. He's either gotta hurry up and get it done or they'll stay there until next winter. ** This is a similar situation. That medicine has to get there quickly otherwise it is going to be no good because the kids will die. That's what

they mean by the race is on. It's not that the people are racing against each other. It's a race against time.

This example took the phrase in the story, connected it to an experience Craig was familiar with, then referred back to the story. Craig now appeared to understand the meaning of the phrase and had connected it to a schema.

Expressions were also explained using experiences. In Dust For Dinner, I asked,

What does that mean if Momma just looked stern?

Um sad.

No.

Mad?

Using a stern face and voice I said, "Don't ask me that question again." Have Mom or Dad ever done that to you? They just kinda give you a look that says "Don't do that." Craig makes a stern face so he demonstrates understanding. He is able to relate to Momma. Then I asked,

Why do you think Momma did that?

Um she was feeling sad.

Why would she be feeling sad?

Um they didn't get a job, they don't have a job.

Craig appears to now visualize the situation for Momma and the children. In addition, he seems to feel the emotions and the reasons behind them.

As well as explaining words and phrases that Craig was unfamiliar with, I also checked to see if Craig knew what certain words meant. In Balto, I asked,

Why would he have that thing? (pointing to the whip in the picture)

To get them to go faster.

What is that thing?

It's a whip.

So would he hit the dogs with it or what would he do with it?

No, it makes a noise. A loud crack.

This way I knew that he knew the meaning of the word whip, as well as identify with what it does. I also asked him the meaning of words later in the story to see if he recalled the meaning.

In Dust For Dinner, I asked,

Do you know what you call it when there's no rain?

"** *a drought.*

Later in the story I asked,

You told me what the word drought meant. Do you remember what it was?

When there was no rain.

He also used the word in his retelling, both written and oral. Beck (1984) states that students develop networks of words and their relationships through repeated experiences with the word. Repeated use of the word develops ownership of the word not just its meaning. This ownership allows readers to relate the new word to their existing schema or develop new schema for that word.

Sometimes if a word's meaning was not clear, I clarified it. An example of this is in Dust For Dinner, when I asked,

Now what does a watchman do?

*Um * fixes watches.*

No actually not, that's a good guess though.

*Um ** watches out for bad guys.*

Yah. Watchmen usually work at a store whenever it is not open. They just keep wondering around and checking on things to make sure no one breaks in or steals anything or nothing goes wrong. That's why they call them watchmen because they have to watch things.

Another example arose in Dinosaurs Before Dark. I asked,

So what kind of dinosaur would he be if he's eating flowers off the tree?

It's not a meat eater, it's a carnivore.

Carnivore is a meat eater, so it won't be a carnivore.

*** *I forget what they're called.*

It's going to be one of the big plant eaters, or herbivores.

Craig was mixed up on what a plant eater was called so I provided the information. (Where he had used meat eater, I substituted carnivore). When he could not think of the word, I provided it.

I also used the reverse process where I gave him the meaning of a word and discovered if he could come up with the right word. An example from Dust for Dinner is when I asked,

Do you know another word that would describe the place where there isn't many trees and it's pretty flat?

Um, plains.

Um hm plains or a prairie. Either one of those would be right.

I expanded this definition by adding "Um hm plains or prairie." I inserted another word or added a synonym that he could add to this description.

In Dinosaurs Before Dark, I used the text word to see if Craig knew the meaning.

What part of the tree?

The bottom..

Right, do you remember what they called it in the story?

No.

They called it the base of the tree. The base is the bottom.

He used the word base in his retelling later.

Another example later in the story was when I asked,

What does it mean it vanished?

It extinct.

Right disappeared, it's gone.

I used other words to show that the one word may have several synonyms.

At another point in Dinosaurs Before Dark, I asked Craig to summarize the page then when he was done, I told him what this process was called.

Just quickly review the page, what happened on the page?

** *mm * Annie called out there's books, lots of books then* **

Um hm.

*** *Jack loved books so he pushed his glasses in place and he gripped the rope and he started, gripped the rope.*

That's right. That's a quick summary. Are you familiar with what a summary is?

No.

A summary basically is you take everything you've read, and in a sentence or two, just say the important things that happened. That's what you just gave me.

Vocabulary was explained in context using Craig's background knowledge to make the new words more meaningful to him. Later, I checked to see if he used the new word in his retelling. If he did, it demonstrates he had ownership of the word and had expanded his vocabulary. The meaning of certain words was checked by providing Craig with the definition and finding out if he could provide me with the word. Sometimes when I asked him for the meaning of a word and he showed that he knew the meaning of it, I added a different word or synonym to the word to expand his bank of words.

Visual Imagery

Visual imagery is the ability to create mental pictures while reading. Many researchers have found that teaching children to construct mental images as they read enhances their ability to understand, construct inferences, make predictions, and remember what they have read (Gambrell, 1981; Gambrell & Bales, 1986; Pressley, Borkowski & Johnson, 1989; Sadoski, 1983, 1985). Visual imagery or the "playing of the story movie" as it developed along with the text, was established as the first page of text was read or as the semantic web was being developed. Visual imagery was developed through the use of experiences, senses and pictures. This means that by looking at the setting for the story, for example, the framework for visual imagery was constructed. In our sessions, sometimes the setting was developed by looking at the pictures and discussing them. In Balto, I said,

Is it likely to be around here?

No.

Where do you think it is?

Up in the mountains.

Do you think it would be out by Nordegg out in the mountains? (Nordegg is a town close to the mountains in the area that we live in)

Up north.

Up north, why?

Cause up north it's colder and they have no trees.

Now looking at the picture, where is the story taking place? We talked about up north and the wintertime. Any guess where that would be?

Nope.

Does it look like a town we would have around here?

No.

Why?

Cause all the stuff is built of wood and it doesn't look like ours..

At another point in the story, I asked him, "How do you know it is cold?" He used the picture of what the man was wearing and his experience with cold weather to elaborate.

So what's the weather like?

It's cold.

How do you know?

It could be cold because he's wrapping it in fur.

Okay.

And he doesn't want it to freeze.

Kay, look at his clothing. Is there anything that tells you it is cold?

Um hm.

What?

He has beaver skin tucked in and he has a toque on.

Um hm.

*And ** wool ** fur boots.*

When trying to develop a time frame for the story, the story pictures were also used to aid discussion.

Now look at those pictures for a minute ** How is that different from things around here now?

*Um * don't have, ** some people don't have wood beds.*

Um hm *** there is something else.

They have that telephone.

Right, we don't have that kind any more do we?

Nope.

Craig used the picture and related it to his knowledge to place the setting in the "olden days". This phrase came up in our discussion. Now that the setting was established, Craig could use his knowledge about the "olden days" to help him create visual images of the story.

In Dust for Dinner, when we were discussing the title and book cover, I asked,

Why do you think it is going to be about a farm?

Um how they're dressed and the background.

Look at their clothes, is it a story that would happen today?

No.

Why?

*** *uh their hats and their bonnets I guess.*

Is this something a boy might wear now a days?

No.

What's different about it?

Craig had used the picture and his prior knowledge to develop a setting. The pictures were also used to check information about the setting. After reading the first page, Craig was asked to

Look around at the clues there, does it take place in Alberta?

*um *** maybe, maybe not.*

There's a clue in there that tells you it doesn't.

*** *there's no rows of trees.*

It's actually something in the picture.

** *the roads.*

No roads could be in Alberta, not having trees could be in Alberta.

***** *mailbox.*

Yah something to do with that mailbox.

Old.

We have old mailboxes around here too.

Um hm.

What does it say on that mailbox door?

*** *use mail.*

U.S. Mail.

Oh, U.S. Mail.

What does U.S. stand for?

** *United States.*

Picture clues are again used later in the story. When the pictures do not provide Craig with the clues I wanted, I use personal experience to develop story identification.

Now looking at the room there, why do you think they always listen to the radio?

*Um *** I'm not sure.*

At home do you listen to the radio very often?

Um, sorta.

What else do you listen to besides the radio?

The tv.

Do they have one there?

Here, no.

How come?

I can't see it and they didn't tell it.

To help develop a complete picture when visualizing, this discussion was used to take a mental image of prior experience and add it to the "story movie". Danko (1992) discusses the need for the researcher to model missing items so the subject can "see" as they are reading. Paivio (1991) stresses the importance of dual coding for improved recall. The language used will stimulate and activate the sequential side of the brain while the sensory image side will be developed wholistically. Both sides of the brain can be working together, yet separately, to have an additive effect on recall. Here is an example of this. In Balto, our discussion about horse teams and dog teams led to this visualizing.

Now when you've driven the team, what does it feel like when they start to run or to walk?

Nothing.

Can you remember what it feels like to be pulling on the reins when you have the horses?

Um hm.

Do you smell anything when you are out with the horses?

Yah, you smell horses.

What part of the horse are you smelling and exactly what are you smelling?

*** the sweat on their body? (When Craig was unable to provide a smell, I provide one I knew he was familiar with)

Um hm.

What kinds of things do you haul on the wagon when you have the horses?

Bales

Do you ever smell the hay?

Sometimes.

Now what about sounds? Do you hear different sounds when you're out with them?

Um hm.

What kinds of sounds?

Cows.

What are you hearing from the cows?

Mooing.

Now that he had been thinking about his horses and being out with them and using his senses to fill out the scene in his mind, I asked him to create this picture in his mind.

In your mind, ** I want you to see if you can picture a dog sled team *** with a man there. ** Do you know what that is he might have in his hand?

That's his little sleigh.

Okay that probably is his sleigh. Now do you think he's going to be on that sleigh or off it?

On it.

Is he sitting down, standing up, or laying down?

He's standing up.

Okay what part of the sleigh would he be standing up on?

Skis.

Do you have skies on the wagon that the horses pull?

Um hm for winter time and spring.

Can you picture this man on the back of the sleigh?

Um hm.

