PARTICIPANTS IN ADULT BASIC SKILLS CLASSES USING INTERTEXTUAL AND METACOGNITIVE SKILLS AND STRATEGIES TO AID READING COMPREHENSION AND WRITTEN EXPRESSION

by

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ABSTRACT

WILLIAM PETER MACMONAGLE. Participants in adult basic skills classes using intertextual and metacognitive skills and strategies to aid reading comprehension and written expression (Under the direction of DR. DAVID PUGALEE)

The purpose of this research was to seek evidence of awareness of metacognitive processes and intertextuality in the reading comprehension of students in an adult basic education class. Its purpose was to interweave several strands of research investigation and theory to explain the reading and writing capabilities of a representative population in an adult basic education class. This action research in the form of inquiry is described by Weirauch and Kuhne, (2000), and by Neimi in 1989 in Quigley's, *Fulfilling the Promise of Adult and Continuing Education.* It consists of part action research and part advocacy in a mixed methods approach with an emphasis on improving the education of adults returning to school to further their job prospects or remediate their lack of education (p. 56). The participants were all working adults in an Adult Basic Education class with either a high school diploma or a GED. The four components to the research design were two survey instruments: Mokhtari and Richardson's "Metacognitive Awareness of Reading Strategies Inventory" (MARSI) and Schraw and Dennison's "Metacognitive Awareness Inventory" (MAI). There were three reading-comprehension modules taken from standard popular and school literature coupled with written impressions and thoughts following both the first and second readings. The illustration requirement captured an aspect of the reading that the student felt was emotionally significant or had a strong visual element. The difference between

this research and other research in the field is the inclusion of a rich picture description module designed to capture non-conscious elements of understanding and to counter any effects of self-report. One finding of this study shows that people often do not know how much they do not know, and tend to either overestimate or underestimate their abilities. A second finding is that the rich picture illustration revealed understandings beyond the participants' written expression.

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Over the past twelve years I have been at UNC Charlotte as a graduate student, I have had the opportunity to be taught by and get to know personally so many wonderful professors and fellow students that it is hard to single out an individual or individuals who have helped me learn and grow personally and professionally along the way. A couple have since left the university, one sadly (to us) to death, but others remain who have become an inspiration and a bond to me in the broader community of learning. To all of these, and more, I owe a debt of gratitude for an excellent education at this institution, as well as for being caring and engaging partners in this journey towards a better understanding of myself, and the students I endeavor to teach.

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CHAPTER 1: INTRODUCTION

In this study, I explore the relationship between reading, written language, knowledge and thought by incorporating theories and research on Intertextuality and Metacognition, Mental Models and Rich Picture Description. For an analysis of how well the participants did on the writing task, I use a generally relied upon holistic evaluation such as found in Steck-Vaughn's *Complete GED Preparation* (2008) because it is in general use in Adult Basic Education classes. This is an accepted standard rubric for evaluating GED essays. I found it necessary to look at how well or poorly the participants wrote according to accepted classroom standards, as well as the ideas they tried to convey. I decided to combine ideas from several fields of study with their particular approaches to cognition in reading in order to analyze the abilities of my participants from several vantage points.

I also investigate whether or not adults in my basic-skills class were aware of and used metacognitive skills and strategies when they read, and if reflective writing between readings assisted in reading comprehension. Reading comprehension, metacognitive skills and strategies, reflective thought and non-conscious (neurologically based) functions of the mind are all parts of the overall ability of the conscious mind to interpret the world. I draw general and specific support for my position(s) on mind, consciousness, reflective thinking and cognition (meta and otherwise) from research by Damasio (1999), Churchland (2004), Paivio (1992), Johnson-Laird (1984) and Saks (1970/1996), and philosophical and psychological work

by Searle (1998), Dewey (1910/1991) and others. I also seek to interweave ideas on the nature of the relationship of experience, reflexive/reflective thought, and the ability of language to do things in the world, as well as create, and continuously re-create the life of the mind into the discussions. The activities of Mind and reflective consciousness, experience and sensation interrelate and complement to enrich our "reading" of the world of experience, reading comprehension and written expression. These are conscious mental processes and have psycho-physiological underpinnings in the structure of the brain as explored in the research conducted in these areas by the above-mentioned authors and others in the fields of Psycholinguistics, Neuroscience, Cognitive Science, and related fields. These processes and mental patterns encompass our use of language and in personal expressions of a person's place in the various worlds of discourse that we inhabit (Gee, 2003). It is not just a matter of psychology. William James and other educational psychologists and educators concerned with the nature of learning studied the same issues. It is also a matter of how the brain is structured and patterned for anticipatory and reflective thought. A new generation of cognitive scientists and researchers in the fields of neuro and psycholinguistics are now investigating these neurologically based thought processes. I have drawn upon the field of Cognitive Grammar (Lakoff & Johnson 1980; Taylor, 2002, Langacker 2002, 2008; Croft & Cruse, 2004) for explanations of the use of language as a vehicle of expression and formulation of ideas from a Linguistic perspective. In this, I attempt to explain why students chose the words and phrases they did in expressing themselves.

Statement of the Problem

Basic Assumptions

I hold the basic assumption that my students have not been taught very much, if anything at all, about what metacognition means and the skills and strategies they employ to reach understanding while reading. If they have, these were explained in simpler terms such as thinking ahead, summarizing, and thinking about what they just read. Furthermore, they lack an awareness of how they actually go about making sense of what they read. I estimate that they are naïve about their own reading processes, and as such are not able to extract much more than a surface explanation of what they have read. They often need to be pressed, and guided along using question and answer techniques to coax from them the connections in the text that exist in the world around them. For my participants, "intertextuality" was an unfamiliar word, although I am sure they "read" the world outside of books in contextual ways that interlace and inform their actions and the connections they make in their reading of books, magazines, and newspapers in daily life. They are not ignorant, but seem to be lacking in understanding and awareness of how reading strategies and the use of reading strategies can improve their reading comprehension. It is also possible they received an education based on their socio-economic status. Socioeconomic pressures or uninspired teaching in urban educational systems may have driven them from school, as well.

Primary Question

Do adult students in a basic education class use intertextual clues and metacognitive strategies to assist their reading comprehension? Over the past 20 years, I have taught undereducated adults and have found that they are often unaware of the

disparity between their own ability to comprehend what they read and what is commonly referred to as being able to read at the level of a high school graduate. Students in this arena of adult education often struggle with reading and writing and yet can be unaware that their level of ability is not sufficient to meet the demands of today's information saturated workplace.

Mis-education

Community college institutional standards define the working adults I teach as "disadvantaged" if they have not reached a reading level equal to that of the 9th grade, the TABE level at which they can study for the GED tests. The basic definition of "under-educated" in this context is that they lack a high school diploma or a GED. In my work over the past 20 years I have found that even with these credentials, students remain largely under-educated for the world we live in and the available work there is to do. These students are either non-literate, marginally literate, or simply lack the literacy skills necessary to communicate clearly and coherently in our information-dependent society. This is often so despite having what we claim to be a high school education. The working adult students in my research fall into the category of having been educated in urban areas, and may have completed their education through social promotion or held back, and are in the same or similar educational circumstances as younger students from similar backgrounds. In an interview with one of my students for a class research project, "The roles of overall education in job maintenance and upward mobility: Perceptions of working adults," I was told the following:

> Just because I was well liked and well dressed doesn't mean that I was a student
> who stayed in his seat all the time I mean I was like I said a runaway once I got

to high school it didn't go well at all you know eighth grade I left and I probably didn't graduate eighth grade I got through seventh grade because they felt sorry for me and I did do some seventh grade work but when we stepped up to eighth grade the classes were larger and I just got (to where) this is not workin' it was more fun to run the hallways and be just ignore classes (13:34) but be there you know I was there but (….?) but anyways I didn't stay long at the particular school anyway because it was very difficult" (MacMonagle. Butch, Interview, 2007).

According to Roderick and Engle (2001), and Roderick, Nagoka and Allensworth (2005), research on retention and social promotion in the Chicago city schools found that neither retention nor social promotion were the panacea each side of the debate had hoped for. The Chicago teachers found that, without training and dynamic systemic support from the school district, they were faced with motivating their students without changing their teaching methods significantly. The most direct path to higher test scores in this era of increasing teacher accountability resulted in teaching to the standardized tests. Instead of providing improved educational delivery, teachers began bypassing the needs of their best performing students and delivered restricted grade level content (no frills reading and math lessons) to their lowest performing students to bring up the reading and math score on standardized tests. Both attempts to improve student performance are generally ineffective over time. Thompson and Cunningham, (2000) stated that, "Overall neither social promotion nor retention leads to high performance." (Thompson & Cunningham, 2000, p. 2). Mickelson's (1990) research conclusions state that, among black youth (We could easily apply this

to Hispanic students as well), the abstract idea of education being the path to a successful future is in conflict with the reality that it does not necessarily do so because of inherent prejudices in our society. These are "concrete" attitudes, as opposed to the "abstract" and socially sponsored beliefs in the efficacy of education. The actual experiences of students poised to enter the workforce manifest in a diminishing interest in school (Mickelson 1990, p.1). This Catch-22 reality, as revealed in the following selection from an interview with a working student, often belies the promise of a better life through education during the first 12 years (or less) of education:

> Well my thoughts now, you know, I mean I've heard a lot of people say you get wiser as you get older and a lot of kids now don't really understand that as they're growin' up, …an…you know… dealin' with parents you know they instilled in me that education was very important but being you have your group and your peer pressure where some of them might not think that education is not that very important, but as you get older and you get into the work area growin' up I wish I woulda took education a little bit more serious an I think if I hada done that that might of put me in a better situation than what I am meaning that I woulda continued school instead of goin' straight out from high school to work and trying to go to school I woulda just continued school completely. And I'm not saying that school you know is for everybody because everybody has their different pathways but I think education would have helped me out a little bit more if I had studied a little bit more instead of just trying to pass the class and making a C…. (MacMonagle, 2007; J.J. Interview).

In order to find work, better employment, keep pace with the demands for increased literacy on the job, and improve their chances for a better life, these men and women return to school for remedial and continued education. Current and past educational research has shown that, for a variety of social and economic reasons, the schools they attended did not foster a full and complete education or have the resources to remediate struggling students. Demetrion explores this issue more fully in his case study analysis of adult learners in a Deweyan vein (Demetrion, 2001). Kolb (1984) has worked for years promoting his program of experiential learning in business and in educational circles relying on the works and educational philosophies of John Dewey, Jean Piaget, and Kurt Lewin. Research into the problematic nature of locally controlled American educational practices, combined with historical concerns of providing an adequate education for all Americans, has resulted considerable research over the past 100 years. Heath's study (1983), Anyon's investigations (1997), and Kozol's (1992) and Shor's (1992) writings on American schooling are among the many investigations that highlight American educational reform efforts, reveal multiple examples of systemic failures, and offer considered remedies.

I have often observed that when students are asked to write, they rely upon surface explanations that cover only what is obvious on the page, the content, or what is easily apprehended from known vocabulary. Fingeret (1997) claims that these students have been taught, or led to believe through literacy classes, that meaning resides in the text and "separates adults from their knowledge about the world and defines literacy as a process of getting the meaning from the texts rather than constructing meaning through interaction with texts and the social world" (Fingeret, 1997, p. 62). I find that

while students can tell me what is going on (the surface plot, or events) there does not seem to be an understanding of implications or deeper meaning derived from contextual and narrative clues provided by the author. This may be because these students do not read well enough to enjoy the experience, or are just not curious about reading. We cannot rule out that undiagnosed learning disabilities may have rendered reading so difficult they gave up trying to improve their reading. The current process of teaching adult students how to read well enough to pass the tests for a GED, the General Education Diploma, is largely an imposition of discrete skills the student is supposed to hold together long enough to pass the test. It is a gateway certificate because employers now require at least a GED as proof of entry-level reading, writing, and math skills. Fingeret states that we cannot honestly call it Literacy because reading comprehension is not a strict set of discreet skills that we can teach in discreet modules or elements and then piece them together as if reading was a process of assembling a jigsaw puzzle. Reading well is a global compilation of skills and intuitive processes that requires practice and engagement over time.

I have also observed that many of my students are not able to synthesize and evaluate the texts at their disposal. They lack the critical skills they need to interpret what they read, and evaluate textual material adequately enough to be able to say that they comprehend what they read. Students need to absorb the information in the text, understand the meaning of what is said, and gain an intellectual appreciation of the implications from the author's phrasing, references to interior (inner life) and exterior (material world) states of being and becoming. This inability to effectively "read between the lines" and relate their impressions is what fails them in academic settings

when they need to write about what they have read. Writing remains an underdeveloped parallel and complimentary skill. Efforts are often cursory or simply a "book report" style paragraph. This lack of imaginative reading ability reveals nothing concerning text-to-text, text-to-self, or text-to-world understanding. The reading stands alone as an entity, detached from imagination or reflective mental imagery.

Purpose of the Study

I conducted this study to determine where I need to improve my practice and to gain insights into the cognitive and metacognitive processes of the workplace adults I teach in basic-skills classes. This is a form of action research as expressed by Quigley and Kuhne (1997). I wanted to investigate the abilities of my student participants to discover what they lacked in their reading comprehension strategies so that I could address them in my teaching in concert with them. Current neuro-linguistic research indicates that reading and writing, and the inner reflective mental activity that accompanies these activities, synergistically intertwine to such an extent that one depends upon the other to form a complete (holistic) understanding of text.

As such, writing out one's thoughts and reflections is a key component to understanding text and grasping the broader implications of what it means to understand what one has read. Some of these skills are: the interpersonal relationships between and among characters, following the thread of sub plots and events, understanding the author's tone and narrative explication, idiomatic and figurative language and the use of satire and irony. It also means that the reader must take into consideration how the text relates to issues in life, as well as any coincidental parallels to the life the reader lives.

It also means to be able to suspend belief and enter into the world the writer has imagined and set forth for the reader.

Significance of the Study

Kazemek & Kazemek (1992) state that what is missing in today's adult education is recognition of life experience and the recognition of social circumstances that lead to failure in school. They looked at adult education from a systems-theory perspective. They concluded that we fail to recognize the full dynamic of the social and familial situations among adult learners, claiming that trying to overlay school values and attitudes onto adult students often neglects the social context in which these students have been socialized. Okenimpke (1992) looked at literacy education in the light of the United Nation's International Literacy Year (1990). The key term here is "functional literacy" as opposed to "traditional literacy;" that is, giving people enough literacy skills to be able to manage (function) in an increasingly media driven, corporatized society in all parts of the world (Okenimpke, 1992, p.1). In my past and current experience, the Workforce Investment Act of 1998, applied to the students I teach, is based on giving adults only the basic literacy skills they need to find and retain employment.

Quigley (1999), reprising Arnove & Graff (1987) and Quigley (1997), states that "low literate adult learners have been stereotyped as a fallen-away group in a state of deficit and adult literacy education has been considered the 'remedial quick fix' that can cure them" (Quigley, 1997, p. 253). Also germane to the issue here are research observations on adult literacy by Malicky & Norman (1995), and Demetrion (2001). The issue becomes one of failing to educate children and then failing to explore why children fail in school so that the situation can be corrected when they return to school

as adults. Gee claims that given the complexity of videogames and children's ability to master the complex rules and permutations of the world of videogames, there is no reason to believe that children are not smart enough to master their subjects in school.

Since children with normally functioning minds from all social classes and backgrounds have shown they can learn and perform the complex memory and action tasks embedded in videogames, the problem lies in the way students are taught in school and not in the children themselves (Gee, 2003, 2004). Using Bowles and Gintis in their research of the Chicago school system in *Schooling in Capitalist America* (1977), and Flesch's *Why Johnny Can't Read* (1985) as wake-up calls for subsequent research and educational reform, a considerable body of research has been conducted specifically on how to reform the educational system in the United States. Ideas for improving schooling range all over the map, but the consensus seems to be that we fall far behind other industrialized nations because our school systems fail to deliver on the promise of an adequate education. Many students find it impossible (or a great struggle) to enter academia at the required level of literacy, or enter the workplace with the language and cognitive skills they need to meet the challenges the business world expects of them.