With the dogs pulling?

Um hm.

Can you feel ** what that would feel like? You know when the horses are pulling on the harness *** you know what it feels like on the reins.

Um hm.

Do you think it's going to feel the same for that man ** and the dogs?

No.

Why?

Because he isn't reining the same.

Do you ever hear the skies dragging on the snow?

Um hm.

Do you think he's going to hear the same sound?

Yes.

Why?

Because the sleigh has skies.

His experiences are directly connected to the story to create realistic pictures. The meaning of a text is not inherent in the print of the page, but in the experiences the reader brings to bear on the message (Paivio, 1991; Rosenblatt, 1985; & Sadoski, 1985).

As Craig was reading, I wanted him to see the "movie in his mind" of the story events and the characters. This was done two ways. The first way was to have him sequence the events in the story. I did this by reviewing the events with him in detail with descriptions and pauses to develop the film. Pictures in the story were used to help create the visual images. In Balto I said,

> What I need you to do is, in your mind, picture that train. Remember that train we had back here (turn to page 14 where the train is stuck in the snow). See that train. I need you to picture in your mind this man (Shannon points to Gunnar on page 22) ** coming there with his dog team. ** Now take the medicine off the train.** Wrap it in that fur, that beaver fur (Craig thought it probably would be beaver fur that they would use).
>
> *Um hm.*

Put it on your sled. Get your dogs ready *** take off down the trail *** Can you hear anything in your mind?

No.

What kind of sounds might you hear?

Um the train, if it's still running.

Okay so can you hear that? Do you know what a train sounds like when it is running? ** (Craig nods) Okay, any other sounds you might hear?

Um, them talking.

Okay so you'd hear voices. Good, anything else?

The dog's barking.

Okay sounds good.

**** *maybe when he's walking to the sled you might hear the snow crunching.*

I used the sounds and feel of the events discussed earlier to help create the visual image here. Sadoski, et al. (1991) states that words create images and images can evoke words.

As the sessions progressed, the number of references to sounds, pictures and feelings increased. With the first story, Balto, Craig found it easiest to just picture an event without fully developing the picture. Bales and Gambrell (1985) found that many students do not spontaneously use visual imagery as a comprehension strategy unless instructed to do so. This was true for Craig. For example, Craig's visual images would contain objects in isolation without a background, without sounds or without emotions in the characters. The train was just a picture. At first, he did not hear the sound of the train. He did not hear the crunching of the men's boots on the snow or the barking of the dogs. I used the look on his face as well as his verbal responses to let me know if he was able to

visualize the things I was describing. Sometimes he would be able to continue picturing visual images from the story using just the words in the text. I would check his visualization process by asking,

Have you been able to see that?

Sort of.

Okay what are you having trouble seeing?

*Mm *** the *** mm the *** when ** I don't really know *** the days and stuff.*

So you need a setting to put this in.

I now knew what I needed to add or how I had to fill out the details of the mental image for him. The pauses in Craig's answer showed that he was not able to develop a clear picture himself because it took a long time before he could explain what was missing.

The second way I aided the visualizing of the story was to add dimension to the picture and characters by using Craig's prior experiences. In Balto I asked,

As he gets that box off the train, what kinds of things can you hear?

****bottles shaking.*

Okay so you can hear those bottles shaking. He goes outside where his dogs and sleigh are. What kinds of things would you hear?

Um the dogs barking again.

Can you hear them barking?

**** um hm.*

Now do you hear any sound as he is wrapping this? (the box of medicine)

*** no.*

What about when he puts it on the sleigh?

*** *nope.*

Okay now he's ready to go, what would he say to his dogs?

Mush.

Can you hear that?

Um hm.

Can you feel the dogs take off with the sleigh? Can you feel what it is like when they go to take off?

Um hm.

You've ridden on the wagon whenever the horses are going, it doesn't ride real smooth does it? It's the same type of thing when he's on here. Can't you feel the movement as he's going down the trail?

***** um hm.

Later in the Balto story, the dog team fell into a snowdrift. Craig has fallen through snowdrifts himself and he was able to relate to the struggle needed to get the dogs out. I asked him what sounds he could hear when this happened.

What exactly happened here?

Snow drifts blew right in then the dogs sank.

Um hm.

And they were panicing but not Balto. Balto calmed them down.

What do you think Balto would do to calm them down?

He would just stand proudly.

What happens when the dogs panic? What do you think they did?

*Um ** yelped and * went crazy.*

Could be. So in your mind, can you picture them going along a trail?

Um hm.

Then falling in the snow. Have you ever seen dogs or have you ever fallen in a snowdrift?

Um hm.

You know what it's like trying to get out. The dogs were similar to that. So what would Gunnar and Balto have to do first?

*He'd have to dig one dog out and hook it up ** maybe.*

This led to more discussion which made it easy for Craig to visualize the scene and describe what would happen. The lack of pauses show that Craig appeared to find the picture easy to visualize. Another place in this same story where this happened was,

Now in your mind *** I want you to picture a setting *** with lots of snow.

Um hm.

Like you said, it's probably pretty cold *** and picture the dogs, harnessed up, taking tools and food to the mine. *** Can you picture that in your mind? Can you picture them coming back to town? ***

Um hm.

Can you hear the sounds? **** What kinds of sounds can you hear?

No not really.

No sounds? Can you hear the runners on the snow?

No.

Try it in your mind. Do you know what that sound is like? ** You've heard that with the horses.

Um hm.

Can you picture that in your mind now or think of that in your mind, that sound?

*** If you have a bunch of dogs together, what do dogs often do?

Play.

They might play. They might be barking or whining

Or fighting.

Or fighting. Can you hear them barking or making noises as they're going along?

Yes I can.

When Craig was unable to provide examples of sounds to his mental image, I referred back to a discussion we had about the sound of the horse sleigh's skis on the snow. Then I used the image of the dogs, to enhance and add dimension to the mental image. When he answered *or fighting*, I felt confident he could picture the scene and noted he added more details. He now appeared to have a wholistic picture complete with sounds and actions.

By the fifth story, Craig was developing the pictures in his mind including background and involving his senses and feelings. This wholistic picture allowed him to use his knowledge to make predictions about the story. Senses were also used to develop a more wholistic picture in Dust For Dinner.

As you're picturing this in your mind, what are you hearing?

* *cows bawling, the chickens clucking, and ewes calling for help and the dog howling.*

Okay, anything else?

Um **

Can you hear that wind blowing around you?

Um hm and I can hear meowing.

Okay can you feel anything.

** *um hm.*

What?

The wind is blowing at me.

Anything else?

Nope.

Is any sand being blown around?

Um hm, it's getting in my eyes.

Okay and how are you feeling?

***um scared.*

Why?

There's a dust storm.

Later in the story, this discussion took place.

Why did he want them to go to the house?

**um * so they'd get shelter.*

Look at the picture (page 16). ** Are they getting much protection in there (the house)?

No.

What are they doing in there?

Covering their faces.

They are getting stung by the sand outside because it is being blown around so much.

Um hm.

What's happening inside the house?

*** *um there's still dust.*

Do you think there's any chance that the house is going to blow away?

Maybe if the wind gets strong. Then it might be a tornado or something.

Craig had used the picture of dust in the air combined with a house blowing away to bring forth the word tornado. Later, he predicted that a twister may be in the story. Craig used his prior experience with blowing sand to know that it gets in your eyes and this can be a scary experience. He was able to carry this experience to another part of the story where I asked,

Do you know why Momma gave them a wet cloth to put over their faces?

So the sand wouldn't get through.

Later in the story Dust For Dinner I asked him,

In your mind, what kind of orchard is he in?

*Um *** there's sorta like a picket fence climbing up.*

What kind of fruit is growing in the orchard?

Cherries.

So there's a bunch of cherries*** are they in blossom or are there cherries on the tree?

Cherries on the tree.

So you can see a bunch of them?

Um hm.

Are they ready for picking yet?

** *um yes.*

So how do you think Papa's going to pick those cherries?

** *um by hand.*

So what does he put the cherries in when he picks them?

A bucket.

Plastic bucket, wooden bucket?

Wooden bucket.

What does he put the wooden bucket on?

** *he might have a strap around his shoulders.*

Does he have the bucket in front or on his back?

On his back.

Craig was able to fill out the picture with very little pausing to think.

Another example of using prior experiences to create a visual image and relate to the characters and events occurred in the story Dinosaurs Before Dark, when I asked,

When he was feeling the fuzzy skin, were you able to feel that or know what it'd feel like?

No, sort of.

What can you think of that would have fuzzy skin, that would be similar?

****** *squirrel.*

Craig's family traps animals so he was familiar with the feel of a squirrel hide.

Craig's strong use of feelings (emotions) when relating to the characters, was revealed in the Dinosaurs Before Dark story. We had been reviewing the story and working on creating visual images of the events when I said,

So he came over the hill, he sees the nest there and as his eyes are looking over the nests, what does he see?

*** *a dinosaur.*

What's the dinosaur doing?

*** *walking toward him.*

Okay and what is Annie doing?

****** *she's scared.*

Right she's feeling scared.

Mm she's crawling.

As noticed in the initial testing, sometimes Craig relates feeling before actions. Once he recognized the feeling experienced by one of the characters, he provided the action. It appears that he was aware of the action but it was secondary to identifying the emotion of being scared. He may have been able to relate to the character Annie in this situation, which may indicate he was visualizing successfully.

To help Craig internalize the visual imagery strategy in Dinosaurs Before Dark, after we had finished making the semantic web and just before reading of the story began, I said to Craig,

Okay before you start reading ** look at your setting.

Um hm.

Okay so that's where the movie needs to start ** and it's probably going to start with those characters (the ones on the book cover).

I had provided some clues but left the rest of the visual images and movie projection to him.

Story visualizing can be done from different perspectives. In Dinosaurs Before Dark, we were discussing visualizing the events,

Something happened on that page that made him want to hurry.

** *he saw tyrannosaurus rex.*

Yah, tyrannosaurus rex was coming towards him. But then tyrannosaurus rex did something on that page.

**** *looked at him?*

Nnno. Right here (points to the sentence on page 59). "Suddenly something slammed against the oak tree." Guess what it was?

Tyrannosaurus rex.

Probably, he's coming straight towards the tree house and then they hear a big slamming against the tree house. ** In your mind did you picture that happening?

** *um hm.*

So are you the tyrannosaurus rex that's slamming into the tree house or are you inside the tree house and feeling the tree house shaking as it's being slammed?

**** *inside the tree house.*

Okay so can you feel it shaking?

um hm.

Craig had chosen a character to identify with and through whose eyes the story was seen through.

I also checked to see if Craig was adding dimension to the mental picture he had by asking,

So you have Annie, what's she doing?

**** *she was looking ** at the, she was wondering.*

And then she starts to do what?

Screams.

He grabs his backpack. He hears Annie shriek "AH (said in a loud shrieking voice), can you hear that?

Um hm.

How's he feeling when he hears that?

*** *scared.*

Later I asked,

What was the picture that's running through your mind?

In this meadows, down there's slopes and not very much trees and volcanoes. And then he was looking at pteranodon, then looking back at the tyrannosaurus rex, then he said "Okay I'll do it." And then climbed on.

An example that shows that Craig was internalizing the strategy of relating the text to his own experiences then back to the text to aid visual imagery and recall in Dinosaurs Before Dark,

What can you hear while he's running over there?

*** *his foot steps.*

Okay anything else?

** *grass.*

Grass what?

** *coming ** to grass *** when he's **** well when you're running through the tall grass.*

Craig had switched from what Jack was doing in the story, to something Craig has done. He used his own experience to fill out the picture. This showed up later in the same story,

What's he going to do?

** *he's going to **** maybe trick him some how.*

How would you trick tyrannosaurus rex?

*I don't know. Throw a stick somewhere where ** he isn't going ** then run ** So* what would throwing the stick do?

** *make a sound over ** where Jack wasn't."*

Craig had used this trick himself to fool others. He used his experience to predict and help him visualize the story.

I also used information he had provided in other stories to use as examples. In Dinosaurs Before Dark, I asked,

Can you picture in your mind a tree that has … flowers hanging from it?

Um hm.

A tree that's in blossom such as a cherry tree or an apple tree.

Craig had talked about cherry trees in Dust for Dinner.

Another example of where I used my prior knowledge of Craig and his family to aid Craig in creating visual images of the story, was at a ballgame that I attended. Craig

was playing with his little sister. She was teasing him, then running away, so he would chase her. So when Jack's little sister was evading him in Dinosaurs Before Dark, I used this example so Craig would be able to visualize the scene.

> He grabs at her but he doesn't get her. So she jumps away. Kinda like when you play with your sister and you're trying to get ahold of her and she doesn't want you to. Okay, she kinda laughs at you, runs away, moves away and falls right in sight of the triceratops.

I used Craig's experience with his little sister that I had witnessed, to clarify the picture for him.

Visual images of the story are developed through the use of personal experiences, picture, senses and emotions and character identification. Craig created a visual picture of the story events or a movie in his mind as he was reading the text. I helped him to develop a wholistic picture complete with sounds, smells and emotions. These visual images helped Craig to recall the story in greater detail and improved his reading comprehension. Paivio (1983) and Sadoski, Paivio & Goetz (1991) state that verbal and nonverbal information is represented in distinct, but interconnected, mental systems. Information in the verbal system is organized sequentially while the nonverbal system is organized using holistic sets of information (such as images). Gambrell and Jawitz (1993) found that when readers combine the two strategies of reading aloud and creating visual images, comprehension is enhanced.

Retelling

Before Craig began oral or written retelling of the story, I would remind him to create the visual images. "As you retell me the story, I want you to keep that movie going

in your head so you can remember everything that happened." Another way of wording this retelling was, "I just want you to get that movie going in your head, just like you were watching it." Craig retold the first story Balto using 212 words not including *um* when he finished reading the story. He wrote eight sentences about what happened in the story (see Appendix C). Two days later when he was asked to retell the story, he was only able to write five sentences (see Appendix D). Two of the sentences were at the very end of the story. When I started to ask specific questions, he remembered the details. Several questions were asked to get the whole story retold.

After only reading twelve pages in Dinosaurs Before Dark, Craig was able to summarize the story using 175 words not including *um*. At the beginning of our session one week later, I asked Craig to recall the story or what he remembered of it. His summary was 200 words long not including *um* and *mm*. He recalled more of the story after a week then he did after first reading it and summarizing it. By the time he had read 49 pages, he gave a 420 word retelling. Again *um* and *hm* were not counted in the retelling word count. He was able to write fifteen sentences divided into three sections summarizing what had been covered in the story so far (see Appendix G).

Sometimes when retelling what happened in the story, Craig did not seem to understand the story. I worked with him on sorting out the facts and understanding what was happening. An example from Dinosaurs Before Dark is,

What has happened on the last two pages?

*Um well ** different on 12 um ** that it was spinning and spinning * and he closed his eyes ** and then hung onto Annie then ** it got on and on page 12 it suddently ** stopped **

Okay.

*When it stopped and when it was still ** the sunlight was slanting in his eyes.*

Um hm but something else important happened on page 12.

*Um **it wasn't the same oak tree.*

Okay, so what does that mean to the story, what does that mean to what's already happened?

*** *I'm not sure* *** *um* *****

When he closed his eyes he was in a tree house in an oak tree. When he opened them, he was still in a tree house but not in the same oak tree. ** Something had to happen when he was spinning around.

Um hm.

What do you think happened?

** *um* ********** *I don't know.*

Kay, the next title or the next chapter is "Where is Here"?

**** *dinosaur land maybe.*

Could be. That could be where he's at now. That could be where the tree house is.

Um hm.

Because I've read lots of stories, when that clue come, when that sentence was by itself, that's what I thought of. So if you see sentences kinda by themselves it may give you an indication of what might happen next.

The Christmas break came about three quarters of the way through the story Dinosaurs Before Dark. We had not had any sessions for about one month. When I asked

Craig if he remembered the story, he replied, "*No, not really.*" These were my instructions to him and the results.

> What I want you to do is reread to yourself. The whole time you're reading to yourself, guess what you have to do?
>
> *** *what?*
>
> What do you think you'd have to do?
>
> *Um put that movie.*
>
> Right, get that movie what?
>
> *Going.*
>
> Right, so you need to think about things that are happening.** Think about what things look like, what they sound like, * feel like **all those different things.

After about seven minutes, Craig was ready to retell the story. During the seven minutes, Craig turned the pages in the book looking at the pictures and reading some. His retelling was 420 words, not including *mm* and *um*. When he finished, I asked him,

> Now without reading the story, how did you remember it? *** What clues did you use?
>
> ** *well I just read the titles and ** then I thought of em **then ** I just read couple words in em, then I* **
>
> Just remembered em?
>
> *Um hm.*

Craig had used the pictures, titles and words to activate the schema and his memory of the story. There were pauses in the retelling, ranging from a one second pause to seven seconds at the longest pause as Craig was recalling the story.

After approximately 75 days, Craig could still recall Balto the first story we read and worked on well enough to compare it to the ninth story, Dinosaurs Before Dark. This is what Anderson (1984) and Anderson, Pichert and Shirey (1993) found in their research that an active schema during reading increases the longevity for memory of certain text elements.

Internalizing Teaching Strategies

Chan, Cole & Morris (1990) found that adequate time and practice are necessary for mastery of a strategy. "Appropriate gradual fading of external support is critical to promote internalization and generalization of strategy use" (p. 10). I had been working towards getting Craig to summarize and think about what he had been reading. After reading page seven of Dinosaurs Before Dark, I noticed for the first time that he hesitated after reading the page. I commented on it.

> Good I noticed you hesitated there. Did you think about what happened on that page?
>
> *Um hm.*
>
> Was there anything important on there?
>
> *Well there was. She was up there and he found all these book marks in it.*

In this same story, Craig started checking his own predictions. When I asked, "Okay what happened on that page?" Craig replied, " *Mm my guess was right."* He had begun internalizing the predicting and checking strategy. I knew Craig was internalizing predicting when this situation arose in Dinosaurs Before Dark. I was helping him create visual images.

> Do you know what a medallion is? Have you ever seen one?

** *mm no.*

Sometimes people have won them at the winter Olympics. It's a ribbon with a big thing.

Um hm.

That's a kind of medallion. This has an M on it. Then Jack starts to look around and sees this thing shining in the grass. Goes and picks it up. Looks at the medallion,** there's an M on it.

*** *might stand for monsters.*

I had not asked him what the M stood for, he was predicting on his own.

When retelling the story, I encouraged Craig to visualize the story before and as he was retelling it. This was a process I wanted him to internalize. About half way through Dinosaurs Before Dark, I asked him to do a written retelling of the story. This written summary came at the beginning of the session before we discussed the story. The last session had been two days before. His written summary was read and explained in 83 words. When this was finished, I asked him, "Now as you were writing this, were you thinking about it? Was that movie playing in your head?" To both these questions Craig answered, "Um hm." He had not been reminded to have the movie going in his head as he was writing the summary. This strategy had now become internalized.

Research Discovery

It became evident when I reviewed my notes on the sessions while working with the first story Balto, that I needed to allow Craig time to think and answer. Making note of the pauses, and allowing Craig time to think was an important concept for me to be aware of. A lot of Craig's answers began with *um*. Before the *um*, after it or both, were

pauses of two or three seconds. Sometimes the pauses were longer before a reply was given. Very seldom did he ever give a response without pausing first. These pauses usually led to an answer if he was allowed time to think. As well as being aware of the pause time needed, I also used Craig's facial expression to see if he understood what I was explaining or what the story was saying.