Key Concepts

Intertextuality

Bloome and Egan-Robertson (1993) state that "Simply defined, intertextuality is the juxtaposition of different texts." In *Uses of Intertextuality in Classroom and Educational Research*, (2004) they state that intertextuality is "socially constructed" because, "as people act and react to each other they use language and other semiotic

systems to make meaning, to constitute social relationships, and to take social action"
(Bloome &Egan Robertson, 1993, p. 17). These constructs are not at odds with each
other. Although we are discussing texts in terms of reading several passages from
popular literature in this study, "Text" as it is used today is the world of thought and
action and is a social construct, not merely the relationship of one book's words to the
mind of one reader. We can draw a basic definition of Intertextuality from the idea that
a reader interprets what he or he reads in light of what he feels about the ideas presented
from personal experience and the mental/psychological make up of the individual. This
is relating the text to personal experience and self-reflection. Concurrently, an
accomplished reader relates what he reads in light of other materials he has read and the
information he has gleaned from them. We could restate this as relating the text under
consideration to other texts he has read over his lifetime. Ideally, at the same time, the
reader relates the text he is reading to his general and specific knowledge about the
world, what has happened in his life, and the cultural and historical context of the
society he inhabits.

  The mental images within us, the text, other texts, and personal experience of
the world (inner and outer) form working models of our world as we experience it. As a
mental exercise at this point we could envision a triangle of connections that work
together to inform and expand the reader's knowledge and impressions of the World,
the Text and the Self in mutually supportive and reciprocating ways. Each one
influences the other as the reader moves through the text. All of these relationships
come in to play during the act of reading. Julia Kristeva, in her 1989 *Language the
Unknown: An Introduction to Linguistics,* is considered the "inventor" of the modern

construct of "Intertextuality." She says that we cannot consider language only as a matter of simply talking or writing in one's native language, but "a plurality of signifying systems of which each is one layer of a vast whole" (Kristeva, 1989, p. 296).

Lemke (1992) defines *general intertextuality* (his term), as "every text, the discourse of every occasion, [that] makes its social meanings against the background of other texts, and the discourses of other occasions." It is the way we make meaning, and "is an important characteristic of the way we use language in social communities" (Lemke, 1992, p. 257). He points out that there are "meaning relations" we make through the books we read and the many other forms of social communication we use, and they "always depend on the currency in our communities of other texts we recognize as having certain definite kinds of relationships with one another" (Lemke, 1992, p. 257). The exploration of intertextuality is also a process of exploring semiotic relationships that exist between and among social contexts as well as written work.

Today we consolidate much of what we read under the general heading of Media, such as the information we find on the Internet, as well as levels of discourse and register. There are also specific language worlds (Discourses) we could describe as "inhabited worlds of the human imagination," as well as the social connections engendered in video gaming such as Gee (2004) describes as "affinity spaces" (Gee, 2004, p. 83). Intertextuality includes social language connections as well as the intertextual understandings we arrive at through reading books and the understandings and meanings we arrive at through social discourse and the patterns of our lives within our communities.

Metacognition

In *Metacognition and Reading Comprehension* (1987), Garner states that metacognition is more than just a matter of knowing what to do while reading. Following Flavell's work on the subject, she says it is "essentially cognition about cognition," and is tied to the mental processes of "executive control" functions while reading. This process consists of, "thinking about one's own perceiving, understanding, remembering, and the rest" (Garner, 1987, p. 16). In her 1992 chapter in *What Research Has To Say About Reading Comprehension*, she explains that research into metacognition "examines thinking about thinking" (Garner, 1992, p. 237). Accordingly, individuals need to be able to identify that they are reconsidering what they have just read, identify that what they are reading may be a bit too complex, and consciously review (summarize) material in order to discern the meaning. It is strategic thinking, and as so must be a reflective process that goes beyond understanding the content of the text. Metacognition, in order to be considered metacognition, "must be about thinking, and it must be both relatively stable and usually statable" (Garner, 1992. p. 237; Also in *Metacognition and Reading Comprehension*, 1987, p. 17). Garner draws upon Brown (1984) to note that "younger and less proficient readers" are more likely not to understand the difference between reading for academic purposes and for leisure, focus on the need to decode, or notice when their mind wanders so they can pull themselves back to the task of reading and continue (Garner, 1992, p. 238).

During the process of reading it is important for a reader to be able to use "self-regulatory mechanisms" to guide the reader through the text and solve reading

problems. Baker and Brown (1984) list several of these as: checking, planning, monitoring and evaluating. Metacognition during reading is "the development and use of compensatory strategies," and involves solving various problems during reading. These could be, "(a) clarifying the purposes of reading, or understanding the explicit and implicit task demands; (b) identifying the important aspects of a message; (c) focusing attention on the major content rather than on trivia; (d) monitoring ongoing activities to determine whether comprehension is occurring; (e) engaging in self-questioning to determine whether goals are being achieved; and (f) taking corrective action when failures in comprehension are detected" (Excerpted from Brown, 1980). According to Taylor (1992), these skills are used by skilled readers who are able to detect the differences in the materials they read and are aware of the organization of the text, the general and specific nuances of plot and character development, and hold in mind the various twists and turns of the storyline (Taylor, 1992, p. 222).

Thanks to language and the ideas we can construct with language, we can structure our thought to stand back from what we are doing or have done and see it from a mental distance in order to relate it to other issues and considerations. This is a recursive process. Through recursion, we get an overview of our own thinking at any place and time we choose to set, depending on the matter at hand. Carr states that this recursive property "guarantees discrete infinitude" and "is a defining property of human language" (Carr, *Lingua* 116, 2006, p. 642; for a discussion of recursion see Fitch, Hauser & Chomsky, 2005, and Pinker & Jackendoff, 2005).

During the process of reading, good readers have internalized many of the strategies beyond the basics of decoding the words on the page, so that we may think of

them as both skills and strategies. More specific to our purpose here is the concept of metacognition and reading comprehension. Taylor (1992) states that skilled readers are able to detect the differences in the materials they read, and are aware of the organization of the text, the general and specific nuances of plot and character development, and are able to hold in mind the various twists and turns of the storyline. Readers who struggle with the meanings of words, read sentence by sentence, or lack an understanding of the differences between the types and purposes of textual material (i.e. non-fiction vs. expository textual material) will not be able to hold a working summary of the material in mind as they go along. Young readers and struggling adult readers often fall into this category because they have not developed the mental strategies that allow more accomplished readers to do so. Consequently, it is not surprising that "poor readers have more difficulty stating the important ideas in text than do better readers" (Taylor, 1992, p. 222; from Winograd & Bridge, 1986).

Connectionism

Closely allied to neural-network patterning, Connectionism is also a computational model of the workings of the brain and how neural networks, as modeled in artificial intelligence explorations, work together to produce comprehension and understanding. This is considered true for both written and spoken language (Plaut in *The Science of Reading*, 2007, p 30). Processes in the brain assign parameters and relate grammatical structure, semantics, and syntax to each other in microseconds during language use. Catts and Kamhi (1999) accept Paivio and Sadoski's Dual Coding Theory, as well as a connectionist approach, to explain how the mind works during reading. They state that the process, while not strictly propositional in nature (their

view), does rely on various feedback loops whereby "behavioral patterns are achieved by adjusting connections among networks of simple processing units" at the neurological level (Catts & Kamhi, 1999, p.5). These connections require a multi-level construct of the activation of understanding, in which the various aspects of metaphorical and syntactical representations are necessary.

From a language processing specific model, these are the roles of *phonetic representation* (the sounds of speech), *semantics*, the meaning the words, phrases, and clauses according to how they are presented in speech or on the page, *morphology*, the grammatical and pragmatic aspects of inflections, and prefixes and suffixes (grammatical morphemes). They either define the role of the word in the sentence, or provide clues to its ambiguous or unambiguous nature, as well as its extensional or intensional meaning. *Syntax* governs the rules of the structure of phrases, clauses and sentences (whether they are well-formed or not). In *pragmatics,* we judge language according to its use in every day speech or formally structured social situations. This does not mean we do not build propositional structures in our minds. Catts and Kamhi (1999) also say, we do not usually remember things verbatim, but restructure what we hear or read into "idea-units" (Catts & Kamhi, 1999, p.11). These are condensed or paraphrased summations that take the burden off the mind's need to remember exactly what was said or read. This does not obviate pattern making or mental envisioning of events and structures in our minds as we read or listen to a speaker recount an adventure or experience.

Comprehension making must take into consideration the assumption that we build mental models of the world and our understanding of the world and its multifaceted

representations that impinge upon our consciousness (bodily sensations through the senses, imagined visualizations, and emotional states included). According to Bower and Morrow (1990) in their review of the research on mental models, readers construct meaning out of what they read. They state that, "the reader thus constructs a mental representation of the situation and actions being described. This referential representation is sometimes called a mental model or situation model" (Bower & Morrow, 1990, p. 247). As Crotty (1998) states, the world does not have meaning until human consciousness ascribes meaning to the world and objects in the world through interpretation. Constructionism means that, "meaning emerges only when consciousness engages with them" (Crotty, 1998, p. 43). The process of creating a mental pattern or representation while reading is not simply drawing pictures in our minds to envision what is happening on the page, but is built into the very concept of our being and how we physically and metaphorically relate to the world and our place in it at any one time. The concept of "metaphorical orientations," as explained by Lakoff and Johnson in *Metaphors We Live By* (1980), reminds us that language and physicality mesh in such a way that our very expressions and concepts of bodily space and time, mental space and time, and cultural space and time complement each other. We picture ourselves in the picture of our lives (so to speak) and in language and in action conceptualize where we are in the world. These are orientational experiences, and are only part of our physical and mental experience, reflection, and expression (See *Metaphors We Live By* beginning on p.14).

Neurolinguistics and Reading

In Gyselinck and Tardieu's (1999) examination of the role of illustrations in reading to explore their role in cognition, they explain that according to Paivio's theory, humans have two coding systems through which we gather information during reading. Quoting the old adage that "a picture is worth a thousand words," they explain that, according to Paivio's research we are equipped with two systems that work in tandem to produce understanding, a visual channel and an auditory one (Gyselinck & Tardieu, 1999, p. 195). In *The Neural Basis of Reading,* (Cornelissen, Hansen, Kringelbach, & Pugh, 2010) Brunswick explains that the skills of reading and writing in English are complex artificial constructs that rely on at least two pathways to understanding. One way is to understand what the reader sees through "grapheme-phoneme correspondence rules," and another is the "lexico-semantic" pathway. That is, direct access to meaning by accessing what we already know; morphemes, graphemes, and words and phrases and held in the lexicon. In comparison with other languages, English has a "deep-orthography" whereby a reader must negotiate 1,120 graphemes (the written expressions) with the 40 phonemes (spoken alphabetic language) that constitute the English language.

According to Brunswick's (2010) meta-analysis of a number of neuroimaging scientific studies that are much too scientific to relate here, the "dual-route model" is the most widely accepted process that explains our brain's ability to use preexisting systems unique to our brain to process speech, interpret gestures, and hold and derive meaning from both spoken and written speech. Even with all the scientific data

presently available, he still states that our neural structure, composed of some "86 billion neurons and an equal number of glial cells" (Brenner and Sejowski, 2011), interacts "in some remarkable way" to comprehend what we say and write (Brunswick, 2010, pp. 80, 81). Block and Parris (2008), quote Kaan and Swaab's research (2003) in neuroimaging the brains of people as they are reading using positron emission tomography (PET). They conclude that the 'results suggest that there is [also] a direct reading route that does not involve speech sound recording of the visual stimulus before the processing of either meaning or speaking' (Block and Parris, 2008, p. 120). We still do not know exactly how the brain works to accomplish the two socially constructed forms of communication, verbal speech and the written word. However, we do have clues and theories based on scientific findings and theoretical understanding derived from new scientific techniques, observation and the comparison of healthy brains with those that have various aphasias due to disease or injury.

Mental Models and Mental Patterning

Garnham (1987) states that the central claim of mental models is that they "usually model aspects of the world rather than aspects of linguistic structure," and, "the encoding of a text does not correspond to its semantic representation, even though the nature of such an encoding obviously depends heavily upon the text's meaning (Garnham, 1987, p. 15,18). Johnson-Laird's theoretical model states that there is a connection to the world in the mind of the reader he calls "homomorphism." Gyselinck and Tardieu (1999, pp. 196, 197) describe this mental model as "a structure analogical to that of the situation it represents, and its content corresponds to the objects and events of the world." It is an analogy that corresponds to a mental model or a mental image. A

mental image represents the world from a certain perspective, but a mental model – for Kintsch, a situation model – allows for inferences for more than one point of view.

Situation Models

As described by Gyselinck and Tardieu (1999), the situation model theory of van Dijk and Kintsch (1983) is a process of three levels of representation, as is Johnson-Laird's model. The first level is the level where the structure of the text is decoded. A propositional level follows, which is a basic understanding of what the text is about – the literal meaning. The situation model is a deeper level of comprehension where the understanding gleaned from the text connects to what the reader understands from his or her interaction with the world.

Summary of the Research Question

My primary research question comes in two parts:

1. Is there a way to tell how well participants in adult basic-skills classes use intertextual and metacognitive skills and strategies as tools to aid reading comprehension?

2. Does reading comprehension improve if students are required to write about what the have read before they re-read the text?

I also faced the researcher's basic question of how could I go about this when my students are suspicious of educational research and attend these classes primarily as a way to improve their economic situation, as opposed to studying for the sake of gathering knowledge? Although the research questions themselves are worded as basic "yes" or "no" questions, any conclusions that arrive from this research may reveal that there are no simple answers where the use of our minds and brains are concerned.

Limitations

I was aware there were several limitations I needed to take into consideration with this study and my population. The first one was that students have different reading abilities depending upon what type of reading material they face. Secondarily, student participation would be a variable. Although the students were participating in a community college class, work and family commitments often interfere with progress. I hoped I could mitigate this by the condensed time in which we conducted the study. In addition, students were using class time to do the work. Another consideration was that students have differing levels of willingness to write based on their own experiences in formal schooling. Actually, this is an important part of the consideration here, since I was studying how students think about their reading and writing processes, and not how well students perform on a test. This was not a gauge of competence, but an investigation into what goes on in a student's mind and the reading strategies they use to come to understand what they read.

Delimitations

The boundary of this study was confined to the people I recruited from my adult basic skills workplace education classroom. The class I considered for this project consisted of twelve students at the time the study was conducted.

CHAPTER 2: LITERATURE REVIEW

Related to Literacy Difficulties in the General Population

Haberman's article, "Pedagogy of Poverty" (1991) is only one among many other
studies that criticize the poor education prevalent in inner city schools, where
worksheets take the place of an education that promotes the human potential latent in all
students regardless of socioeconomic status. We find the same complaint in the research
and work of Bowles and Gintis (1976), William Julius Wilson (1987), Shirley Brice
Heath (1987), Jeannie Oakes (1985), Jean Anyon (1980), and Peter McLaren (1998).
Paolo Freire's *Pedagogy of the Oppressed* (1970), and the radical writings on
educational reform by Henri Giroux (1992), caused social upheaval in education. Other
research has been done on mainstreaming the physically handicapped and erasing racial
and socioeconomic barriers in education. Proper funding for education is still a hotly
contested battleground in Congress with major cuts in programs such as Pell Grants for
first time college students, the "Reading is Fundamental" program, and a proposed fifty
percent cut in the Head Start Program on the table in the current congressional budge
talks. How these program cuts are to benefit the educational attainment level of the
United States remains to be seen. But what is known is this: According to Byrd and
Comer (2007), "It is estimated that 22 percent (slightly higher then the national average)
of adults in the Piedmont Triad region of North Carolina have poor literacy skills,
meaning that they have difficulty with tasks involving simple text and documents."

North Carolina is not alone in this, because this problem and the profiles of the undereducated are similar across the nation.