In Dust for Dinner, I asked,

Papa is going to work in an orchard now what is an orchard?

I forget **

Do we have orchards around here?

** *no.*

An orchard is where a bunch of fruit is grown. What kind of fruit would grow in an orchard?

Um oranges, apples, grapes.

That's right. What province has a lot of those orchards?

*Um ***** Vancouver.*

Craig had some knowledge about this topic but it just was not forthcoming. In Dinosaurs Before Dark, Craig was having trouble thinking of three things that might happen in the plot. Pauses allowed him time to think or else applied pressure so he was willing to take a guess. I suggested,

Okay take a guess. **** Think what the plot might include.

********* *mm *** might be * dinosaurs * when the kids come home from * school, they might see dinosaurs in the backyard.*

Later in this story I asked,,

What do you think the monsters are going to be that they meet?

******, *dinosaurs.*

Which dinosaurs might they meet?

***** *mm* ***** *tyrannosaurus rex.*

Okay.

***stegosaurus* *** *lots of em.*

Later in the story I was again looking for predicting.

Why do you think she's doing it?

*Mm ** I don't know, she might think that it talks.*

Later I asked him,

So what's going to happen?

****** *uh it might be Annie riding the pteranodon.*

And then again,

What do you think might happen?

*Mm ** I don't know (the words squished together) *** mm they might go *** to * where the dinosaurs live.*

At another point in this story, I said,

Okay ** now what do you think's going to happen to em there?

*I don't know * um (13 seconds) like I said, they might get eaten ** mm.*

Kay.

Might get lost, might catch a ride home.

Craig seemed to need time to figure out what the big shadow might be or to put the information together from the story to come up with this prediction.

What's he going to do next?

***** um ******* he's goin to find Frog Creek and wish himself back..*

Towards the end of this story, the pause needed was a lot longer before he gave a guess but it was very thought out.

So what's going to happen?

*Mm ***** I don't know ****

Neither do I but take a guess.

Twenty seconds passed before Craig replied,

*Kay when he gets to Frog Creek ** and he gets home and ** he'll go get his mom and dad and **** and then he'll say, **I'm back again, I'm back again, and then his mom and dad won't even notice that he was there and they'll think he's crazy.*

Testing Results

With the last two stories used in this study, I wanted to see how well Craig could recall a story with very little help from me on the strategies we had used in the other stories. The tenth story used was a science story about volcanoes. This was the first nonfiction book used but I chose this one because Craig had said that he found science the hardest to read and understand. Craig required some help with the vocabulary but the other strategies seemed to be internalized. I checked these processes by finding out how well Craig remembered and understood the story. The last story was a fiction story based on a scientific discovery. Periodic retelling of the story was the only help given. Again recall of the story and general comprehension of the story were good.

Alberta Diagnostic Reading (1986) was used for the final testing as well as the initial testing. Craig read the story aloud without help from the researcher. Then he was

orally asked questions from the teacher's guide. The answers he gave were written down in point form by the researcher. Test 2B-2 (mid to latter grade two)was an 8.5/10 score which is between an instructional and independent level. Test 3B-1, 3B-2, and 4B-N were 9/10 which is an independent level. Test 4B-1 was 10/10 which is an independent level. Testing was not continued until a frustrational level was reached. 4B-1 is middle to latter grade four. The next test would have been a grade five level. Time and circumstances did not allow for testing to continue.

Chapter 5: Conclusions and Implications for Further Study

Results

There were seven strategies that we worked on with each of the eleven stories, so that Craig would internalize the processes of activating background knowledge and using visual imagery. With the first nine stories, I was involved throughout working on the seven strategies, questioning, modeling and discussing. With the last two stories, I kept my questions, modeling and discussions to a minimum to see if Craig was able to recall the story himself, to see if he had internalized the strategies that we had worked on to improve his reading comprehension. Each of the strategies will be dealt with separately to show Craig's growth and the conclusions I reached. The strategies were 1)discussion, 2)semantic mapping, 3)predicting, 4)inferencing, 5)vocabulary, 6)visualization, and 7)retelling.

1) The first strategy was discussing the story to find out how much information was known about the topic using personal experiences, the book picture and title. Before the text was read, Craig and I discussed the topic. This gave me a chance to find out what he knew about the topic and the schema he activated before the story began. The discussions continued throughout the reading of the text. With each of the stories, I found that situations, words and concepts that arose in the text could be related to experiences Craig had or ones he could relate to. Working one-on-one with the student, I was able to interject comments or questions as I felt they were needed for clarity and understanding of the plot and characters while reading the text. The discussion moved from me doing most of the talking in the first story, to Craig relating ideas and predicting things on his own in the ninth story. His answers seemed to be longer and more frequent as the

sessions continued. He went from mostly giving one word predictions and answers to a lot of phrases, complete sentences and sometimes more then one sentence answers. An exact word counts were not monitored. These discussions allowed me to relate some of Craig's experiences and my own experiences to the topic of the story. Because of the one-on-one situation, Craig and I became very familiar with each other. I was very aware of facial expressions and body language that I may not have noticed as much in the classroom. It became easier for me to see if an idea seemed to make sense to Craig or if I needed to explain more because he could not picture what I was talking about. If he was having trouble comparing what I was talking about to the text he was reading, I could use different examples or explain more or have him relate ideas to me about what he thought was happening in the story. Classrooms do not always offer this opportunity.

2) After the initial discussion, the next step was creating a semantic map that focused on the setting, plot, and characters. In the first story, I did all of the writing on the map, modeling how a semantic map should be laid out and how to relate ideas as well as expand on them (see appendix B). The semantic map was referred to throughout the text to see if predictions made were correct or to change predictions as new information arose. As the sessions progressed, Craig and I both worked on the map until story nine where he made the map entirely by himself. I still questioned him about what he had written on the semantic map and why he predicted the things he did to try and understand what he was thinking about and what caused this thinking. Craig looked at the map when he was retelling the story orally and when he was writing a summary. The visual image of the map may have helped him to recall the story or order his ideas. The map may have helped him decide what important points to put in his written summaries. When Craig read his

written summaries, he would add a lot of words that were not on the page. He seemed to need to expand on what he had written or when he was orally reading the words, he recalled more information from the story. (Sadoski, Paivio & Goetz (1991) – words evoke images and images evoke words.) The semantic map was always something I insisted on. I never allowed Craig the option of not making the semantic map. I do not know if he felt it was a necessary part of his increased reading comprehension or if he would make his own semantic map if he was reading the stories by himself.

3) Predicting and checking his predictions with the information in the text was the third strategy used. Again, this was an area that I modeled by continually questioning and getting Craig to predict, then check his predictions. I continually drew on his background knowledge to aid the predictions and make the situations easier for him to relate to. This process moved from me asking the questions and offering predictions if Craig seemed unable to provide ones, to, in the ninth story, him predicting then checking to see if his prediction had been correct. By the ninth book, Craig placed himself and things he would do, into the story. He moved from the story into an experience he had. He used the story character's pronoun (his and he's) then the word you (referring to an experience he had or figured other people may have had. (Example given in strategy number six, visualization). Predicting, is a strategy I have found very effective in the classroom. When students share their ideas with others, they become more interested in the story. They want to find out if their predictions are the same as the authors. The students that have trouble making predictions have a chance to hear other student's predictions which they can use themselves or they hear that not everyone is thinking the same thing which seems to encourage voicing new ideas not mentioned. Because no one is wrong if the

student's predictions are different from the authors, more discussion seems to take place and many students in my classroom seem to internalize this process early on in their reading development.

4) Similar to predicting is inferencing, which was the fourth strategy we used. Inferencing is used to add missing information and to relate the story to personal experiences, making it more meaningful and easier to understand. By the ninth story, Craig appeared to do this sometimes. He did not always automatically relate situations in the story to his own experiences. The predicting and inferencing were coming but not automatic all the time yet I did not feel. This is hard to determine because Craig may have been predicting, inferring, and relating his background knowledge to the events in the story without vocalizing this to me. He may have been using these strategies to develop the mental images without being aware of doing it himself.

5) Vocabulary was a strategy used only as it pertained to story comprehension. Explaining vocabulary and relating the story meaning of a word or phrase to personal experiences was the vocabulary we worked on. If I did not feel that the understanding of certain words would relate directly to the understanding of the story, I did not work on them. I explained words to Craig using the meaning in the text, by using definitions, synonyms, and relating the meaning of a word to prior experiences. Once a word or phrase had been discussed and the meaning related to the story, then I would check to see if the word or phrase was used later by Craig. Sometimes vocabulary would be added to the semantic map to be reviewed periodically. The meaning of certain words were reviewed throughout the sessions to see if they had been added to Craig's bank of words. I noted if Craig used the words in his retelling to see if he had ownership of the words. I

did not monitor words used in one story to see if Craig used the meaning or word itself in other stories. This would have shown if Craig had truly added the words to his word bank on a long term bases. Word phrases may not be included with vocabulary usually but I felt this was important to his comprehension of the story we were reading. Sometimes words used together in phrases have a different meaning then if the words were used individually in a sentence. I wanted Craig to be aware of this so we discussed it but it was not a strategy we used throughout all the stories.

6) Visualization was a major strategy used. This is where Craig created a mental image of the story as he was reading and discussing it. Visualization produced a wholistic picture of an event. We worked on concrete objects, as well as feelings and sensual impressions. Craig moved from being unable to picture a train in his mind in the first story to feeling the grass on his legs while he was running through it in the ninth story. (What can you hear while he's running over there? *** *his footsteps*. Anything else? ** *grass*. Grass what? ** *coming* ** *to grass* *** *when he's* **** *well when you're running through the tall grass.)* Craig seemed able to picture things but was not able to clearly describe them. Once he placed himself in the explanation, it seemed to become easier for him. As we discussed events in the stories or discussed personal experiences, I worked with Craig on filling out a picture not just having an object in isolation. When visualizing the train in Balto, we discussed the sound it would make, the color of it, the other things that would be around it, and what the temperature was like. All of these impressions help to create a complete picture, so that when Craig recalls the train in his mind, he will remember other things associated with the train image. Craig seemed to thoroughly examine the pictures in each of the stories. Some of the predictions he made were directly

related to the pictures. His retelling did not seem to be directly related to the pictures so he may just have used the pictures for prediction ideas or to check predictions. Craig is quite artistic. His drawings are always in great detail. Perhaps he was just viewing the pictures from an artist's perspective rather than a tool for improving comprehension. Very seldom did he even comment on the pictures.

7) Retelling of the story occurred after one or two pages of text had been read. Craig would tell me what had happened. I would ask questions to have him find any important information he had left out in the retelling. At the end of each of our sessions, Craig would retell what had happened in the story we were working on so far. When the next session began, Craig would recall what he remembered about the story. I would question or remind him of important information he had left out. I found that usually when Craig did not mention certain information that he had not forgotten it but just did not mention it. Two or three times during the story, I would have Craig do a complete retelling of the story so far. When the story was over, he would review the whole story either by himself or retell it orally to me. Sometimes he would write what happened in the story, using 10 or 12 sentences that he considered important to the story.

About half way through the ninth story, Dinosaurs Before Dark, Christmas holidays arrived. For about three weeks we did not have any sessions. When Craig and I met in the New Year, I wanted him to recall what he could about the story. This is the conversation that led up to the retelling.

Do you remember the story at all?

*No * not really.*

Okay what I want you to do today, since it's been a long time since we've worked on this about a month. What I want you to do is to reread up on where we have, you'll just read to yourself. The whole time you're reading to yourself guess what you have to do?

*** *what*?

What do you think you'd have to do?

Write it down? I don't know.

No.

Um put that movie.

Right ** get that movie what?

Going.

Right so you need to think about things that are happening. * Think about what things look like. What they sound like, * feel like ** all those different things.**

Okay?

Um hm.

Any questions before you start with it?

** *no* ***

You think you'll be able to read through it and remember the *story pretty good?*

Yah.

I told him to reread the book if he wanted to but he chose to look at the semantic map, look at some pictures in the story and read some of the chapter titles and perhaps a few sentences in the story. After about seven minutes Craig said he was ready to retell the story. His retelling was 420 words long. I asked one question for clarity part way through

the retelling. Once I said "Tell me what else you remember about the story." To find out what strategies Craig used to recall the story I asked Craig,

> Okay now without reading the story how did your remember it? *** What clues did you use?
>
> ** *well I just read the titles and ** then I thought of em ** then ** I just read couple words in em then I* **
>
> Just remember em?
>
> *Um hm.*

Craig had remembered all the important details. He seemed to either not know the strategies he used or was unable to clearly vocalize some of them. The sentences and phrases he used were choppy and a little disjointed grammatically but the main ideas were there. There were several pauses throughout the retelling. It seemed like this was needed for visualizing or the ordering of ideas. Craig did not close his eyes when he was visualizing the story events or characters.

Conclusions

This case study suggests that reading comprehension can be improved using background knowledge and visual imagery. By activating schemata through discussions, predictions and retelling, Craig improved his reading comprehension more than two grade levels as measured by Alberta Diagnostic Reading, 1986. He was able to develop a well rounded movie in his mind about the story he was reading. This aided his recall so the number of words used to retell a story doubled from the first story to the ninth.

By the time we reached the ninth book, it appeared that Craig had internalized two of the strategies we had worked on. He started predicting then checking on the next

page to see if his predictions had come true or not. He also started pausing at the end of the page and thinking about what the text had said. The other strategies may have been internalized too but it was hard to tell. Some of the strategies worked on overlapped each other or directly went from one strategy to another without pauses. Craig may have been using these strategies without vocalizing that he was doing so. He may not have been aware that he was using various strategies. This is what a good reader does, internalize reading strategies so they are used without the reader consciously thinking about them.

The need to pause and allow Craig the time to think or take a guess was an important discovery for me. In the classroom, I often ask a question then pause or allow thinking time but when I reviewed my notes on the first story with Craig, I found that if he did not give a response immediately, I reworded the question or offered an idea. I had been so focused on Craig giving me answers that I forgot to allow thinking time. As some of the examples showed, Craig sometimes needed up to 20 seconds before he had an idea clear enough to express. This information is important for a regular classroom teacher. Some children may need more time than others to put their ideas together and find a way of expressing themselves. At one point Craig said "*Hm how do I put this*," so he had an idea but he was not sure of the words to express the idea. With this one-on-one situation, I was able to give Craig the time he needed as well as watch his facial expression to see if he was thinking or just did not know the answer. In a classroom setting, this pause time may not work as well. It is often more difficult in a large group to keep certain children quiet while others think and then feel secure enough about their answer to offer it to the group. Small group settings will allow a teacher the chance to watch facial expressions and body language closely to see if a person does not know the answer or is just insecure

or needs thinking time. I believe the dialogue that takes place in discussions could help certain children find ways of expressing their ideas especially if they hear other children put their thoughts into words or relate experiences in ways that are meaningful to others in the group.

This study suggests that discussion of the topic, characters, plot and setting all help stimulate the brain to dual code or use both sides of the brain to interpret the text and make it meaningful. Each part of the brain works independently but together to create a story that is more meaningful and remembered better than just using the visualization or text alone. Reading comprehension improves. Craig was able to clearly recall the story of Balto, two months after he read the story. He was able to make character and plot comparisons as well as relate the story to his own experiences.

The discussions relating the story to experiences helped Craig identify with the story while increasing his vocabulary. He used words we had discussed in his retelling so he has accepted ownership of the words.

The results of this study will be useful in my regular classroom. The parts of discussion, semantic mapping, predicting and retelling can be generalized, I feel, from the one on one case study situation, to a whole class situation.

Future Research

When I tried these strategies with the whole grade one classroom I had mixed results. I found it hard to relate experiences to the stories the grade ones were reading. This might relate back to the study done by Gambrell (1982) where she found that grade ones often use imagination in their retelling rather then general ideas. This may mean that the strategies will need to be modified for this age level. The number of experiences that

the grade ones have is not as great as a grade four student so this may hinder their story retelling. The other factor that needs to be taken into consideration is that in grade one the students are continually learning new information. Sometimes they are trying to get the strategy right by trying to please the teacher, searching for the right answer rather than relating actual experiences that they have had. Telling stories is fairly common to grade ones. In fact it is a skill that we work on. Separating story retelling and story creating, may be difficult for some students. When they were describing the visual images they had, some were well rounded while others had trouble picturing anything in their mind. Some of the students found it difficult to relate experiences they have had to the story. They did not understand the connection. This may just take more practice to accomplish. I found it difficult to work with the whole class then just work with a select few on the weakness while others were working by themselves. The noise in the classroom and the activities of the other students was really distracting for the ones I was working with. I only tried these strategies a few times so I did not give it a good trial I feel. I tried to work on all the strategies at once as I had been doing with Craig. For grade one students, this may be too much. They may have to develop one strategy at a time before building on this strategy to include other strategies. The grade ones also may not have had the vocabulary to express their ideas. Craig had trouble at times expressing himself. Some grade ones may also have trouble with this. Before grade one they probably are not asked to describe the image of something in their mind.

I want to modify how I approach the semantic map especially for story telling. The semantic map seemed to work well for themes. I used different colored felts to add new information or details when we found it. The original map was in red then the next

time we found new information or changed our predictions, I wrote the information in blue, etc. This way the students were able to see how much they knew about the topic at the beginning as well as the new information we had discovered. Again when used with story predicting, I did not give the semantic map enough time to develop. Some students seemed to work well with their ideas on paper where they could refer back to them. It seemed to keep some students focused on the story rather than have their mind wondering when they were story telling. This may eliminate some of the imagination used in the predictions and retelling for grade ones.

I found the introduction of vocabulary in a theme to be easy to work with using the semantic map and the word wall. Words were defined and explained as they arose in our stories or research. I would repeat new words as I was teaching or reviewing the topic. Grade ones like to imitate the teacher so often the words would be used by them when they were reading aloud or discussing the topic with other students or in their play. I have found that by watching children play, you can find out what they find really interesting about a topic as well as if they understand a topic or not by how they use the words and ideas in their play. Students claim ownership of words and experiment with them in their free play.

Reading begins in grade one for most students. I feel that more research needs to be done regarding the strategies needed by young children to become good readers. The study I was involved in showed me that visualization and background knowledge are very important components for improving reading comprehension. More research in needed to find out if students younger than eight years of age can successfully use visualization. The importance of discussions to activate student's schema before and

during story reading has been shown. This strategy is very important I feel for a grade one classroom. I find out what the students know, what their experiences are and they become interested in the topic. Using this strategy with the whole class has advantages and disadvantages. All students will get to see how certain ideas connect but not everyone will get a chance to express their views or experiences. The need for small group discussions, I feel, will be needed to allow some students to express themselves fully so they understand how the topic is directly connected to them and how their experiences can be connected to the topic.

The discussions about what students are able to visualize will be beneficial as a whole class but again, I feel it will need small group discussions to fully develop the images for those students who have trouble filling in a well rounded picture. Like Craig, many students visualize objects in isolation and have to be shown how to add sensual images and expressions to visual images. Like Craig, students will need to be shown how to create a movie in their mind about the story as they are reading it. The results I received while working with Craig show that practice improves strategies. Knowing how to interact with a story and relate to it, increases the comprehension of the story and the longevity of the story details as well as the ability to transfer details and characters to other situations.