It is not just poor schooling. Our failure to identify learning difficulties early and address them effectively, contribute to the learning problems they have as individuals. We can talk all we want about the needs and educational approaches used in adult learning. We may even speak of serving a narrow segment of adults, those who are ready for further education. Those are people who can read and calculate at the level of a proper high school education and are not hampered by social, economic, and mental health issues. They are not the only ones knocking on the doors of community colleges.

In the public system of Adult Basic Education we turn very few people away, preferring to develop programs to serve those that the public schools in the K – 12 system level either had no funding for or simply passed on to become somebody else's educational challenge. In their report, "An exploratory examination of literacy assessment practices of adult programs in North Carolina's Piedmont-Triad region," Byrd and Comer (2007) identified a number of problems ABE students have that are germane to this study:

> These tend to be problems with memory, reasoning and processing, reading, writing and concentration. Because of their poor reading ability, they may have difficulty filling out a job application or forms. By poorly filling out a job application, they can be left unemployed. If they are given a list of questions that will be asked during an interview, and they have trouble reading information pertinent to the interview, they will be unprepared and rejected for the position being offered. If an adult cannot count money and has difficulty

using a calculator they can be cheated of the right amount of change given to

them or end up paying too much for something. Illiterate adults may overdose or

catch an allergic reaction because they cannot read labels on food or medicine.

They may add too much of an ingredient to their meal because they did not

accurately read a recipe. (Byrd and Comer, 2007, p.14).

In "Socioeconomic background modulates cognition-achievement relationships

in reading," (2006), Noble, Farah and McCandliss investigated the relationship between

socioeconomic levels and the ability to read effectively. They stated that reading at

home and the acquisition of phonetic ability are major factors in whether a child comes

to school ready to read or not. They note that preliterate children entering kindergarten

with phonetic awareness are able to learn at a faster rate than those who do not have this

background. They state that in a study conducted by McDonald and Cornwall (1995),

and other studies, indicate that phonetic awareness in kindergarten is a greater predictor

of teenage reading ability than is reading skill in kindergarten. According to a study

conducted by Bradley and Bryant in 1983, this deficit has been linked to dyslexia

because it becomes a phonological impairment. Students who were given intensive

phonological skills training and direct instruction showed marked improvement in their

ability to read.

Related to Literacy Issues in the ABE Classroom

An example of non-creative rote methodology I see every day in a GED

classroom is the insistence on being able to write a standard five-paragraph essay. In

material published for GED study, preparation for the writing test consists only of being

able to write the standard five-paragraph model since it is an easy rubric to use and is

formulaic enough to introduce to younger students. In schools serving lower socio-economic students, this formula does not change along with grade levels. While there are many exceptions to this observation, it is generally accepted in the research (For examples see: Bowles and Gintis, 1977; Anyon, 1980, 1997; Oakes, 1985; Haberman, 1991) that inner city children generally do not get a well designed writing curriculum that frees them from the restrictions of easily graded rubrics and standard short answer questions on tests. Or if there are writing exercises, red marks fill the page noting grammatical errors and syntax problems, but allowances for the free expression of ideas and the formation of new knowledge awkwardly expressed, though imaginative, go un-remarked. This leads to discouragement and the feeling (if not the actual proof in hand) that grammatical correctness is all that is required to be a good writer. Unless a significant teacher knowledgeable in writing arrives on the scene, the unsuccessful student retreats from writing. Peter McLaren's *Life in School* (1998) is a critique of hegemonic practices in our school systems that deny children of color and others in lower socio-economic living conditions a decent education. McLaren claimed the children he taught in an inner city school in Toronto were set up for failure by virtue of the very circumstances of their lives. Pressley (1990) also covers this in his analysis of learned helplessness. Citing research by Licht and Dweck (1984), he states that, "learned helplessness was related to an inability to cope when faced with difficulties in a achievement-oriented situations" (Pressley, 1990, p. 69). All of this has a direct impact on metacognitive abilities because metacognition is an integral part of self-esteem, self-efficacy, and the effort a student must actually engage in to be successful in school. However, writing and its complement, reading, need not be a mystery.

According to Aaron & Joshi (2006), writing is language as much as speech is, considering that human society has used writing as an adjunct and substitute for language as long as writing has been present, which, depending on which region of the world forms of writing have been found range from the 5ᵗʰ to the 1ˢᵗ millennium BCE. If a student cannot read well enough to describe or analyze and evaluate what they have read in today's media-saturated society, they are only partially literate.

Jurgen Reichen (2001), the Swiss-German educator, insists that it does not have to be that way. Since 1972, he has taught children to read by starting with their own writing. Since children's pre-literacy and literacy efforts start in the home and are carried into kindergarten, his method is based on using this predisposition to write to start the process of formalizing the reading process by beginning with the child's own writing. This is *Erstleselhergang*, or first reading instruction. According to Reichen, learning is an internal process that you cannot impose, but rather encourage from within through writing practices that serve as the foundation for ensuing reading ability.

I believe that we can improve both reading comprehension and writing ability. It may be possible to use a reflective writing process in tandem with reading exercises to awaken and provide support for engendering within the student a written expressive language. Grabe and Kaplan (1996) discuss Bereiter and Scardamalia's writing research using their "*knowledge transforming* model," and state that "If students seldom practise the sorts of writing tasks which develop *knowledge transforming* skills they are not likely to be able to perform those skills easily" (Grabe & Kaplan, 1996, p. 125).

Related to American Education and the Effects of Prior Schooling

In a quantitative study of college students, Marello (1999) recognized that under-prepared students felt marginalized in the classroom. Her study used a comparative study of two groups of students, an integrated reading-writing group and a non-integrated reading-writing group as a way of investigating how the college could improve instruction for incoming freshmen that need additional developmental work in order to be successful. She discovered that the reading levels of the integrated group, and the motivation and satisfaction of this group produced statistically significant higher results. Her theoretical model was a shared-knowledge/cognitive perspective of reading and writing in which reading and writing were seen as parallel tracks of the same process of producing knowledge.

According to Cook, (1996) working class students have a difficult time in post-secondary classrooms because the life of work is not a part of academic discourse. Life and work issues the student brings to the classroom are traditionally not part of the process of learning to write in an academic setting. Cozean (1989) used a case study of a single literacy student to research the growth in literacy through a programmed process of keeping a journal. As Cozean describes, the student found that her self-confidence and self-efficacy as a learner and a writer improved a great deal, even though her economic circumstances did not. This raises an interesting conflict and question for literacy teachers. Many community colleges form and conduct adult education classes with economic empowerment as the goal. Jolly (2000) conducted a quantitative study with adults from rural Mississippi attending the community college during an eight-week project to see if there was a measurable difference in reading

comprehension if a writing component was added to one of the two groups under study. These students were studying to pass the GED. They were pre- and post tested with the TABE 9D. The researcher determined there was no significant effect on reading comprehension. From my own personal and professional experience in the field, I would say that the research did not last long enough to see results.

One of the reasons may be due to the unfortunate reality of how we deliver adult education. Placing adults back into the childhood role of passive learning may bring with it previous resistance to learning remaining in their minds. According to Knowles (1980), adult education should properly be conducted by first recognizing the experience adults bring to the learning situation and their roles as independent learners in their worlds outside the classroom (see also Demetrion, 2001). Mackeracher's, *Making Sense of Adult Learning* (2004) reiterates these issues, and in her earlier research as well (Brundage & Mackeracher, 1980). Massie (1999) completed her research in an adult basic skills learning lab over the course of three years. She interwove a Vygotskian view of the social construction of knowledge with the Rogerian view of interpersonal relationships as creating personally significant learning. She believed it was important for her students to develop meaningful relationships that supported their growing literacy and growing metacognition. Joseph's (1981) quantitative research is a critical view of remedial education as practiced at the community college level. She designed and instituted an integrated language method in order to lessen the impact and improve the abilities of under prepared students entering the community college. She compared an experimental and a control group over the course of a sixteen-week semester. Her results showed that the experimental group

improved reading comprehension levels by two grade levels although there was no significant improvement in writing skills for either group.

Mike Rose reveals his own experiences as entering adolescence and adulthood unprepared and lacking an adequate educational foundation. In *Lives on the Boundary*, (1989) he describes his schooling as bleak because he could not grasp the significance of schoolwork. He earned only C's and D's amid his daydreams and fear of tests. As he says, "I couldn't keep up and started daydreaming to avoid my inadequacy" (Rose, 1989, p.19).

Oakes (1985) found similar threads that run parallel to Rose's understanding that other children in other places were receiving educations that prepared some for the world and some not. Oakes describes the vocational education track, the low tracks, in this way: "Teachers of low track classes were more likely than others to emphasize student conformity: students getting along with one another, working quietly, improving study habits, being punctual and conforming to classroom rules and expectations" (Oakes, 1985, p. 85). These behaviors, described also by Martin Haberman (1991) are not the educational goals that higher track or upper middle class schoolteachers expect from their students, where independent and critical thinking, higher order mathematics and problem solving were/are taught and expected. Anyon (1997) analyzed the failures of the Newark, N.J. schools over the period of 100 years. Whether formalized through inertia in a large city school district such as Los Angeles, or by default in a mafia run city government where patronage and criminal activity skims vital resources of the top, as Newark was for so long, the results are the same. Immigrants, minorities and the working class do not receive educations equal to the more fortunate and better placed in

society. (See also Anyon, 1980 in Kretovics & Nussel, 1994; and for the Chicago school system see W.J. Wilson, 1987 and Bowles & Gintis, 1976).

In his 1982 memoir, *The Hunger of Memory*, Rodriguez says that, although struggles are not confined to lower class/working class children, the disparity between the world of school and the way of life at home may be just too different to reconcile in favor of school. Consequently, only great effort combined with assistance creates the opportunities for leaving the neighborhood behind (Rodriguez, 1982, pp. 51, 52). Rose (1989) credited his escape from both his lower track status and for his growing desire for academic success both to Brother Clint's moving him out of the vocational track and then Jack McFarland's tutelage which eventually landed him at Loyola – still undereducated, but there nonetheless (Rose, 1989, pp. 29 - 33). Thompson, Mixon and Serpell (1996) introduce their research and practice in teaching reading to minority students with a review of research outlining the historical, cultural, familial, and academic mismatches that have held minority students back in their encounters with an educational system largely geared towards the dominant culture (white, middle class, Eurocentric). In *Teacher Man* (2005) Frank McCourt describes his own early life as one common to those who are not successful in school: Alcoholic father, abandoned family, extreme poverty (begging for food), left school early, emigration to the US, and hard work at menial jobs until drafted into the US Army. He paints an unflattering portrait of himself as a teacher after he entered the classroom having used the G.I. Bill to go to college after the Second World War. Nor does he mince words about the nature of the schools he taught in for 30 years. "Vocational schools were seen by many as dumping grounds for students ill-equipped for academic high schools." What the public

did not understand in their snob appeal to the academic life was that many students did not want Shakespeare or Henry Adams; they wanted to be auto mechanics and plumbers (McCourt, 2005, pp. 13,14).

Just what kind of educational practices do we find in adult education classes? According to Fingeret (1997), adults return to school to improve their reading, as in a GED class, only to find an emphasis on reading that consists of emphasizing technical skills that are supposed to be "applied across contexts and cultures" (Fingeret, 1997, p. 61). It is as if these classes exist to give the student a "toolbox of skills such as phonics analysis, syllabification, and main idea identification," indicating that the graduating student has become an independent reader. If we take another look at reading as described by Polyani, we can see that this is far from enough to grant an individual returning to school the ability to remediate his or her educational deficits. Just knowing the words or their dictionary meanings, does not mean that they will be able to claim their rightful place in the world as Paolo Freire (1970/2003) stated in his dictum. In gaining control of their circumstances through literacy, oppressed people, including the aforementioned students in McLaren's school, can claim a place in the world as independent agents. They will then be able to construct meaning because they can participate in the dialogue that characterizes human interaction, and able to transform the world – their world, the world of their existence. For further explication and analysis there is Demetrion's 2001's research and the case study of "Orlando". There is also a good explanation on the often apparent and somewhat real discrepancies between learner goals and teacher goals in adult education classrooms in a Canadian study conducted by Malicky and Norman, (1995). In the Canadian study, basic literacy

instruction became the standard practice even though some of the teachers in the study tried to integrate ideas that would lead to greater student autonomy into their teaching. According to Fingeret (1997) in adult learning labs today there is a pervasive idea that learning and literacy stand alone in a person's life ready to be used in any situation regardless of when or where it is used. According to this approach to learning meaning resides in the text itself. "Consequently, many literacy educators focus on decoding and encoding as instructional goals. Instruction focuses on *words*, and then how to build sentences and paragraphs" (Fingeret, 1997, p. 61, emphasis in the original). In the Canadian study (Malicky & Norman, 1995), students wanted more time with the teacher, not skill and drill exercises. While teachers were looking for best practices methods and good published materials, the students felt that the teachers were the ones to look to for instruction, and preferred the explanations they gave rather than the materials the teachers relied on. The comments were similar when students commented on both methodology and on the use of computers in the classroom (Malicky & Norman, 1995). As has been noted in other research over the years, the teacher is the deciding factor in the classroom. Yet, how do we teach children to write? There appears to be a common thread of educational experience for inner city students running through educational research in the United States. Bowles and Gintis concentrated on the unfairness of the capitalist model of education (1976), and William Julius Wilson on the impoverishment of educational practice among black children in Chicago (1987). Oakes studied the deliberate structural inequality inherent in the tracking of students (1985) Heath attempted to change language practice in a southern town (1983), and Haberman gave a scathing review of teaching practice in inner city schooling (1992).

Macrorie has a word for the type of "phony and pretentious" we teach writing students to engage in when there is no audience but the teacher in a sterile academic atmosphere. In *Telling Writing*, he calls it "Engfish." This is where the urge to correct grammatical mistakes in young writers overcomes the teacher's requirement to nurture ability, not cut it off at the knees (Macrorie, 1970, p. 1).

If we do teach as we have been taught, then I am guilty of using the same sterile approach of rote word memorization, repetitious grammar drills, and the outdated and unimaginative computer programs in computer-based education that perpetuates the kind of literacy that is not Literacy. It is reading words, or as Polyani says, "observing" not reading. Fingeret goes further and says, "Viewing literacy as skills or literacy tasks separates adults from their knowledge about the world and defines literacy as a process of getting the meaning from the texts rather than as constructing meaning through interaction with texts and the social world" (Fingeret, 1992, p. 62). For Kolb (1984), learning comes from experience, and in itself constitutes what people know. This is a critical element in adult education. Basing his views on the works of Dewy, Lewin, and Piaget he sides with classical approaches to education in which the individual encounters the world and makes meaning "through experiential learning [which is] a holistic integrative perspective on learning that combines experience, perception, cognition, and behavior" (Kolb, 1984, p. 138). Lewin says that humans encounter the world and collect information (data) which is "then analysed and the conclusions are fed back to the actors in the experience for their use in the modification of their behavior and choice of new behaviors." From this we construct "theories" about how the world works and how to best negotiate it. Dewey's philosophy is that learning is a

constant "dialectic process integrating experience and concepts, observations, and action. The impulse of experience gives ideas their moving force, and ideas give direction to impulse" (Kolb, 1984, p. 140).

Related to Cognitive and Pre-cognitive Experience and Expression

The "impulse of experience;" is an apt phrase. It grounds language and its use in human communication to the human condition as sensory sponges and actors in life and relationships. Cowley (1997) clearly states that he takes exception to the description of our linguistic capability to the simple (or not so simple) equating of symbols to language forms of expression. In no less a fashion than Bode's insistence that our "apperceptive" abilities frame and influence our learning, Cowley states that everything we do depends upon our bodies and that this "sensorimotor co-ordination is intrinsic to human life" (Cowley, 1997, p. 287). Language depends on our immersion in and active consort with our lives as lived and our communication with the individuals around us. It is not an imposed set of symbols called into action as if language was separate from us as individuals. Cowley goes on to say that it is possible to study language as a set of utterances dependent on symbol manipulation through the vehicle of language, but it is only a partial explanation, since "understanding" is necessary, and understandings differ from circumstance to circumstance and relationship possibility to relationship actuality.

Confining the study of language and its conventions to speaker-interlocutor situations bound by sets of sentences (infinite in variety as they may be) and symbol systems fails to recognize that, "as humans, what remains unsaid is important because activity independent of word-based forms influences everything we say." In Levinson's terms, "non-logical heuristics" underlie and underpin our understanding, further stating

that, "meaning emerges through interaction." In reading and writing, the individual

must go beyond information on the page and use his or her abductive powers in a

complex and multi-dimensional process of construing as well as constructing meaning.

The "pre-logical cognitive processes" are then given form in expression through

language which, because of its deep seated interlacing with our cognitive processes,

draws form from an inner patterning of thought, and becomes revealed in spoken or

written language (Cowley, 1997, p. 288). We can if we like, attempt to explain language

from the perspective of artificial systems constructed after the fact to explain what has

been said (Pinker, *The Language Instinct*, 1994/2000, pg. 90), and use phrase structure

trees or word chain explanations to construct grammars. In the end, all we really can do

is try to explain how the mind constructs language, the patterns and combinations we

use to explain ourselves, the lexicon we draw upon, and the syntactical structure of the

language we use.

However, we do not always think in terms of the language we use, as I am doing

as I write this paper. We have deeper patterns, images, and situationally affective and

emotional constructs from which we draw, that are given forms of expression in words,

song, and in writing. According to Andy Clark's (I offer only the most general

explanation here), in his book, *Associative Engines* (1993), we associate prototypes in a

connectionist network at the neural level. Our memories and experiences stored in the

cortex search for salient features of the issue or item in question looking for an

exemplar or pattern it can extract through associations and features. Prototypes can be

patterns of understanding as well. He references Paul Churchland's research that

describes "*explanatory understanding* as a process of assimilation (of some input

pattern) to a stored prototype" which takes the input, and extracts from known features

and situations an "explanation," of, for instance, that a three legged dog is still a dog

despite the lack of a limb (Clark, 1993, p.21). In *Philosophy in a New Key*, Langer's

(1942) argument on "presentational symbolism" explores the possibility of a "non-

discursive" symbolism. She agrees with Henri Bergson's "intuitive" knowledge as

appearing in 'presentational' order, "not mediated by any formulating (and hence

deforming) symbol." It is "itself perfectly rational but not to be conceived through

language – a product of that presentational symbolism which the mind reads in a flash,

and preserves in a disposition or an attitude" (Langer, 1979, p. 98). This comes very

close to Shapiro's (2011) current explorations into "embodied cognition." It does not

seem too far from Langacker's statement about his own theory of Cognitive Grammar,

as stated in his introduction to *Concept, Image and Symbol*. He says that, "Grammatical

structures do not constitute an autonomous formal system or level of representation:

they are claimed instead to be inherently symbolic, providing for the structuring and

conventional symbolization of conceptual content" (Langacker, 2002, p.1). He also

states that his ideas agree in part with Johnson-Laird (1983), and Jackendoff (1983), as

far as "conceptualization" or "cognitive processing" is concerned (Langacker, 2002,

p.1). Some things we know we do not conceive of by way of metaphor either. Although

he is at odds with Lakoff's characterization of "the computational theory of mind," in

Embodied Cognition, Shapiro draws upon Lakoff and Johnson's explanation of direct

concepts, "simple spatial concepts," that we know by virtue of our own embodiment as

upright creatures (Shapiro, 2011, p. 92).

As Lakoff and Johnson state, " the structure of our spatial concepts emerges from our constant spatial experience, that is, our interaction with the physical environment. Concepts that emerge in this way are concepts that we live by in the most fundamental way" (Lakoff and Johnson. 1980, p. 56). There seems to be no way that I need language to know my orientation in space. I can use language to explain it, but only after I know how to express the previously ineffable concepts embodied in the experiences of my body in space and time, experiences of everyday spatial living, brought to life in consciousness before I began to use language to express my thoughts, feelings, wants, and needs as a child. (In this regard see Polyani, *Personal Knowledge*, 1958, p. 70 and his ideas on "inarticulate intelligence;" and Bower and Morrow, 1990, "Mental Models in Narrative Comprehension."). As we acquire our native language we learn to formulate the words, songs, and readings-of-situations we generate within ourselves or interact with from the impinging world around us. External sensory impressions are coupled with and expand, modify, and re-create the world of our inner experience which in turn give rise to even newer combinations and iterations that we release to the world in vocal, verbal, and written expression through language. It seems to me to be a reverse form of Russian doll nesting, or recursion, like removing the layers of an onion from the inside out and outside in at the same time

Related to Characteristics and Needs of Struggling Adult Learners

Soon after I began working with this class a semester later, a student asked me, "Why do I have to learn this crap?" It is a fair question if you never have to write anything, but in business, the workplace and in school, that simply is not the case. In addition, this student had been picked to participate in the advancement program

because her supervisors felt she had potential for promotion. This betrays a real conflict between the need for further education and the individual's sense of the value such education has in his or her life. It is not unusual in this population, and in light of the generally poor showing in reading comprehension and written responses in my research, needs to be addressed. In this section, I introduce more characteristics of students in adult education classes as a way of injecting some reality into the discussion. We often write of the adult student as a willing, if not eager participant in furthering or remediating their education. This is not always the case, as judged by the significant attrition rate among adult working students as revealed in research and in the current, often frantic, efforts of community college administrators to retain students because of stricter accountability measures mandated by the National Reporting Service. There are also questions among funding agencies about the value of funding the re-education of adult students who seem to take the process lightly, or, because of other factors governing their lives, leave the educational process for various reasons.

When we discuss the ideal adult learner we are usually discussing a person for whom self-direction is a characteristic with a fairly long list of competencies that reflect other attributes of competent adults such as self-confidence, persistence, flexibility, and having a modicum of self-awareness (MacKeracher, 2003, p. 46). This only describes the ideal learner, who, in the literature is usually white, middle class, with some schooling and motivation to learn. This is not the population represented in the class under discussion here. We must take into consideration, not only the various populations that attempt educational advancement, but also the effects of emotion and stress that accompany the adult student. Mackeracher quotes Hebb's (1972) observation

that adults should have developed "physical and psychological protection from emotional disturbance" and so be better able to take the stress of going back to school. She notes that Krebb (1993) states that, if anything, adults have more "emotional associations" attached to schooling than children. There is more at stake and "they stand to lose much of their previous gains in self-esteem and self-confidence if they try to learn and fail." Very often they simply do not try (MacKeracher, 2003, p.146). This attitude contradicts what we know about learning behavior in everyday life. Alan Tough (1971) demonstrated that adults are learning all the time, often teaching themselves skills on their own or through association with others that bring them satisfaction. Many adults can and do take up hobbies and skills, such as painting, later in life. Here we have a big question to answer. How do we address the problem of adults who return to school with an over abundance of exuberance at finally being able to earn a GED or high school diploma, only to experience the dismay of finding that life events intrude and the obstacles to learning become larger than the drive to persist and win through to the goal?

From the class of twelve I had for the year of this research, only three finished the program. The others just left, often with no explanation. This was, to all intents and purposes a wasted opportunity and investment for the agencies that sponsored them, the time and resources of the school and instructor, and the student him/herself. It may be the nature of adult education itself. Darkenwald (1981), states that due to the voluntary nature of adult education (except for those required to attend by governmental agencies such as the courts, or unemployment offices) relieves them of the pressure to continue when issues in life take precedence. He also states that, contrary to the life-changing

event of completing high school or college and the attendant role shifts into adult

working life those milestones entail. "For adults, the student role is secondary and

dropping out of an educational program pose no threat to one's social status or

occupational mobility." Usually there are no barriers to entering or returning to the adult

education institution for basic or vocational education. Eager for numbers as well as

maintaining an official posture of a commitment to life-long learning, the community

college has traditionally been very flexible in this regard. Nonetheless, for the student,

"dropping out means failure to achieve an educational goal, and often a contingent goal,

such as a promotion. Other possible costs to the individual include wasted time and

energy and perhaps feelings of anger, frustration, or personal inadequacy" (Darkenwald,

1981, p. 3). It is all too easy to blame the student for failing to meet attendance

requirements or show a daily commitment to learning. Darkenwald notes that there are

certainly the psychological factors that contribute to persistence in learning, but the

opposite can also be true. I have known several students over the years who do not

progress, yet persist in their efforts to learn whatever they can. Between psychological

factors and variations in ability to learn combined with external situations that get in the

way, it is difficult to pin any one factor as the reason for dropping out. In research

conducted between 1995 and 1997 in the United Kingdom, Frank and Houghton (*Adults*

Learning, 1997, pp. 224 – 225) report that in the town of Huddleston, 160 students

listed 290 reasons for leaving school, and in Lancaster, 320 students gave 496 reasons.

In many cases, the students returned to enroll or continue in other courses and so did not

classify themselves as "dropouts," only temporarily beset by health or family, or

transportation problems. As Frank and Houghton say in the summation of their report:

"in the post-compulsory sector, education can only ever be one part of a person's life."
As my former student Davon said in this essay:

> I grew up in poverty, my mom worked tow and three jobs to try and keep her
> family together. She was a single parent and it got to where I wanted to quit
> school and work to help feed, clothe, etc. etc. to be in asset to her and myself. I
> had two brothers older than me and we were just 10 and 11 months apart and it
> got to where after them dropping out of school I thought that was the thing to
> do. After one year of being out I was encouraged by my mother to at least go
> back and finish out to get my diploma (MacMonagle, 2007 Davon essay).

Related to Cognitive Functions in Reading Comprehension

Failures of cognitive and metacognitive capacities among readers have been
widely researched since 1971, beginning in earnest with Flavell (1971), Cavanaugh and
Perlmutter (1982), and Garner (1982). A footnote in Yussen's article in *Metacognition,
Cognition and Human Performance* (1985) states that from 1967 to the date of
publication, APA abstracts show 142 studies in the field of metacognition and the ERIC
database for approximately the same period showed 209 research studies into meta-
memory, metacognition, and the reading and writing abilities of school children and
adults. Kristeva's ideas on the intertextual nature of human existence and language
experience found in her writings from 1966 on (esp. *Desire in Language,* 1969/1980),
generated an upsurge and reevaluation of Bakhtin's works on the intertextual nature of
the novel and hence beyond the novel into cultural literacy. Orr's, *Intertextuality,
Debates and Contexts* (2003), cites over 100 texts concerned with the nature of
Intertextuality. Today, these studies remain intense in educational and literary circles.

Polyani (1958) describes this process of knowing and awareness of meaning, both assigned and developed during the act of reading a letter:

"…I receive information by reading a letter and when I ponder the message of the letter, I am subsidiarily aware of not only its text, but also of all the past occasions by which I have come to understand the words of the text, and the whole range of this subsidiary awareness is presented focally in terms of the message. This message or meaning, on which attention is now focused, is not something tangible: it is the conception evoked by the text. *The conception in question is the focus of our attention, in terms of which we attend subsidiarily both to the text and to the objects indicated by the text.* Thus the meaning of a text resides in a focal comprehension of all the relevant instrumentally known particulars, just as the purpose of an action resides in the coordinated innervation of its instrumentally used particulars. This is what we mean by saying that we *read* a text, and why we do not say that we *observe* it (*Personal Knowledge*, p. 92, Italics in the original).

This subsidiary awareness is a metacognitive umbra or enveloping consciousness that gives meaning that combines the process of "reading between the lines" and bringing

to mind all that the words convey. As an example of a full rendering of this metacognition we only need to call to mind Proust's evocation of time and place both sensuously and cognitively when he leads the reader of *Swan's Way* into his remembrance of his past in Giverny. Proust reconstructed his world of the past out of memory and impressions left on his psychological state in order to write. In their article,

"Constructivist theory and the situation model" (2008), Caccamise, Snyder and Kintsch combine constructivist theory with a situation model of reading. They state that a number of researchers view reading as "a multilevel process by which readers strive (to varying success) to construct a coherent memory representation of the text being read." From this perspective, "Readers rely on surface features of the text to decode words, discover meaning, wade through the syntax of the sentence structures, keep in mind pronoun references and synonymous expressions and maintain these structures at an active working memory level." At the same time, the reader (an accomplished reader), connects what she already knows about the subject and "forms a mental model of the situation implied by the text, called 'the situation model.'" This form of modeling and inferencing is deeper than getting the words right; it is "interpretive and inferential." Visual imagery, analogies, metaphorical relationships and comparisons are called into play. The situation model is "a multidimensional meaning representation that may include, visual, spatial, temporal, and emotional aspects, as well as abstractions implied by the text" (Caccamise, Snyder & Kintsch, in *Comprehension Instruction: Research-based Best Practices,* 2008, p. 84). To this I might add both haptic (kinesthetic) and olfactory (see Marcel Proust on this) memory.

Related to Cognitive Functions in Writing

"Many creative people insist that in their most inspired moments they think not in words but in mental images" (Pinker, *The Language Instinct*, 1994, p.61). He goes on to relate anecdotes from the lives of Joan Didion, Samuel Taylor Coleridge, Albert Einstein, and others who he says were 'adamant' that they began their creative processes with "vivid mental pictures that dictate(ed) their choice of words." Michael

Faraday claimed that his ideas began with visualizing lines of force, and James Clerk

Maxwell used mathematical formulas only after "mentally playing with imaginary

models of sheets and fluids" (Pinker, 1994, p.61). For further clarification of this idea I

will draw upon a particular example; that of Stephen R. Donaldson's explanation of his

inspiration to write his series of science fiction novels, *The Chronicles of Thomas*

Covenant. The key is a series of ideations, at first unrelated to each other but

demanding to be paid attention to. Sometimes an idea foments for years – inchoate and

niggling at the back of his mind until it is connected (invariably serendipitously) with a

second. As he describes it: when a *familiar* situation meets an *exotic* creation, the "first

idea is intersected by the second. And then: Step back, boys and girls. She's a gusher"

(Donaldson, *The Real Story*, p. 168). Only after laboring cover the germ of an idea: in

this case the odd combination of a leper and an unbeliever, does he say, "my brain took

fire." Only after a feverish several months of drawing, envisioning, and studying the

implications of such a combination, does he say, "Then I began writing." Ward

(*Creative Cognition*, 2001) investigated Donaldson's process of "creative cognition."

According to Ward, "The creative cognition approach concentrates primarily on the

cognitive processes and conceptual structures that produce creative ideas," because "the

capacity to generate novel thoughts is one of the most salient aspects of the human

mind." He goes on to explain that during the process of creative activity prior to the

author setting down to write, the mind retrieves "various types of information, such as

category exemplars, general conceptual knowledge, images, source analogs, and so on,

as well as association and combining of concepts and images" (Ward, 2001, p. 350). For

Thomas Covenant, the unbeliever with leprosy, there is "the excruciating conflict

between the need to safeguard one's existence and the desire to escape into a fantasy world that might provide a satisfying, though potentially illusory, release from the disease" (Ward, 2001, p. 351). Nowhere in this creative enterprise is the active use of linguistic conventions used, nor is there a description by either author of the use of formative grammatical structures, however deeply embedded, to explain the processes of how two widely divergent and dissimilar ideas "produced an emergent outcome that went well beyond either concept in isolation." Relying on previous research by others (Rothenberg, 1979, Thagard, 1984, Ward, Finke & Smith, 1995, and others), Ward goes on to say that this process of "merging otherwise separate or discrepant concepts" been discovered to exist in other fields such as the fine arts, mathematics, science and technology and music. In mental conflict, (a dialectic perhaps, or an internal dialog?), images arise that at first seem to not be related to each other. Only after fermenting and coalescing below the surface, our minds constantly combine, reject, and recombine patterns of relationships, future possibilities, and forms of expression that are not necessarily sparked by language, but precede language in an emerging process where language then becomes one of several vehicles of self-expression such as musical notation and painting, for instance.