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Appendix A

Books Read

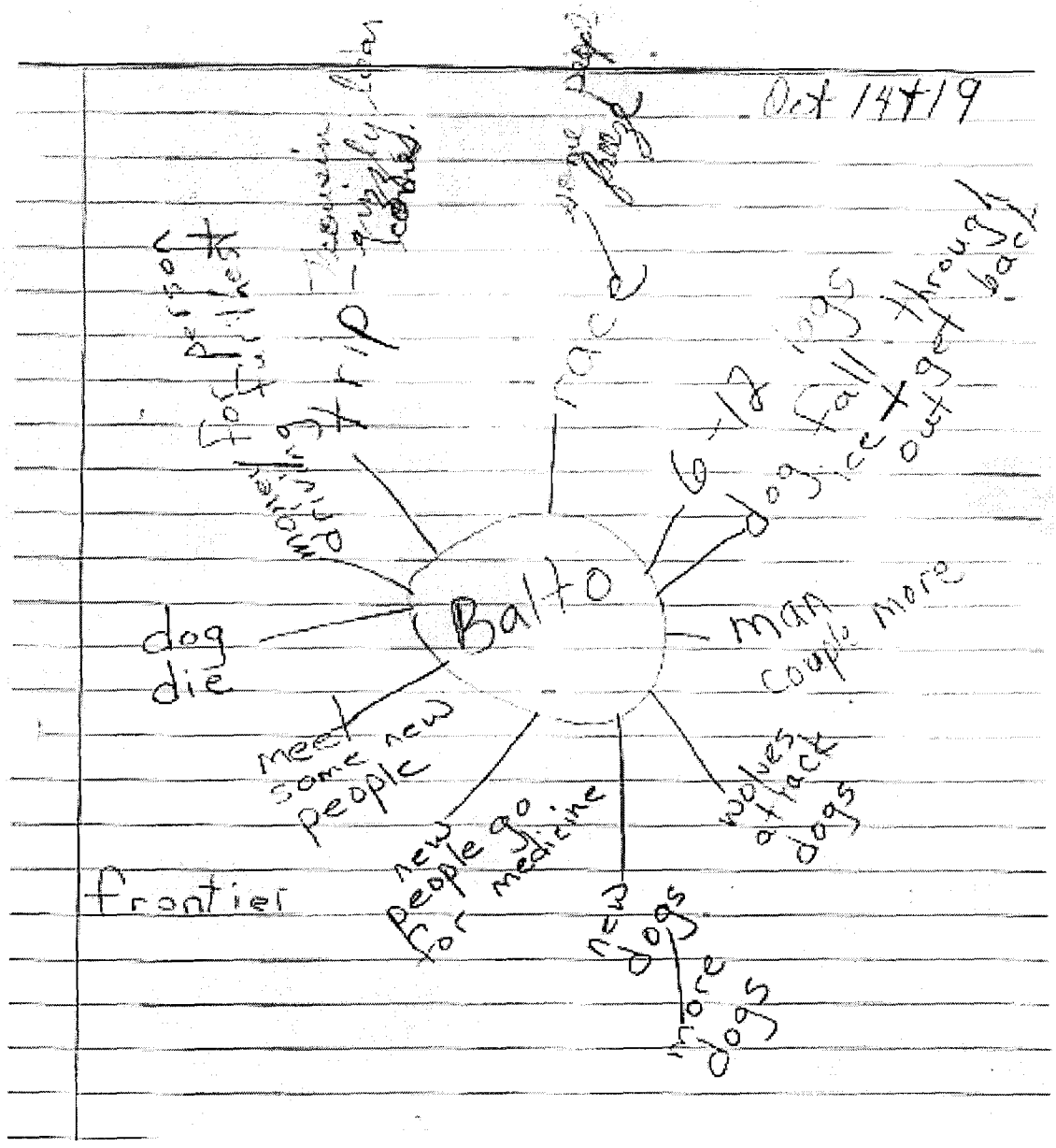
The books are listed in the order they were read.

1. Standiford, N. (1989). The True Story of Balto Step into Reading – A Step 2 book. Random House Inc., New York.
2. Silverman, E. (1993). Big Pumpkin Scholastic Inc., New York, New York.
3. McMullan, K. (1997). Fluffy Goes To School Hello Reader! Level 3 Grades 1 & 2. Scholastic Inc., Toronto, Canada.
4. Shefelman, J. (1997). Young Wolf and Spirit Horse Step into Reading, A Step 3 Book Grades 2-3. Random House Inc., New York.
5. Turner, A. (1995). Dust For Dinner An I Can Read Book Level 3 Grades 2-4. Harper Collins Publishing Inc.
6. Margo Lundell, M. (1998). Lad, A Dog The Bad Puppy Hello Reader! Level 4 Grades 2 & 3. Scholastic Inc., Toronto, Canada.
7. Reilly Giff, P. (1987). The Powder Puff Puzzle Dell Publishing Co., Inc., New York, New York.
8. Hoban, L. (1981). Arthur's Funny Money An I Can Read Book. Harper and Row; New York, New York.
9. Pope Osborne, M. (1992). Dinosaurs Before Dark A First Stepping Stone Book. Scholastic Inc., Toronto, Canada.
10. Nirgiotis, N. (1996). Volcanoes Mountains That Blow Their Tops. All Aboard Reading Level 2 Grades 1-3. Grosett and Dunlop; New York, New York.
11. Shea, G. (1997). First Flight An I Can Read Chapter Book. Harper Trophy; New

York, New York.