Related to the Nature of the Writing Process

For many people writing is a difficult process. I believe it starts early in school where the emphasis on reading takes precedence over written expression. The one exception I have noted in this paper is Reichen's approach to teaching children to read by having them write so they could learn to read from their own writing. During one of my student teaching assignments (4th grade), I was amazed that the written responses

from children were completely devoid of structure, either in thought or of a basic expression of ideas. I was at a loss to explain this, given that not only was I taught penmanship in school, but was writing "How I Spent My Summer Vacation" essays (at the 4th grade level) at that time. In watching children in my own family begin their steps in becoming literate, I have noticed that writing and drawing go hand-in-hand so that even with childhood scrawls on drawings, children mimic writing to explain what they have drawn, as well as practice how to spell their own names – as contorted as the letters may be. Many children go to school with these pre-literacy skills. My most recent encounter with the difficulties children encounter when being taught to write concerns one of my grand nieces whose mother was told by the teacher that she (the teacher) did not know how to teach a left handed child how to hold a pencil properly. Granted the child has a ways to go in developing her fine motor skills, but for a teacher to be so clueless about the basics in this area is cause for dismay. I took it upon myself to remedy the situation so her mother could help her along with the proper materials and instruction. However, beyond the basics of holding a writing instrument, what are the demands of writing, and what must student as well as teacher bring to the task?

Related to the Complexity of the Writing Task

Writing and learning to write are complex tasks. In *The Psychology of Writing: The Affective Experience* (1989), Alice Brand claims that the process of education itself is at fault, and scant attention has been paid to the emotional component that accompanies what people write, or attempt to write. The realm of writing has been subsumed under the general heading of *Cognition.* Changes in the "landscape" of schools of psychology and education left much of writing to what she calls in her

introduction, "cold cognition" (Brand, 1989, p. 1). Under the influence of positivistic science applied to the social sciences, people have been viewed as creatures of habit (Behaviorism) that need to be trained and whose actions can be explained objectively and scientifically, or labeled as dispassionate processing systems (computer-like). This is especially so when applied to the needs of students learning to write who are told to adhere to the stated rubrics of an educational system that bases its writing curriculum on making outlines, choosing the right words, using proper sentence structure and punctuation, and producing for an audience external to the writer. In school, the student has only one audience whether he or she likes it or not: the teacher. In addition, the teacher is the arbiter of what was correct according to the many handbooks that proliferate the educational marketplace on how to write well. I know this as "prescriptive grammar," a grammar and a set of rules that if followed will produce an acceptable product. Brand is at odds with this "cold" cognitive science where "models of composing" describe the act of writing as, "conscious, intellectual acts by which writers determine what they want to accomplish and how they want to accomplish it. The world of writing throughout the 20th century was subject to empirical evaluation and the proponents of this approach of product over process set down specifications of "good" writing according to predetermined rubrics and formulas. She calls them, "exemplars of rigor" (Brand, 1989, pp. 1, 2). The primary effect of teaching in this way, as I know only too well myself growing up in a variety of schools and school systems was to teach students how to write by telling them everything that was wrong with their writing – usually in red ink. As she says, "Apart from creative writing or the emotional appeals linked to formal argument, classroom practices have ignored emotion…the

writing process has been either overrationalized or 'over physicalized'. It is viewed as an intellectual act that can be planned, tracked, and predicted" (Brand, p. 2). She favors what Abelson (1963) calls, "hot cognition." This cognitive approach includes the human emotions. As she states, "Writing does not exist in isolation" apart from our feelings, sensations, and "affectively colored mental activities, like intuition and imaging" (Brand, 1989, p. 3). According to Kenneth Craik in *The Nature of Explanation*, "There is considerable evidence that it is illegitimate to separate thought completely from feeling" (Craik, 1967, p. 86). If all the life of a student's efforts are wrung out of an essay or composition by a strict demand that he or she adhere to a proper form of writing devoid of personal expression, how then is a student to feel about writing?

Studies of the cognitive aspects are not entirely wrong. In *The Cognitive Demands of Writing* (1999), Fayol says that, "The main problem children and adults are faced with in written composition concerns the on-line management of several component skills which have to be coordinated in order to reach the goal…[since] composing is a complex task which needs to be decomposed into subcomponents to be studied" (Fayol, 1999, p. 13). Speaking from a cognitive point of view, Fayol also states that writers need to access and put into action, "efficient on-line coordination of both lower-level processes such as graphic transcription, lexical access, syntactic frame construction and higher-level processes such as elaborating ideas and conceptual relations, thematic processing, maintaining coherence and cohesion and respecting text-type constraints processes" (from Bock and Levelt, 1994; Levelt, 1989; Berninger & Swanson, 1994; Fayol, 1991a, 1991b, 1997). In *What Writers Know* (1982), Nystrand is almost equally

positivistic in his approach. According to him, " For readers and writers, written texts are signs – carefully patterned inscriptions composed according to rules and governed by the writer's purpose…whose tacit inquiry qua writer has less to do with organizing the contents of expression and the aims of discourse than it does with systematizing the means of expression and synthesizing the resources of the written language" (Nystrand, 1982, p. 57). Two elements of this formula are the active use of cognitive skills combined with emotional content. In Vanderburg's (2004) review of the research on writing from a Vygotskian perspective, he stated that Ann Dyson studied how children interact with teachers and others. Their social interactions, such as talk with each other and the teacher "generate reflective writing behavior,". Dyson drew upon Vygotsky's Zone of Proximal Development (ZPD) and Britton's ideas for her study to demonstrate how children draw upon their social interactions to build upon inquiry and conversation in order to write. Written language comes out of oral speech, 'a sea of talk' that children ingest as conveyors of ideas and emotions that they can reimage in writing. Teachers play a large role in this process (Vanderburg, 2006, pg. 379). Drawing from Sperling's (1990) work on teacher-student collaboration in the classroom, Vanderburg noted that Sperling learned that authoritative teachers did not inspire questioning from students. As a result, they became reluctant to initiate a dialog with the resultant suppression of writing ability. On the other hand, "students were more apt to interact with teachers who presented questions and modeled writing tasks as to telling students what was right or wrong" (Vanderburg, 2006, p. 380). Sperling, herself, (1990) after transcribing a student teacher conference has this to say about teacher-student conferencing:

Such conversations are rare in ninth-grade English classes, rare, for that matter at any level of secondary school, where writing instruction tends to follow a tradition-bound teacher-centered paradigm that admits little in the way of focused teacher student interaction…or where, albeit with less traditional leanings, teachers find little time for such conversations to occur…. It is as if classroom practice, deliberately or not, often supports a romantic belief that writing is a solitary activity…. We are coming to know, too, that learning to write – which is to say, acquiring and developing written language – is, as is learning to speak, a fundamentally social activity embedded in interactions with teachers and others (Sperling, 1990, p. 281).

All of this points to Vygotsky's ideas of social interaction in learning, Bakhtin's development of a "writing voice" from talking with others, as well as Piaget's ideas on the development of an inner speech in the development of children as a result of interaction with the world. It works both ways, but requires the development of a social voice whereby ideas, emotions, intent and action, are taken in (digested, absorbed) by the individual to build the affective and cognitive long-term memories writers draw upon to express their thoughts in writing (Vanderburg, 2006, p. 379).

What does all this mean for the student who is tasked with writing? What factor or factors make it possible for the student to actually write something at the behest of his teacher? Pajares and Johnson (1993) attribute much of this to student self-efficacy. Drawing upon Bandura's *Social Foundations of Thought and Action* (1986) their research results found that their study supported earlier research, that, writing self-efficacy was significantly related to writing performance. In her recent study conducted

among English language students in China, "College English writing affect: Self-efficacy and anxiety," Woodrow (2011) discovered "that writing anxiety predicts low self-efficacy," and "anxiety is a highly significant predictor of writing performance (Woodrow, 2011, p. 518). Conversely, her findings from this study "indicate that highly self-efficacious students perform well in their English writing and show desirable learning attributes such exerting more effort" (Woodrow, 2011, p. 519).

Related to Cognitive Functions of Grammar and Composition

According to Stallard (1976), the traditional course of education in writing classrooms that writing is simply a matter of transcribing thoughts onto paper. The ineffectual nature (as of 1963 at least) was that learning to write was a matter of mechanical ability in which students learned the rules of putting things on paper and then did so. However, "composing is unquestionably a complex task," and considerable criticism has been directed at this mechanical approach over the years. Quoting Bloomfield (1973), he relates that 'There is always something artificial about reducing a problem to simple mechanical terms.' Stallard continues his analysis by stating that writers must have a conceptual idea of what they want to write about, and that simply outlining (as I was taught in school), does not lead to finding a purpose and the invention of a way, in thought, to communicate what the writer wants to express. In light of the many undeveloped responses I received in this research we may safely assume that my older students were tied to their original classroom instruction and wrote their "undeveloped papers and end(ed) up not saying what they instinctively [felt] they might have said" (Stallard, 1976, p. 182). Accordingly, he refers to Britton's idea of *perception* and the need for cognitive reflection before writing, stating that the writer

needs to be capable of having "searched his cognitive structure for the components of the message available to him," and that the writer must be able to "see relationships between elements within cognitive structures and the evolving message" (Stallard, 1976, p. 183).

Phrased this way, writing can be otherwise defined as an organic process that begins creatively from the inside out, and not imposed on the writer by assuring the student (as aspiring writer) that all he or she needs to do is start outlining a superstructure from which to hang the appropriate words. From this organic idea of writing giving students the tools of idea generation through pre-writing exercises and brainstorming practices in order to "verbalize experience and learning and, ultimately, to manipulate them into a piece of communicable written prose" (Stallard, 1976, p. 184). Taking the educational level of the participants in this study into consideration, and the definition of their prior education as less than adequate for fluent written communication, I would say that their lack of ability to write correct and fully developed paragraphs describing their impressions of the subject matter comes from a lack of formal writing education. Given the nature of many urban schools and the difficulties students face, I would say that they were not taught how to identify their own thoughts about themes and topics in order to use information from their own written work to re-imagine and re-think their work effectively.

This brings to mind Sadoski's idea of "persona" and the ability to write for an imagined audience, even an internal one. The writer uses imagination to construct an internal set of "images, feelings and motives" that are then converted into written language by a desire to communicate one's thoughts in a way some one "other" would

understand them. In verbal conversation, this is seemingly an on-line automatic feed

back loop of observation of another's facial expression, tone of voice, choice of words

in spoken responses and physical posture. This process is not available to a writer

engaged in putting thoughts on paper. The writer must be able to step outside of him/her

self, or as Sadoski says, "the writer must regularly read from the perspective of the

generalized other and make revisions as necessary to 'home in' on the predicted effect"

(Sadoski 1992, p. 273). This skill of introspective listening and cognitive construction

of a response without an active listener may be lacking in this group. Sadoski goes so

far as to mark this inner conversation, in which we choose what and how to write and

make revisions based on what we mean to say, and reflect internally and "sound out"

our writing to see if it fits what we want to say as a metacognitive exercise, if not

metacognition itself. Inferencing is also a major cognitive ability we have as part of the

cognitive make-up of our Mind/Brain. According to Taylor (*Cognitive Grammar*,

2002), we conceptualize through inference when we are given sparse facts. If we can

create a concept, envision a scenario, (for example see the "anger" scenario on page

201) or fill in the gaps of a human relationship, is this any different than forming a

mental pattern, a picture of what is or what could happen (projection and envisioning of

a probable future situation based on little information)? I do not think so.

Personal reflective observation alone, in keeping with Taylor, who states that we

are undeniably "smart", would tell us that, "the interpretation we give to a linguistic

expression typically goes beyond what is actually said" (Taylor, 2002, p. 15). In line

with what Taylor says about Bickerton's observations that in our thought processes, we

use symbolic representation to "represent to ourselves the contents of our thoughts"

which, in turn, are "fixed" by the act of 'putting into words' what we are thinking"
(Taylor, 2002, p. 16). I cannot recall any instance in my life where I have used a
behaviorist/formalist approach to envision the grammar I need to use in order to
communicate what I have to say. I press the language that I know into service neuro-
cognitively. I do this in concert with the internal representations of my intent and inner
concepts or visualizations of human activity and spatial/dimensional relationships.

The form of the relative clause I may use, or "do insertion" rules; even the use of
rule bound regular verbs versus irregular verbs *a la* Stephen Pinker, is not where my
thinking starts. Langacker, in *Concept, Image and Symbol*, (2002) states that, "the
grammar of a language [provides] the speaker with an inventory of symbolic resources,
among them schematic templates representing established patterns in the assembly of
complex symbolic structures" (Langacker, 2002, p. 16) which I then employ to explain
myself in writing or in conversation. Johnson-Laird also says that a schema is not an
image, "but a model that underlies the ability to form an image" (Johnson-Laird, 1983,
p. 190). A more balanced viewpoint may lie in the idea that, perhaps the schema,
concept, or symbolic representations work hand-in-hand with the language faculty and
the grammatical construction, syntactic rules, and semantic/pragmatic rules of language.
It seems plausible that there is no one particular way we formulate what the mind
connects at the most basic levels – the image or concept and the ways we could possibly
express what we know together. Pinker's idea of "mentalese" (*The Language Instinct*,
1994/2000, pp. 45 – 73) accepts that "cognition occurs prior to the development of
language" in individual humans (our thinking selves today). It is an evolutionary model
that claims that ''Ideas' determine the meaning of natural language expressions." On

the other hand, Proudfoot describes Wittgenstein as proposing 'thoughtless talk' or, "meaning blindness" thus denying an 'accompanying picture' relationship within the mind (Proudfoot, 2008, p.165).

What comes first, the envisioned idea, or the language that would describe the envisioned idea? Before we acquire the language of our society, there is no language with which to express our thoughts. Chomsky and others certainly may be correct in that we have an innate capacity for language. Once we begin the naming process and the ability to articulate our needs, these are welded and wedded inexorably together so that with lightning speed at the neurological level, thought, symbol, and expressive language feel seamless, automatic and articulate, thus making it difficult to say whether the chicken of language came before or after the egg of idea.

Related to Linguistic Considerations: Discourse

Gee (2003, 2004, 2005) explains that our use of language is based on the Discourse (Big D) we find ourselves in either socially, or artificially; as in the difference of how we speak when we are at the office in an official capacity, and then at the bar having a few drinks with office-mates. We talk of "language-in-action" as a method of analyzing what people say under what cultural contexts, but it is the "local" and situated use of the word, we must observe closely. In *An Introduction to Discourse Analysis: Theory and Method,* (2005), he uses the example of a Mayan man asking if the Shaman is at home. The operative phrase is "Is he seated?" The word itself may have a direct functional meaning. In practice (in the situation), however, the respondent attends to the cultural use of the word. The word and its phrase are understood properly in their use as they are used by the people who are using them and cannot be defined by

a dictionary or universal use of the word in other discourses (Gee, 2005, p. 77). This is also a consideration in Johnson-Laird's example in *Mental Models*: "Person A asks: Where is the university? Person B replies: Some of those people are from there" (Johnson-Laird, 1983, p.396). Literally speaking Person B did not answer the question, but inferentially he did, because the questioner has been directed to someone who can answer the question. It is the questioner, who, given this response interprets the response based on inferential linguistic clues given.

Gee states, "The mind is an adept pattern recognizer and builder. That is to say, first and foremost, that the mind operates primarily with (flexibly transformable) patterns extracts from experience, not with highly general or decontextualized rules" (Gee, 2005, p. 66). I do not see this as a contradiction to Johnson-Laird's premise. Gee also states that we interpret patterns and extracted understandings from experience just as Lakoff and Johnson conclude that we construct (and are taught) metaphors of language and living that we use every day, although we may be ignorant of the patterns we draw inference from or use ourselves in speaking with others.