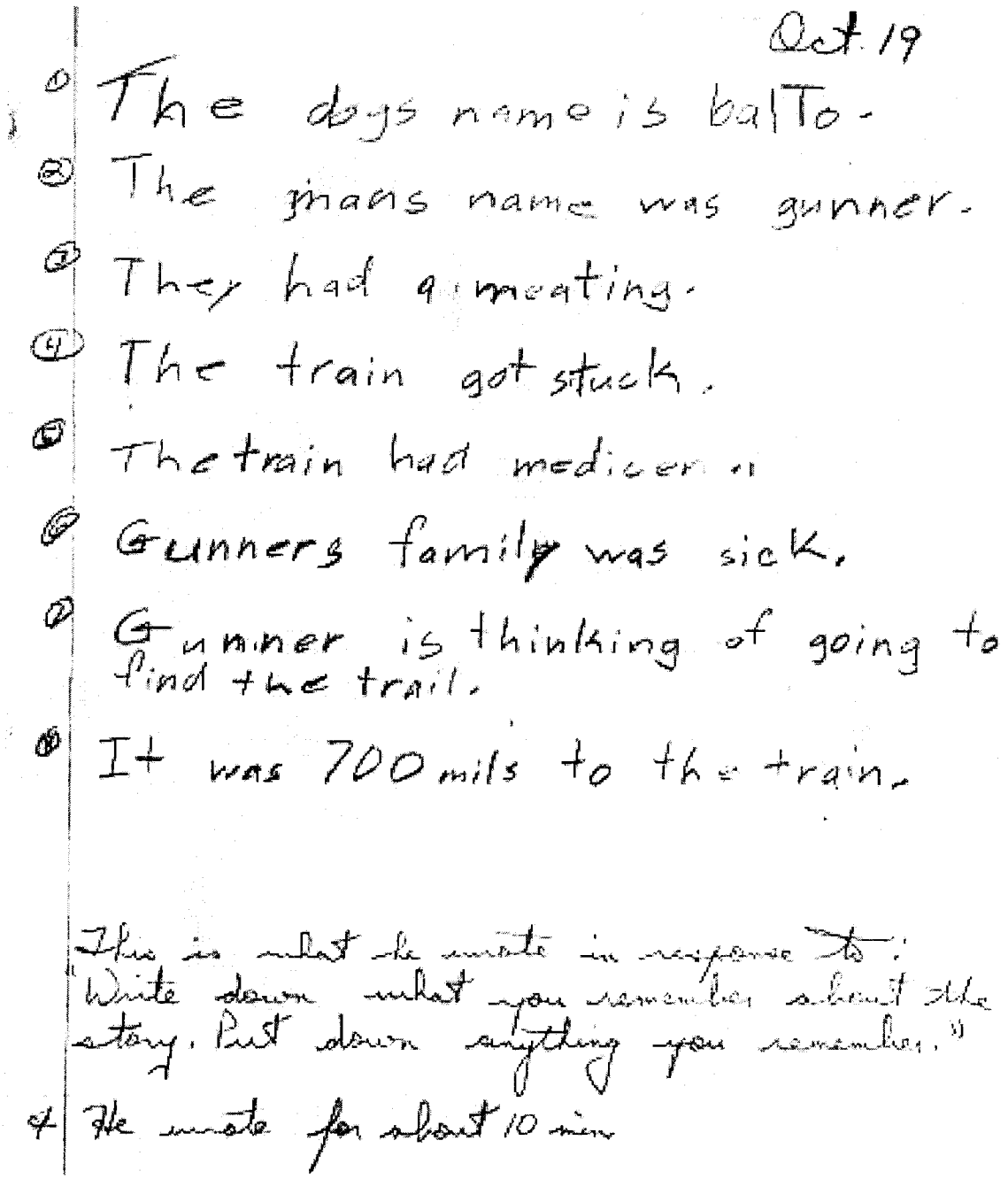
Appendix B

Balto Semantic Map



Appendix C

Balto Summary



Oct 19

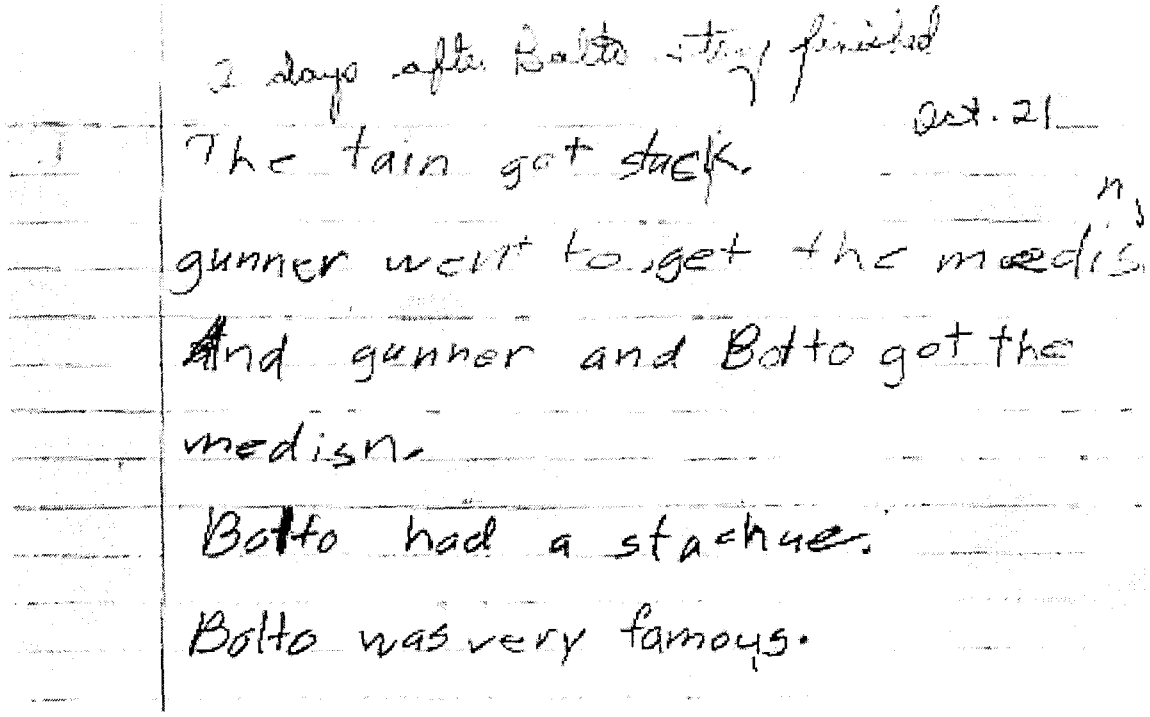
1. The dogs name is balTo.
2. The mans name was gunner.
3. They had a meating.
4. The train got stuck.
5. Thetrain had medicen
6. Gunners family was sick.
7. Gunner is thinking of going to find the trail.
8. It was 700 mils to the train.

This is what he wrote in response to: "Write down what you remember about the story. Put down anything you remember."

4 He wrote for about 10 min

Appendix D

Balto Summary Two



2 days after Balto story finished

Oct. 21

The tain got stuck.

gunner went to get the medis.

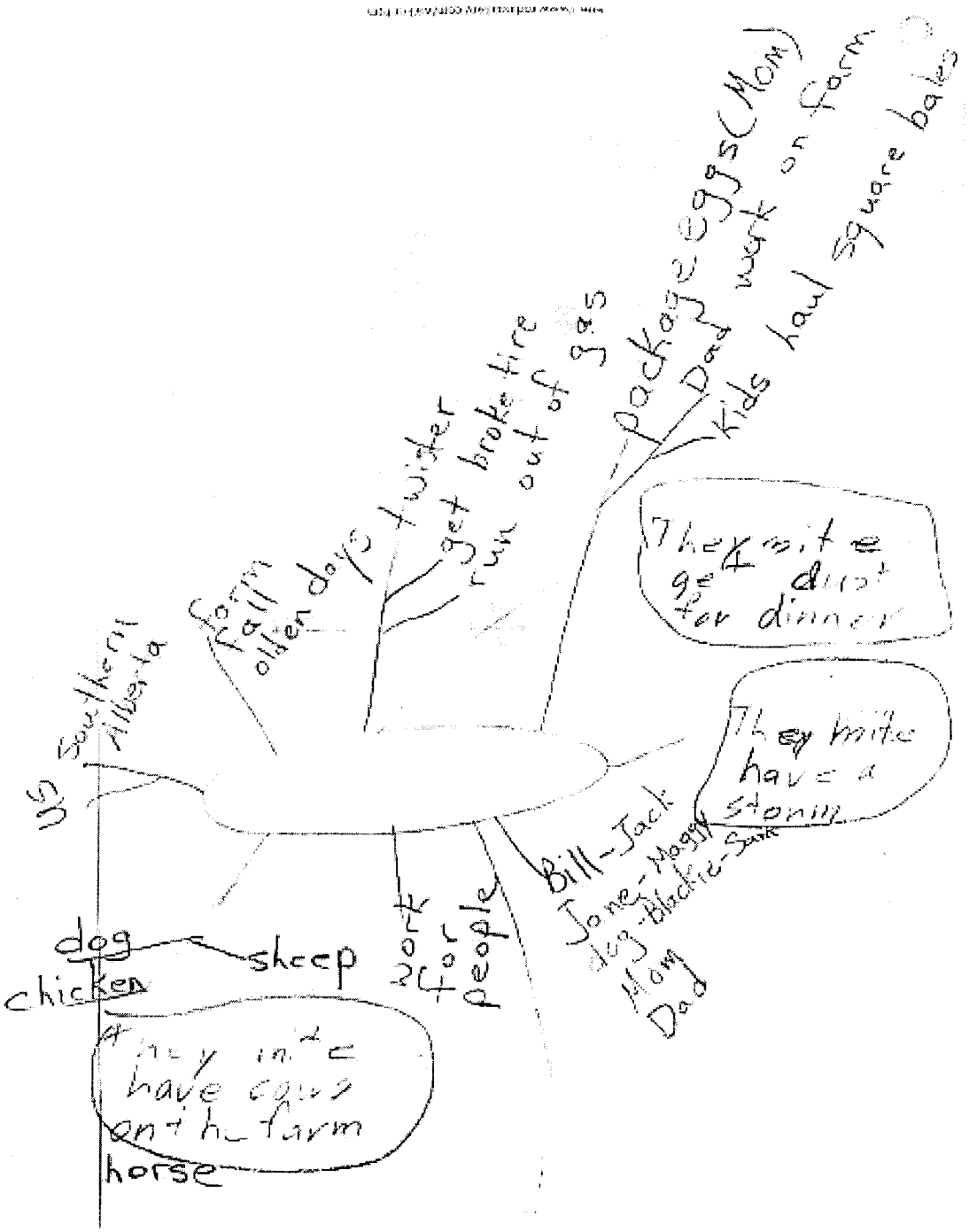
And gunner and Balto got the medisn.

Balto had a stachue.

Balto was very famous.