Related to Reading, Writing and Neuro-cognition

There have been, and continue to be, advances in medicine and research that seek to isolate and better understand the language areas of the brain. Scientists probe the brain and its language areas for medicine and science. They study deficit models of brain functioning, using lesions and other damage in select areas of the brain, to gain insight into the working of the mind/brain through aphasias and other cognitive disorders. Examples of these are found in the works of medical researcher/writers such as Oliver Sacks, in *The Man Who Mistook His Wife for a Hat* (1985) and Antonio

Damasio's, *The Feeling of What Happens* (1999). In a current issue of the *Journal of Neurolinguistics* (2009), Champagne-Lavau and Joanette discuss their research into the effects right hemisphere damage (RHD) has on pragmatic language abilities. A disability such as a lesion in the right hemisphere "is major since a large portion of everyday communication makes use of pragmatic aspects of language such as irony, metaphor, or indirect requests" (Champagne-Lavau, & Joanette, 2009, p. 414). Since we cannot see the mind at work in such a way as to know what cognition looks like, we must learn from clinical examples and inference derived from evidence of the loss of mental and language ability across a broad spectrum of behaviors.

Throughout history, there have been many theories of how we learn and how our minds interact with the world around us. This includes our comprehension of reading and our creative ability to reconstruct the world of our knowing and experience through writing. According to Gage and Hickok (2005), "Modern" theories reach back to Carl Wernicke's theory proposed in his *Grundriss der Psychiatrie* (*Outlines of Psychiatry*), published in 1900, which claimed that there is "a cortical processing architecture underlying the formation and retrieval of conceptual knowledge." Present day theories developed by current researchers in the field of neuroscience speculate that the cerebral cortex contains the neural representation of conceptual knowledge, and that, rather then being strictly modular in structure, is a widely distributed neuronal system in which conceptual representations of reality are interconnected and co-connected with our sensory and motor networks (Gage & Hickok, 2005, p. 825). The mid – 20th century educator, Boyd Henry Bode used the psychological term, "apperception," to express mind-brain-body interaction in humans (people, students, learners). In his book, *How*

We Learn, (1940) he states, "[W] e normally have on hand a considerable body of previous experiences, which join up with new sensory impressions so as to form the complete unit which we call a mental state" (Dewey, 1940, p. 143). John Dewey's explanation of thought in *How We Think (*1910) precedes Bode's observation and expresses his understanding of what cognitive science now tells us: "Primarily, naturally, it is not we who think, in any actively responsible sense; thinking is rather something that happens in us" (Dewey, 1910, p. 34). Current research on how the brain represents concepts can be found in Kiefer and Pulvermüller's article (*Cortex* xxx, 2011 pp. 1 -21) in which they postulate that current neuroimaging techniques now make it possible to clarify if "concepts are flexible, distributed representations comprised of modality-specific conceptual features." Furthermore, although the issues are not settled, they hold the view that conceptual representations are neurologically embedded, and that, "Conceptual features are stored in distinct sensory and motor brain areas depending on specific sensory and motor experiences during concept acquisition" (Kiefer & Pulvermüller, 2011, Abstract, p.1). Because of intense and persistent study of the mind since Descartes, as well as philosophical observations over centuries, I believe we can say with some assurance that we "construct" our personal reality and social worlds. This is not post-modern Constructivism in the literary and political sense. It has its roots in Pierce's Constructionism and William James' philosophy of mind, as well as the medical and neurological observations of another 19th century American doctor, Hughlings Jackson, who wrote extensively on the mind/brain and body (See Sacks, 1970/1985). I draw attention to this because various forms of the philosophical position of Constructivism, argue that all things are socially constructed. I do not believe Dewey

thought this, since he formulated his ideas on the premise of using the world about us to integrate their use to engender more knowledge of the world within and about us in continuous cycles of experience, reflection and application. This view is also a central idea in Kolb's work in *Experiential Learning* (1984). This study is not an exercise in the nature of reality from a post-modern/literary-political position. Boghossian (2006) argues against a completely socially constructed world. The world exists independent of our thinking it into existence. Concerning fact-constructivism he says: "It's a truism about most of the objects and facts that we talk about – electrons, mountains, dinosaurs, giraffes, rivers and lakes – that their existence antedates ours. How, then could their existence depend on us?" (Boghossian, 2006, p. 38). We, as thinking/speaking/world interacting human beings may interpret, describe and in many ways construct the meaning of our reality, but we cannot bend the real world into existence just because we believe it to be a certain way (See also Searle's similar "default positions" in *Mind, Language, and Society*, p.10). My research participants construct their reality according to their social circumstances, just as I do, and their life experiences inform and color their learning (education), and the comprehension of what they read. In my analysis of the information I gathered, I looked at their explanations of what they know about the world – a world they see through their own eyes – in order to see what connections their observations made with the metacognitive processes we all use to navigate and manipulate the world in and around us.

Current research into the nature of the brain's ability to represent reality bears out these earlier philosophical speculations. According to Damasio in, *The Feeling of What Happens*, "The processes of the mind, including those of consciousness, are based

on brain activity; that the brain is part of a whole organism with which it interacts

continuously; and that we, as human beings, in spite of remarkable individual traits that

make each one of us unique, share similar biological characteristics in terms of

structure, organization, and function of our organisms" (Damasio, 1999, p. 85). Firth's

research (2007), led him to the conclusion that, in many ways, our brains use a form of

Bayesian probability logic whereby the stored patterns of life are actively engaged in

estimating what we must do (non-consciously and in milliseconds) at every moment.

Through immediate updates and previously stored perceptions and patterns, we reimage

our world on the fly (so to speak) in order to respond to or act on immediately occurring

future situations.

As Bode described it, our internal map of what we are doing and need to do next

is in a constant state of flux based on our "apperception" (Bode, 1940, p.144). Constant

sensory input, coupled with stored memory, logic, and experience, is overlaid or

interwoven in this brain/Mind connection. In *Making up the mind: How the brain

creates our mental world*, Firth states that, "Knowing what is out there in the world

may seem easy to me, but my brain never rests from the endless round of prediction and

updating" (Frith, 2007, p. 125). In conjunction with our current stage of human

development, Language itself has become so ingrained in our basic neurological

makeup, that, along with our biology, our brains have adapted and evolved along with

our capacity for linguistic inventiveness. This may be so with written language also.

According to Aaron & Joshi (2006), writing is language as much as speech is,

considering that human society has used writing as an adjunct and substitute for

language as long as writing has been part of human communication. Reading and

writing are still processes that we must learn, whereas we acquire spoken language and its rules of correct formation in childhood. On this note, Brunswick quotes Plato on the artificial nature of reading and writing as being "inhuman, pretending to establish outside the mind what in reality can be only in the mind" (Brunswick, 2010, p. 79). Consequently, if an individual in today's world cannot write well enough to express him/her self, or go even a bit below the surface of written language while reading, they are not fully literate in today's hyper media-saturated global society. Gee's research into the imaginative social worlds in video gaming circles in his *Situated Learning* (2004) and *What Video Games Have to Teach Us About Learning and Literacy* (2007) has a lot to tell us about alternative learning situations that he believes could actually replace school as the center of learning in the minds of students.

Related to Mental Models, Patterning, and Paivio's Dual Coding Theory

According to Garnham (1987), "An adequate theory of language understanding must explain how people construct representations of situations in the world as the process discourse" (Garnham, 1987, p. 149). How the Mind does this is the subject of debate. Exploring the various theories that comprise the field of linguistics and language learning is not in the scope of this research, yet it does seem reasonable to note that we could be talking about Minsky's "frame-system theory" (Garnham, 1987, p. 39). This theory states that human memory is mobilized in the service of language to formulate understanding. Or, on the other hand, we could conclude that the representation of knowledge is a matter of calling up words from the mental lexicon in order to compose "semantic markers" which act as referents to things in the real world. This implies that what we know about the world is a language-moderated model

assuming a form of hierarchical understanding in the shape of a pyramidal language tree

whereby the individual finally gets from the word expressed to the idea engendered by

the word (See Johnson-Laird, 1983, pp. 206, 207). It is also beyond the scope of this

paper to try and explain if language is an instinct, a biological necessity developed

within the brain over eons complete with a universal grammar ready to be activated

after birth, or an imposed necessity (a mutation) for Man to categorize his world and

explain the world to himself and others. Humans may think in categories, as proposed

by Pinker in *Words and Rules* (1999, p. 270), in Taylor, *Cognitive Linguistics* (2002, p.

9), or in other various semantic schemes and features. We may depend upon prototypes

as Kess (1992) states (Kess, 1992*,* p. 218), whereby humans organize concepts

according to typicality, making it easier for us to communicate through culturally

shared spreading activation models (Kess, 1992, p. 223), or other taxonomies or

discourse models. In "Looking at reading comprehension through the lens of

neuroscience" (2008), Paivio states that comprehension is a behavioral phenomenon, a

complex process, and requires multiple layers of recognition and attention that include

verbal and non-verbal memories, cues to relationships (including leaps of faith and the

imaginative construction of possibilities). We make linguistic associations between

subject, action and agent along with the implications and non-verbal nuances that often

lie buried in the various levels of every day conversation.

In *Comprehension instruction: Research-based best practices* (2008), Sadoski

makes the observation that if the brain has never been outside our head, how does it

know what the world is like? (Sadoski, 2008, p. 38). Adding another layer of

complexity to this subject he introduces the term "embodied cognition," stating that all

we know is derived from our contact with the world through our five senses, and a mental world built inwardly through our interaction with the world and our growing understanding of the integration and inter-relationship of all things which impinge upon us. Bode explains this in his idea of the "apperceptive mass," the idea that we are products of everything we are exposed to and react to as living conscious beings. And as living beings with senses and consciousness, we build patterns of recognition, supposition and imagination out of the raw material of our experiences as well as the filtered world though the mediums of conversation, interaction with other individuals and groups, and what we read and ingest through the media. From Sadoski's standpoint, we could do a better job of teaching reading comprehension by developing teaching strategies that make use of the mind's pattern making, imagination-empowered consciousness to help students make connections in their reading, connections within their minds, the outside world and the constructed world of the writer in any form of text driven material (Sadoski, 2008, p. 41). This is no less so for the ideas presented by Gee who states that video gaming and the learning potential made possible through the interactive world of cyberspace, a medium previous generations had no access to, is now an embedded form of information and communication today.

Related to Rich Picture Description in Qualitative Research

The development of Rich Picture descriptions goes back to 1981 and the work of Peter Checkland (Horan, 2002). It falls under the general idea of using graphic organizers that have been prevalent in the classroom for many years. These include KWL charts, flowcharts, and concept maps. Unlike other diagramming formats, there are no rules for developing a rich picture description of something: "It can contain any

kind of graphical representation." Horan states also that in its simplicity it can be used by anyone since artistic talent is not required, and is often a "freehand picture that can include any kind of figure or text" (Horan, 2002, p. 725). In the abstract to her paper given at the AERA conference in 1998, Chula stated that drawings are the embodiment of visual thought and that, as the qualitative study she conducted with middle school aged children shows, "can be used as a strategy to translate visual thinking into verbal expression" (Chula, 1998, p. 2). This is significant for individuals who have difficulty with written or oral language skills. Chula was interested in how drawings (children's art work) could be used as another research tool that could be analyzed as photography and film are done, with coding. As applicable here, Chula states in her literature review that "visual stimulation creates, alters, and changes viewpoints, values, and the ways in which individuals experience their worlds" (Chula, 1998, p. 9). Chula used the experiences of adolescents to test her ability to use visual analysis skills to gain a truer picture of what adolescents really thought about their lives. Another significant insight Chula expressed was that of allowing "authentic voice" to speak for itself, mistrusting previous research using only "adult centric" analysis that she felt underestimated the richness of children's views of the world and imposed adult conceptualized thinking on children creating a distorted view of children's worlds of thought and experience. In my use of this process with adults, I was looking for a similar visual to verbal transition. The process has also been used in various educational contexts such as Rolka and Bulmer's (2005) picture analysis research in a statistics class.

"Little had been covered in the lectures by this stage, with the pictures aiming to capture the initial understanding that students brought to the course. The

wording on the instruction directed students to "take a blank sheet of A4 paper and draw, write, paint, doodle, or whatever" suits them best to express their views on statistics.

This particular form of gathering information was also used to capture below the surface understanding and intellectual positions of their participants in a math class (Schafer, Bescherer & Honda, 2006; Bescherer & Spannagel, 2008), and Pepin-Wakefield (2008) conducted a similar project with Kuwaiti university women for uncovering non-verbal memories from the Iraq invasion of 1990. This process will be a counter-weight, a triangulation method for analysis in this project; and, I anticipate, yield insights that reside below the surface of the student's written reflections. This reference also relies on Paivio's Dual Coding process theory in which, looking at it from a visualization of experience perspective, the images we evoke from our world experience (Sadoski, 2008, p. 41) are components of our sensory system (sensory modality). Without such grounding in the real world of sensory experience and impression, these images would remain inexpressible (vague, amodal, abstract) because of the abstract nature of thought without image. We are grounded in situational contexts, can picture them mentally and through any of the artistic mediums, and draw from them verbal and textual explanations from the artistic representations, as is done in art therapy. Other studies I reviewed for this type of research did not explore the use of illustrations or visual representations in this way.

1n 1997 Sadoski, Goetz, Kealy and Paivio conducted two experiments on the concreteness of words and the imagery these words evoked in the minds of the participants. In their article, "Concreteness and imagery effects in the written

composition of definitions," citing a number of studies, they note that, "The effects of concreteness and imagery and text recall have been well established." (Sadoski et. al., 1997, p. 518). These were not experiments into illustrations and writing, although this study and others conducted by Tierre, Manelis, and Leicht in 1979, and Reynolds and Paivio in 1968 did establish that concrete words were more apt to evoke imagery in description and definition than abstract words. On this line of research, see also Goetz, Sadoski, Stricker, White & Wang, 2007, and Finke, 1985. Markus (1988) researched visualization in thinking through the drawing of pictographs, stating that (at the time of his writing) soviet psychology was investigating "the role of visualization, especially in the initial stages of the problem solving; visualization is understood as a certain organization of initially unstructured meanings into a picture with clear meaning" (Markus, 1988, p. 157). Closer to the research in this paper, was a study by Mayer and Anderson (1998) in which college students were tasked with giving descriptions of words when the words came before the pictures and in another format when the words came along with the picture of the task. They also used animation. In their article in *The Journal of Educational Psychology* in 1994, Mayer and Sims reported their findings on the Dual-Coding Theory using multimedia learning and problem solving. They use the term "contiguity effect" to explain that "students will be better able to build representational connections when verbal and visual materials are presented contiguously than when they are presented separately" (Mayer & Sims, 1994, p. 389). Their experiments, as did others mentioned in this paper, support Paivio's dual coding hypothesis in that information is obtained through *representational connections* (verbal stimuli and verbal representations), visual stimulation and representation as well as

between visual and verbal representations they call "referential connections, meaning that both channels "crosstalk" with each other to form understanding " (Mayer & Sims, 1994, p. 389). Block and Parris (2008) quote Kaan and Swaab's research (2003) in neuroimaging the brains of people as they are reading. They used positron emission tomography (PET) and concluded that the 'results suggest that there is [also] a direct reading route that does not involve speech sound recording of the visual stimulus before the processing of either meaning or speaking' (Block and Parris, 2008, p. 120). Andrzejczak, Tranin, and Poldberg (2005) used the integration of art into writing exercises among a group of school children to investigate how drawing improves the process of writing, stating that, "Effective authors are able to create imagery and to communicate ideas with well chosen words, phrases, and text structures." According to their findings, "The artwork facilitates the writing process, resulting in a text that is richer in sensory detail and more intricate then the more traditional writing-first crayon drawing-second approach" (Andrzejczak, et. al., 2005, p. 2). I concede that my research proceeded along the opposite lines, whereby my participants drew their pictures after reading and writing. However, none of the studies I could find investigated the connection between representational drawings, reading comprehension, and a written statement by participants to see if writing after reading a text informs further comprehension and understanding as this research with my adult basic education student participants does. They do, however, consistently confirm Johnson-Laird's contention that we form mental representations as we read and reflect and while we communicate with others.

In Mokhtari and Sheorey's *Reading Strategies of First – and Second Language Learners* (2008), Afflerbach, Pearson, and Paris, write that it is necessary to clear up any historical confusion between metacognitive reading *skills* and metacognitive reading *strategies.* They state that skills are those reading strategies a child learning to read has internalized to the point of becoming automatic for the reader, and "operate without the reader's deliberate control or conscious awareness" (Afflerbach, et. al., 2008, p.14, 15). Baker (2008) also makes this clear in her chapter of the book. These are the skills good readers have internalized, and in the process have freed up working memory so that meaning and understanding become the reading tasks, as opposed to struggling through vocabulary, the phonetic sounding out of words, and general de-coding processes as they read. Until they are able to do this, the poor readers miss the meaning of the text because they lack the skills to self-correct, make connections between the expressed ideas, and adjust their reading tactics to the content (Baker, 2008, pp. 25 – 42). These fluency skills are habitually used no matter what reading task is set before the reader because once freed from the basic decoding problems and can concentrate on meaning, the reader then engages different strategies as an aid to comprehension. This is not to say all the skills are automatic, or that a reader uses them appropriately during reading. It is the strategies, rather than the skills that a reader can be consciously aware of during reading. These can be discussed; whereas, skills, having reached a degree of automaticity, are not easily defined; the reader having already passed through that gateway to fluent reading.

Schraw and Dennison (1994), and Schraw (1998), also make clear in their research that we need to separate metacognitive reading skills from metacognitive

reading strategies. We need to be clear about what readers do consciously to monitor and adjust their reading during the reading task (regulation of cognition) as opposed to what readers know about reading as a task they engage in (knowledge of cognition) (Schraw, 1998, p. 113). Both are metacognitive skills, but the ability to monitor, adjust and correct for misunderstandings or complexities (or not if their reasoning is faulty) during the reading tasks is the regulation of cognition. These particular skills are what Mokhtari, Baker (and others) define as strategies readers use to insure they understand what they read. My reliance on models of cognitive and metacognitive processes in the brain began with Patricia Churchland's (2002) studies and branched out from there, depending on how deep explanations of how neural patterning in the brain are reflected in the cognitive processes we are aware of in consciousness.

In his 1994 article, "The Effect of Metacognitive Knowledge on Local and Global Monitoring," Schraw states that readers use more than one cognitive and metacognitive skill while they are learning in order to understand the text. As with Garner's analysis (Garner, 1992), he states there is a level of awareness (knowledge) and skills, as well as strategies that the reader employs during the reading process. One of the reasons I used Schraw and Dennison's inventory was to measure whether the participants were able to identify their own cognitive processes, if they were aware of their strengths and weaknesses, their ability to use effective strategies while reading, and if they actually knew when they employed effective skills and strategies to comprehend a text. The MAI also was intended to check to see if they could identify their own ability to regulate and correct their active reading performance. This regulation of cognition is also known as "strategic processing" or 'executive control'

(Garner, 1992, p. 21) and "metalearning awareness" according to Norton, Owens, and Clark (2004). According to Garner, the executive control function in cognitive processing slows the reader down when the reader encounters difficulty in comprehension, when the mind strays from the task, or needs to reread to correct a misunderstood passage (Garner, 1992, p. 22). Wagner and Sternberg (1984) describe the idea of an executive control function as a process of "selective encoding," whereby the individual sorts relevant from irrelevant information and compares and evaluates new information with information the reader already knows (Warner & Sternberg, 1984, p. 184). As Garner elaborates on Flavell's model (Garner, 1992, figure 2.1, p. 21), the executive function monitors "cognitive success and failure and the use of strategies to remedy perceived failures" (Garner, 1992, p. 24). Accordingly, this assumes we take an "active learner" approach, a "conscious, deliberately acting thinker" view of human cognition and cognitive development (Garner, 1992, p. 25). This ability is often moderated or improved by what Flavell (1981), referring to Dasen's (1977) work says that, "The individual's cultural and educational backgrounds are especially potent determinants of the particular pattern of cognitive heterogeneity he will show" (Flavell, 1981, p. 4). He is referring to non-stage-like cognitive growth patterns in children, independent developments in the human mind, which might be at odds with the Piagetian theory of mental development in children. According to Borkowski (1992), "as children mature they acquire, at different rates and to different degrees of competency, executive or self-regulatory skills" that..."form the basis for adaptive, planful learning, thinking, reading and problem solving across a number of academic domains" (Borkowski, 1992, p. 253). However, the emphasis in this paper is not one of

Piagetian or non-Piagetian view of mental growth, but with the all-pervasive influence of cultural and educational situations in a person's life that influence development.

If everyone progressed at an even rate (albeit individually), then we should expect that at some point people would reach a certain level of proficiency in reading and comprehension. This is not the case, because children, as well as adults, acquire (or fail to acquire) the ability to monitor their reading proficiency. Garner and Alexander (1989) note that, "both children and adults often fail to monitor their cognitions, that is, they fail to note whether or not they are comprehending messages or solving problems" Garner & Alexander, 1989, p. 144). They use Markman's (1977) description of her own daydreaming-while-reading experience to illustrate that accomplished readers must constantly be alert to their information processing while reading lest they lose their place or train of thought. Mokhtari and Reichard (2002) remind us that teaching students metacognitive skills and strategies does not automatically confer improved reading comprehension. While reading and reading instruction does build these skills, students' own beliefs (growing self-efficacy) about their reading ability can encourage them to read more. This adds impetus to their ability to comprehend what they read. Schraw, Horn, Thorndike-Christ and Bruning (1995), echo this by saying, "Previous research indicates that students' beliefs about learning and academic ability affect classroom achievement" (Schraw, et. al., 1995, pg. 359; See also Kletzien, 1991).

CHAPTER 3: METHODOLOGY

This study was conceived of as an active research/qualitative study using supporting data from reading comprehension inventories, and evolved into a mixed methods approach to investigate the multi-dimensional mental process of reading comprehension. I discovered that a classroom investigation into reading comprehension issues with working adults in basic education classes required a close look into educational factors as supporting evidence for performance problems with writing as communication; not solely as a form of self-expression. I view writing as a necessary adjunct skill for communication and understanding in our text/media saturated society. As there is no direct method of knowing what people's thought processes are, I needed a method to see past what my participants would tell me on paper. Rich picture description became the non-conscious method of finding a window into comprehension that would possibly be filtered by the desire to uncritically self-report their abilities. All learning is based on how we interact with our interior selves as well as the world, which is why I included neuro-linguistics and mental imagery as precursors of language expression in the investigation.

The further question was: How could I manage the potential problem of participants simply complying with my requests out of good nature and then writing out answers they considered I would want to see? This presented a problem, since there are issues I could control and others that were not. For example, these participants were

wary of someone eliciting information from them for purposes they did not understand nor saw deriving a direct personal benefit from. I needed to earn their trust, gain cooperation, and explain the reasons for the research and its educational purpose. I became aware that I would have to compensate them for their participation. Furthermore, what instruments could I use that would be both user-friendly and easily managed within the limited time frame of the class; an hour and a half once a week for no more than six to eight weeks? I elected to compensate my students as an inducement to participate, realizing that I would not get very far if I did not. In research conducted by Zageneh, Barmaki, Gibson-Wood and others on the ethics of offering lotteries or direct compensation for research, they state that, "Incentives, particularly monetary incentives, has shown to increase response rates" (Zageneh et al., 2008, p. 518). I decided to strike an ethical balance for participation, so, as an inducement for their participation, I gave each participant ten dollars a module. Marcus, Bosnjak, Linder, Pilischenko and Schütz (2007), researched response rates and willingness to participate (salience) in surveys in educational research studies. They stated that it is sometimes necessary to induce participation "by heightening the salience of favorable survey features" (Markus, et. al. 2007, p. 374). I had originally thought to provide food as an incentive, but they wanted money, so I settled on a small stipend to increase their willingness to come to class and participate as they were asked to do.

Population and Sample

All twelve of the participants in the project were from one of my basic-skills classes. All of them were working and participating in a program that was designed to prepare them for better jobs within their organization. There were four white males, one

of whom was Hispanic, one black female, and seven black males in the class and the project. While it would be more in keeping with exacting research to itemize the demographic particulars of these participants, they are only a small sample of a larger population of working adults who access adult education programs to remediate their education, keep their jobs in an increasingly technologically-driven society, and seek better employment. Confidentiality requirements also restrict my ability to further identify the particulars of the population beyond the fact that they are employed by a city agency in a public service capacity and have held their jobs between two and fifteen years. This was field research in a specific venue. A larger population sample in a similar situation under more controlled circumstances would allow for more information, as the procedure would allow for anonymity along with the collection of participant demographic information.

Information Collection and Evaluation

I was asking a lot from this group: two questionnaires, three readings involving reading each passage twice and responding twice, and an illustration. From February to March of 2009, we used class time for eight weeks (meeting once a week for one and a half hours each session) to complete the project. Although the duration of this project was short, I could tell that after the sixth session, even with the modest stipend, the tasks I asked them to perform became more of a chore for them. Work schedules and other necessary absences began to receive more attention. Even with the few interruptions that did occur, I was able to gather enough material to analyze their work.

Both reading comprehension and the writing process require metacognitive and linguistic processes rooted in the richly complex language and semiotic capabilities of

the mind. In order to capture a number of connecting avenues of thought, I decided to conduct and analyze this research in a qualitatively descriptive manner following a cognitive linguistic path while analyzing the information in a more discursive manner, weaving together strands of language use, mental representations of reality (Mental Models), and metacognitive research into the nature of reading comprehension. I incorporated the two surveys to capture self-awareness of reading strategies and metacognitive reading skills directly from the reader. I incorporated the requirement for an illustration to reveal patterns of non-linguistic meta-comprehension and to demonstrate the proposition that the participants visualized elements of what they have read as an integral part of their understanding.

Instrumentation

MARSI

Two formal survey instruments served as background and support to the reading and writing modules and the illustration. Mokhtari and Reichard's Metacognitive Awareness of Reading Strategies Index (MARSI), is a thirty question self-scoring classroom inventory for students from grades 6 through 12 to determine if they are aware of their own particular strategies during reading and what processes they use to compensate and correct for any misapprehensions in their reading. The usefulness of this is a general one. It is used to evaluate how the student reads both academic materials and reading material taken from the library (Mokhtari & Reichard, 2002, p. 59). I used the inventory to get an overall estimate of what the participants believe their reading strategies are for general reading.

MAI

The fifty-two item Metacognitive Awareness Inventory constructed by Schraw and Dennison (1994) is based on the theory that that there are two types of cognition used in reading by skilled readers. The first is "knowledge about cognition," and the second is the "regulation of cognition." They say, "Recent research indicates that metacognitively aware learners are more strategic and perform better than unaware learners" because "metacognitive awareness allows individuals to plan, sequence, and monitor their learning in a way that directly improves performance" (Schraw & Dennison, 1994a, p. 460). Furthermore, "Metacognition consists of knowledge and regulatory skills that are used to control one's cognition. Metacognition, as a term, is used in a general sense to subsume a number of individual components. All of these components are inter-correlated. They yield two general components corresponding to knowledge about cognition and regulation of cognition" (Schraw & Dennison, 1998, p. 116). Schraw and Dennison conclude that there are two processes at work: a cognition involving knowing what the person is reading, and a regulatory cognition. Regulatory cognition is a set of strategies students use to monitor their progress as they read. The use of the MAI involves analyzing "at least three different kinds of metacognitive awareness: declarative, procedural, and conditional knowledge…Declarative knowledge refers to knowing "about" things. Procedural knowledge refers to knowing "how" to do things. Conditional knowledge refers to knowing the "why" and "when: aspects of cognition (Schraw, 1998, p.114). I used his rubric as a format for a qualitative analysis and description of the participants' understanding of their own cognitive processes. I

gave the MAI twice, once at the beginning and again at the end of the process for comparison.

Knowledge of Cognition

The Metacognitive Awareness Inventory is divided into two areas with the following subsections indicating which identify which knowledge or regulatory process the participant is aware of.

1. DK - Declarative knowledge: knowledge about one's skills, intellectual resources, and abilities as a learner.

2. P - Procedural knowledge: knowledge about *how* to implement learning procedures (e.g. strategies)

3. CK - Conditional knowledge: knowledge about *when* and *why* to use learning procedures.

Regulation of Cognition

1. P - Planning: planning goal setting, and allocating resources *prior* to learning.

2. IMS - Information management: skills and strategy sequences use on-line to process information more efficiently (e.g., organizing, elaborating, summarizing, selective focusing.

3. Monitoring: assessment of one's learning or strategy use.

4. DS - Debugging: strategies used to correct comprehension and performance errors.

5. Evaluation analysis of performance and strategy effectiveness after a learning episode.

The Reading Passages

I selected passages from several popular novels that were referenced to approximate TABE (Test of Adult Basic Education) grade levels between 9.0 and 10.5 using standard education readability formulas. These can be found in Appendix F. Two of the readings were excerpts from popular fiction. The third (*The What is the What?)*, is a novelized biographical account of a Sudanese boy's experiences in Darfur. These were selected to approximate the reading level of education a person would have with a GED or high school diploma. After reading through the selection once, the participants wrote a paragraph describing what they had gleaned from the reading selection. There were no stipulations as to what to write. After writing their responses to the reading, the participants read the selection again and noted whether any of their understanding or impressions had changed after the writing exercise. Not everyone followed this part of the procedure, so there is often only one response with no secondary reflection. Following each reading /writing exercise they drew a picture of the impressions they formed from what they read.

In the weeks before we began, I gave the participants information about the process of metacognitive awareness while reading, and had them participate in writing two expository essays were before the research. Even after that, the participants still insisted that "metacognition" and "intertextuality" were unfamiliar concepts and words outside of their current vocabulary. I could not inform and prepare them to read at a higher level since that would have required more than a semester's worth of work in itself. I wanted a fairly naïve population in the hope of getting honest ("raw") responses,

rather than regurgitating scripted lessons. I also had to take into consideration their patience and the restrictions on the allotted time, so we went ahead based on what they knew. Therefore, the first task I set before my participants was the MARSI, the instrument designed to uncover what strategies and reading tactics the students themselves knew they used to understand what they read as they moved through a text. The following is the sequence I followed during the research:

Procedure for Administering the Surveys and Reading Modules

1. Students were asked to participate in the research project.

2. Introduction of the meaning of Metacognition and Intertextuality.

3. Explanation of the concept of drawing a picture of what they may envision as they read the passages.

4. Explanation of the nature of a reflective essay.

5. The participants wrote a practice reflective essay chosen from a short list of open-ended questions relating to a standard social event or circumstance.

6. During the first session, the participants were given the Metacognitive Awareness of Reading Strategies Inventory (MARSI).

7. During the second session, the participants were given the Metacognitive Awareness Inventory (MAI).

8. The participants completed the readings the next three sessions.

9. During the last session of the research project, I gave the MAI again for analysis and comparison with the first.

10. In the class the following week, the participants were given an opportunity to discuss their impressions of the exercise and ask any questions about what they learned.

CHAPTER 4: ANALYSIS

There were twelve students in the class depending on who was absent. At least

one person was absent on any particular day. I collected 23 responses to the readings.

These are presented in four sections: (1) Analysis of responses from the MARSI survey

followed by a discussion and evaluative summary; (2) Analysis of responses from the

MAI survey followed by a discussion and evaluative summary; (3) Analysis of the

written responses followed by a discussion and summary; (4) Analysis of the

illustrations and how they relate to their written responses. Throughout the analysis of

my participants' work, I refer to the various elements that preceded this section. I

interweave these concepts throughout with the expectation that this process will result

in a new perspective on how reading comprehension is only one aspect of a complex

cognitive and affective network of mental operations, internal representations, lived

experiences, motivational capabilities and academic effort. In order to be more concise

and thorough here, I chose three representative samples from each reading, for a total of

nine written and illustrative responses from the participants. The purpose was to

illustrate what I considered was representative of a cross section of the participants.