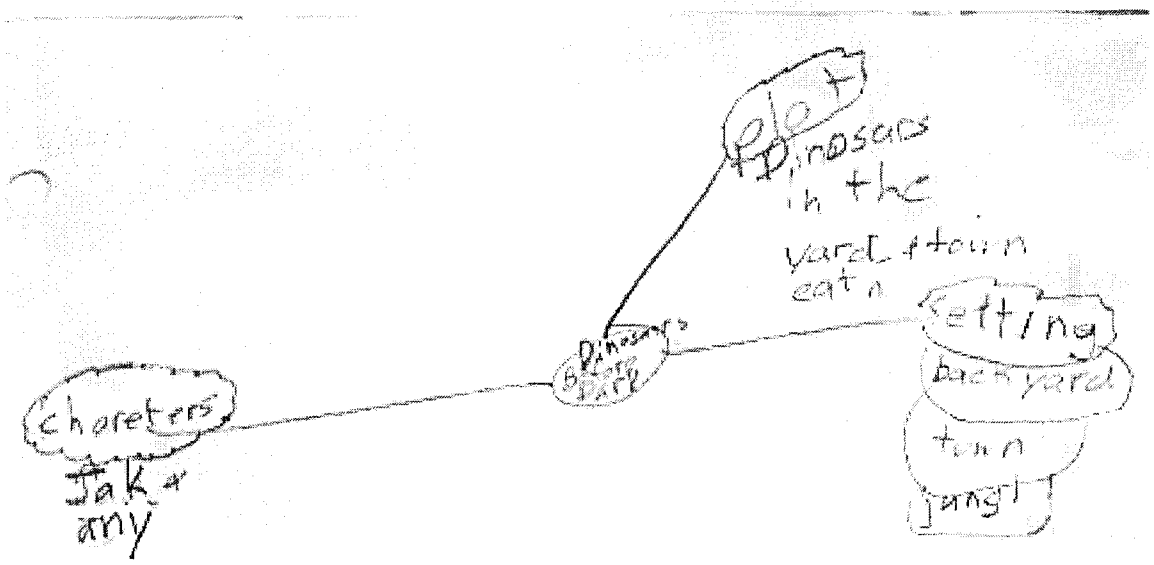
Appendix E

Dust For Dinner Semantic Map



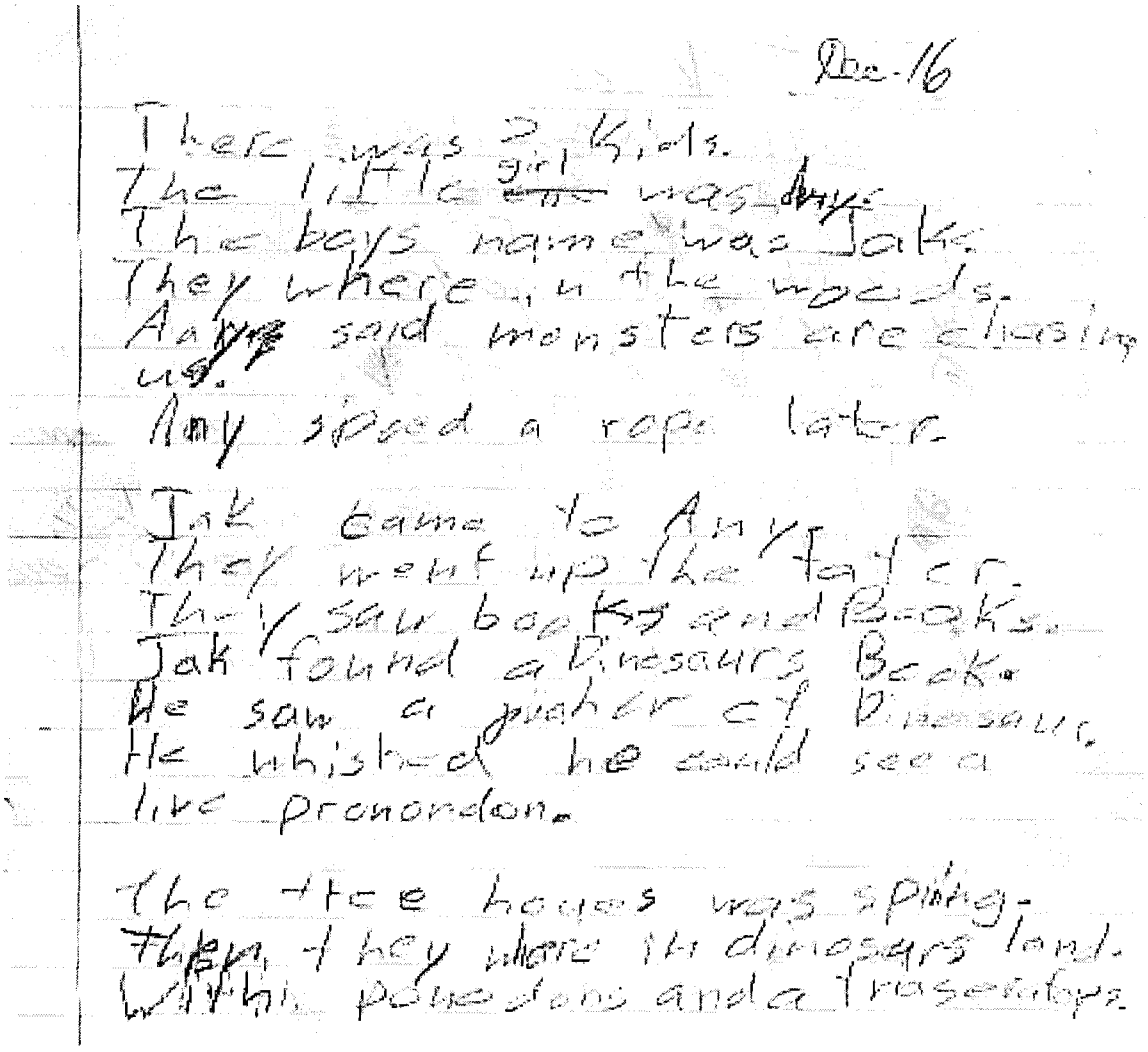
Appendix F

Dinosaurs Before Dark Semantic Map



Appendix G

Dinosaurs Before Dark Summary



Dec. 16

There was 2 kids.
The little girl was Amy.
The boys name was Jake.
They where in the woods.
A voice said monsters are chasing us.
Amy stood a rope later.

Jak came to Amy
They went up the tree.
They saw books and books.
Jak found a Dinosaurs Book.
He saw a picher of Dinosaurs.
He whished he could see a live pronondon.

The tree house was spining.
Then they where in dinosaurs land.
With Dinosaurs and a Triserotops.

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8. d	21. T	34.
9. H	22. A	35.
10. ou, ow	23. C	36.
11. kc	24. X	37.
12. Th	25. L	38.
13. e	26. Z	39.

C-Sandra Dec. 10, 2021

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Terra Dec. D, 2001.

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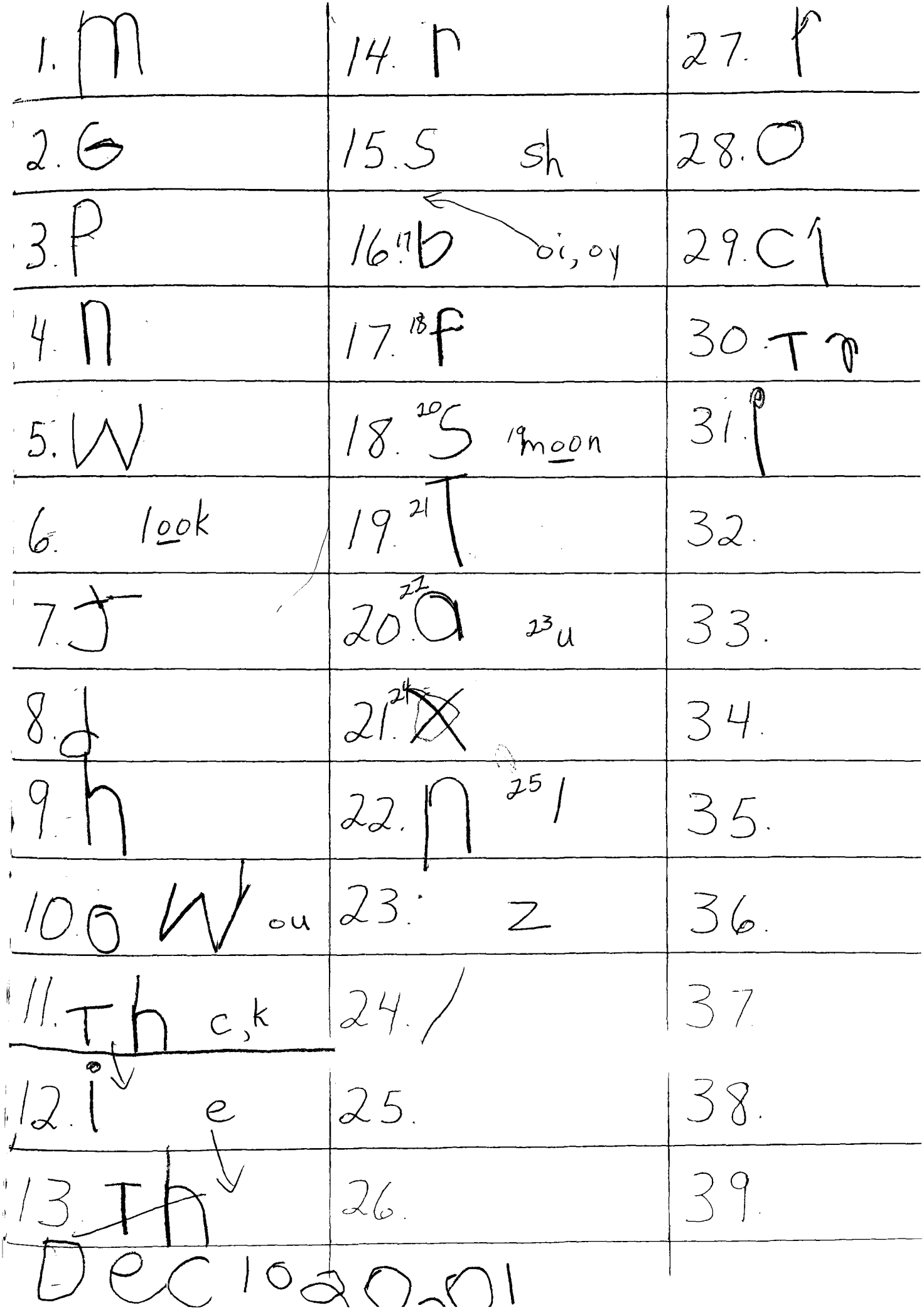
13. e	26. z	39.

Jaidyn Dec. 10, 2001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Jaidyn Dec. 10, 2001

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courtney Dec. 10 a.m. 11

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24/31

Raymond Declo 2001

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Liam Dec. 6, 2001

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Reanne	Rraberah	Dec. 10, 20

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Dec. 10 2021	Renauda	

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1.	14.	27.
2.	15.	28.
3.	16. oi oy	29. ch
4.	17.	30. th
5.	18.	31.
6. look	19.	32.
7.	20. 30/31	33.
8.	21.	34.
9.	22.	35.
10. ou	23.	36.
11. c, k	24.	37
12.	25.	38.
13.	26.	39

1) 20 to 200 hun

1. m	14. r	27. ar
2. g	15. sh	28. O
3. p	16. oi oy	29. ch
4. n	17. b	30. thin
5. w	18. f	31. i
6. look	19. moon	32. u
7. j	20. s 19/31	33.
8. d	21. t	34.
9. h	22. a	35.
10. ow ou	23. u	36.
11. c, k	24. x	37
12. the	25. l	38.
13. e	26. z	39.

1. m	14. r	27. qr
2. b	15. sh	28. j
3. p	16. d oy	29. ch
4. n	17. b	30. th
5. w	18. f	31. i
6. oo	19. oo	32.
7. i ew	20. s 31/31	33.
8. d	21. t	34.
9. h	22. a	35.
10. ow ou	23. u	36.
11. ck	24. x	37.
12. th	25. l	38.
13. e	26. z	39.

WW a th Dec. 10 2001

1. m	14. r	27. a ar
2. g	15. sh	28. o
3. p	16. oy oi	29. ch
4. n	17. b	30. t
5. w	18. f	31.
6. l look	19. m moon	32.
7. j	20. s	33.
8. b d	21. t 27/31	34.
9. h	22. o	35.
10. ow ou	23. u	36.
11. k	24. x	37.
12. th	25. i	38.
13. e	26. z	39.

Change color

1. m	14. r	27. qu
2. g	15. sh	28. o
3. p	16. i oy	29. ch
4. n	17. b	30. th
5. w	18. f	31. '
6. oo	19. oo	32.
7. j	20. s	33.
8. d	21. t	34.
9. h	22. $\frac{30}{31}$	35.
10. a ow	23. a	36.
11. k c	24. x	37.
12. th	25. l	38.
13. a e	26. z	39.

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1.	14.	27.
2.	15.	28.
3.	16.	29.
4.	17.	30.
5.	18.	31.
6.	19.	32.
7.	20.	33.
8.	21.	34.
9.	22.	35.
10.	23.	36.
11.	24.	37.
12.	25.	38.
13.	26.	39.