This was largely subjective and based on my experience as an English teacher with an

English as a Second Language background. It comes in handy with low-level native

English speakers as well as those new to the English language. I was not able to

randomize my population, so I randomized the responses in an effort to keep the

process one that emphasized the group and not specific individuals. The one exception

was the second language learner. I did not assign each participant a specific identifier, a

letter designation. Even those were randomized so that even I would have a bit of

difficulty making decisions based on who the person was to keep my analysis as

objective as possible. All remaining responses and their respective illustrations are in

Appendix G.

Analysis of Responses from the MARSI Survey

Table 1
Average of Student Responses to the MARSI

Global Reading Strategies (GLOB

Participant	Range	Level
a.	3.7	high
b.	2.8	medium
c.	3.5	high
d.	3.5	high
e.	3.3	medium
f.	3.2	medium
g.	2.4	low
h.	3.5	high
i.	3.7	high
j.	2.5	medium
k.	2.8	medium
l.	3.5	high

Note 1: Ranges: 3.5 or higher = High; 2.5 – 3.4 = Medium; 2.4 or lower = Low
Note 2: There were twelve responses with 6 out of 12 rating themselves high, 5 rating themselves medium and one rating in the low range.

Table 2

Average of Student Responses to the MARSI

Problem Solving Strategies (PROB)

Participant	Range	Level
a.	4.3	high
b.	4.3	high
c.	4.4	high
d.	3.8	high

"Table 2 – (Continued)"

e.	4.0	high
f.	3.9	high
g.	3.3	medium
h.	4.9	high
i.	3.9	high
j.	3.8	high
k.	3.5	high
l.	4.0	high

Note 1: Ranges: 3.5 or higher = High; 2.5 – 3.4 = Medium; 2.4 or lower = Low Note 2: In this section, 11 out of 12 participants rated themselves high in problem solving strategies. We need to note the very high self-scoring that placed students in average scores over 4.0. This indicates that students are either very good a solving reading difficulties as they go along, or they have a much higher estimation of their skills than is warranted by the actual results.

Table 3
Average of Student Responses to the MARSI

Support Reading Strategies (SUP)

Participant	Range	Level
a.	2.8	medium
b.	2.4	low
c.	3.2	medium
d.	3.6	high
e.	3.2	medium
g.	2.1	low
h.	3.0	medium
i.	3.3	medium
j.	2.2	low
k.	2.7	medium
l.	2.9	medium

Note 1: Ranges: 3.5 or higher = High; 2.5 – 3.4 = Medium; 2.4 or lower = Low Note 2: In this section, only one participant indicated they used support strategies significantly, with eight students stating a medium or moderate use of support strategies. Two declared that their use of support strategies was low or minimal.

Table 4
Average of Student Responses to the MARSI

Overall Mean

Participant	Range	Level
a.	3.6	high

"Table 4 – (Continued)"

b.	3.1	medium
c.	3.7	high
d	3.6	high
e.	3.5	high
f.	3.4	medium
g.	2.6	medium
h.	3.7	high
i.	3.6	high
j.	2.8	medium
k.	3.0	medium
l.	3.5	high

Note 1: Ranges: 3.5 or higher = High; 2.5 – 3.4 = Medium; 2.4 or lower = Low
Note 2:There were twelve responses with 7 out of 12 rating themselves high in overall use of reading strategies. The remaining five rated themselves at medium. No one rated themselves low, although, as we will see, this may be an inaccurate appraisal the use of individual reading strategies.

Discussion

When we look at the average or composite view of these participants' estimation of their reading skills, we find that most of them, seven out of twelve or 58 percent, consider themselves good readers and the rest (42 percent) as fairly average. Not one placed himself as low, not even my Spanish speaking student who did not answer in English, failed to read a second time, and wrote only one or two sentences to show what he understood from the readings. Many students did not go back and read a second time, nor did they write coherent responses to summarize or paraphrase what they understood the readings to be about. There are definite exceptions to this, but overall it seems a number of the students either read too fast, or to slow and ran out of time and hurried through what they could. Consequently, they could not gather information effectively. Some did not follow directions, either because they did not fully understand what they were to do, or were unable to put into words changes in their understandings once they read the passage.

What does it mean to use reading strategies at a high, medium or low frequency? It is possible to use metacognitive strategies and reading skills and still be ineffective readers. The use of these strategies does not guarantee that their use will result in increased comprehension. This seems contradictory. Reading process theory, as explained by Samuels, Schermer, and Reinking (1992) has been that, although ability varies from reader to reader, the process of becoming fluent readers proceeds through successive stages of decoding, comprehension, and attention. Decoding is the process of making orthographic sense of the words on the page combined with their phonetic representations. Comprehension is the process the reader goes through, from decoding to fluency (automaticity), to combine information from the text with what he already knows about the subject matter with personal life experience. Selective attention is the focus the reader brings to the task in order to filter information needed to understand the text from extraneous information (Samuels, Shermer, & Reinking, 1992; pp. 130, 131). The expected result according to their evidence, "Suggests that once students reach accuracy, similar amounts of practice will produce automaticity in each" (Samuels, et. al., 1992, p.143). But, does this happen in real life?

Here is another question: How can we resolve the apparent contradiction between readers using metacognitive skills and yet remaining low performers? After all, Kolb and Kolb said in 1984 that learning through experience, using their Experience Learning Theory (ELT) "can help learners "learn how to learn." They claimed that, "By consciously following a recursive cycle of experiencing, reflecting, thinking, and acting, they can increase their learning power" (Kolb and Kolb, 1984/2009, p. 297). Isn't learning the skills and strategies of practiced readers supposed to result in improved

performance? Garner (1987) states that even when the reader is unable to express or explain which strategy he is using (in think-aloud exercises for instance), cognition can work through the confusion to resolve the reading problem. Yet, even cognitive, as well as metacognitive, skills and strategies can fail the reader because the errors go undetected during the act of reading. In Hacker's (1997) research, students they gave reading assignments in which there were various errors. Poor and unpracticed readers expended mental energy to work through spelling, basic grammar, and decoding at the expense of understanding. While the "high-ability readers" looked for errors in meaning, lower ability readers focused on grammatical errors, thus overlooking meaning. Referring to Markman's study of 1981, Garner calls this failure to comprehend "a profitless venture" (Garner, 1987, p. 19). According to Pressley (2002) comprehension often falls short of the goal because, although it is well known that teaching comprehension strategies improves reading ability, and proficient readers, "Are extremely active as they read, using a variety of comprehension strategies in an articulated fashion," these comprehension strategies "often are not taught' (Pressley, 2002, p.291).

According to Carr and Borkowski (1991), the factors we need to look at are self-efficacy and self-esteem. Using research by Fine (1967), Shaw and Black (1960), and Therman and Ogden (1947) they explain that low achieving readers generally attribute their lack of ability to external factors, do not persist in a reading task if it proves too difficult, and underestimate the difficulty of an intended reading and so become discouraged. In these instances, we can say that their use of strategies is not efficient, so

they do not persist after they become aware of their own perceived lack of ability. An interviewee of mine for another project in 2007 had this to say about this:

"When I was in elementary school. I was a very good reader. In first through third grade. But the four grade thing change the reading started to get harded and my fear of the other kids laughing at me for not knowing words. So every time it was time for reading I would try to get excuse from class. Running and hiding from book and reading. As the years went by the teachers just pass me on from grade to grade my read level were still on a third grade all the up to the 12th grade (MacMonagle, 2007, Harold, Interview).

Diener and Dweck (1980) studied learned helplessness in children, stating that students who were able to master the material they read relied on their past successful experiences to motivate them to continue when failure occurred. For them past successes reinforced their current motivation. This does not seem to be so for helpless children as "they might be perceiving past success as irrelevant to future outcomes." This was so despite that before the comprehension failure the helpless children said they were confident in their abilities. Afterward they changed their estimation of their abilities, and said they really did not feel themselves capable of success. It would seem that past failures have more impact on these students than their successes

This is just the opposite of students who inherently felt that despite the current setback they would be ultimately successful. As Diener and Dweck state, "failure may overshadow the actual successes of the helpless children" (Diener & Dweck, 1980, p. 942). They suggest that their findings show that "success does not act as a buffer against the negative effects for helpless children," and, in fact, if there is a way to

devalue one's present performance or to be pessimistic about one's future performance, the helpless children are likely to make use of it" (Diener & Dweck, 1980, p. 950). In their study of actual strategy use by good and poor readers alike, they concluded that while, "mastery-oriented" students continued to have high expectations, "It would appear that helpless children see so little predictive power in past success, and trust their own ability so little that they do not expect to solve the same problems they had previously mastered" (p. 949). The following statement by another basic skills student describes the impact of falling behind and losing faith in one's own abilities:

> Well it's, you know when you are sittin' there and the teacher be askin' people questions and then when they have to almost jus' break it down to ya' you know and you jus' and then sometimes you seem like you know the answer but you jus' can't even speak it out. You know and you jus' feel like you're left behind even though it be your own fault and I know because you're not applyin' yourself an' it jus' got where I jus' felt because since I wasn't applyin' myself you know I remember like I say when I was in 9th grade that there was this, you know that he would be tryin' you know would be sayin' such and such you don't know this he'd be axin' a question you know tryin' to help you wid it but you jus' feel like that you're wastin' time (MacMonagle, 2007; Charles, Interview).

Experiences such as this and the resulting impressions root themselves deeply in the subconscious only to be played out in later life. Remedial education for adults is based on a number of factors, including recognizing the presence of the messages adult students have taken to heart about past performance in school. The sentiment that your

subconscious mind cannot take a joke is prevalent throughout self-help and positive

thinking literature. (For example see *The Power of Your Sub-Conscious Mind* by Joseph

Murphy; 2009). I do not believe it is unreasonable to believe that, among a myriad of

other issues, impressionable children carry negative (as well as positive) reinforcement

from the adult powers in their young lives well into adulthood, affecting their

perceptions about what they know and can learn. However, Butkowski and Willows

(1980) caution that reading research can result in contradictory findings, saying of the

literature available at that time that it was not clear "whether a low-self concept and

negative self perceptions are causes, effects, or both if low levels of academic

functioning" (Butkowski & Willows, 1980, p. 408).

As Haberman (1992) observed, reading for students in this situation is not a

journey into the imagination, but rather a series of reading drills and worksheets

punctuated by the occasional need to read a book. As I entered student teaching in the

mid 1980's, all the talk was about critical reading and reading for understanding. Even

as a teacher I was not sure what that meant since I was already an accomplished reader,

yet I do not remember being taught how to read using metacognitive strategies.

I suspect that what I have here in this group, and in my basic education classes

in general, are individuals who do not read, or find reading difficult because of learning

disabilities of one kind or another. They may find reading too difficult to manage and

thus remain unaware of levels of meaning beyond just finding out what the words on

the page mean. According to Linnenbrink and Pintrich (2003), all of this is tied together

– a unity of ability and motivation – in which motivational studies by Bandura (1986)

and others have concluded that "Individuals with strong efficacy beliefs are more likely

to exert effort in the face of difficulty and persist at a task when they have the requisite skills. Individuals who have weaker perceptions of efficacy are likely to be plagued by self-doubts (''I don't think I can do this'') and give up easily when confronted with difficulties, even if they have the skills or knowledge to perform the task." (Linnenbrink & Pintrich, 2003, p. 127)

Analyses and Responses from the MAI Survey

Administration of the MAI

Caveat

My administration of this instrument was faulty because of mistakes I made in typing up the instrument. There were five missing questions and at least one question was redundant. Where there should have been fifty-two separate questions, there are forty-seven. Since I am not making a statistical analysis of the results, confining myself to explanations of the use, misuse, or failure to use the stated skills and strategies, I will be analyzing the responses with simple percentages or through narrative explanation according to the metacognitive skill or strategy covered in the valid answers.

Analysis and Implications of MAI Data

According to Schraw and Dennison's research into metacognition and their development of the MAI (1994a, 1994b), the process of metacognition in the reader consists of two aspects. The first is one of *knowing* about one's cognitive process, and the second is how readers manage to *regulate* or manage the reading process as they proceed through a text. The following is an explication of metacognitive skills and strategies as they relate to the research of the metacognitive and intertextual abilities of the working adult students in this research. The following categories and sub-categories

delineate the eight areas that research has found are key to an individual's ability to comprehend what he reads.

Posed Questions According to Operational Definitions

Declarative Knowledge (DK)

5. I understand my intellectual strengths and weaknesses.

10. I know what kind of information is important to learn.

12. I am good at organizing information.

16. I know what the teacher expects me to learn.

17. I am good at remembering information.

20. I have control over how well I learn.

32. I am a good judge of how well I understand something.

46. I learn more when I am interested in the topic.

Table 5

Knowledge of Cognition: Declarative Knowledge (DK)

Knowledge about one's skills, intellectual resources, and abilities as a learner		
Average of responses to eight posed questions		
	Yes	No	Do Not Know
First administration	7.25	2.0	11.0
Second administration	8.0	2.6	1.4

First Administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010

Procedural Knowledge (PK)

3. I try to use strategies that have worked in the past.

14. I have a specific purpose for each strategy I use.

27. I am aware of what strategies I use when I study.

33. I find myself using helpful learning strategies automatically.

Table 6

Knowledge of Cognition: Procedural Knowledge (PK)

Knowledge about *how* to implement learning procedures (e.g. strategies)

Average of responses to four posed questions

	Yes	No	Do Not Know
First administration	8.0	1.5	2.5
Second administration	8.5	2.0	1.5

First Administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010

Knowledge of Cognition (CK)

15. I learn best when I know something about the subject.

18. I use different strategies depending on the situation.

26. I can motivate myself to learn when I need to.

29. I use my intellectual strengths to compensate for my weaknesses.

35. I know when each strategy will be most effective.

Table 7

Knowledge of Cognition: Conditional Knowledge (CK)

Knowledge about *when* and *why* to use learning procedures

Average of responses to five posed questions

	Yes	No	Do Not Know
First administration	8.8	1.6	1.6
Second administration	9.4	0.6	2.0

First administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010

Planning Goal-setting, and Allocating Resources (P)

4. I pace myself while learning in order to have enough time.

6. I think about what I really need to learn before I begin a task.

7. I know how well I did once I finish a task.

8. I set specific goals before I begin a task.

22. I ask myself questions about the material before I begin.

23. I think of several ways to solve a problem and choose the best one.

42. I read instructions carefully before I begin a task.

45. I organize my time to best accomplish my goals.

Table 8

Regulation of Cognition: Planning (P)

Planning, goal setting, and allocating resources *prior* to learning.

Average of responses to seven posed questions

	Yes	No	Do Not Know
First administration	6.4	3.9	1.3
Second administration	7.7	3.1	1.1

First Administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010
Note: Question 42 "I read instructions carefully before I begin a task" was removed because of an error in transcription. It was not included in the first administration.

Information Management Skills (IMS)

9. I slow down when I encounter important information.

13. I consciously focus my attention on important information.

30. I focus on the meaning and significance of new information.

31. I create my own examples to make information more meaningful.

37. I draw pictures or diagrams to help me understand while learning.

39. I try to translate new information into my own words.

41. I use the organizational structure of the text to help me learn.

43. I ask myself if what I am reading is related to what I already know.

47. I try to break studying down into smaller steps.

48. I focus on overall meaning rather than specifics.

Table 9

Regulation of Cognition: Information Management Skills (IMS)

Skills and strategy sequences use on-line to process information more efficiently (e.g., organizing, elaborating, summarizing, selective focusing).

Average of responses to nine posed questions

	Yes	No	Do Not Know
First administration	7.3	3.0	1.7
Second administration	8.9	2.0	1.1

First Administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010
Note: Question 31, "I create my own examples to make information more meaningful" was removed because of an error in transcription.

Monitoring (M)

1. I ask myself periodically if I am meeting my goals

2. I consider several alternatives to a problem before I answer

11. I ask myself if I have considered all options when solving a problem

21. I periodically review to help me understand important relationships

28. I find myself analyzing the usefulness of strategies I use when I study

34. I find myself pausing regularly to check my comprehension

49. I ask myself questions about how well I am doing while I am learning something new

Table 10

Regulation of Cognition: Monitoring (M)

"Real time" assessment of one's learning or strategy use

Average of responses to six posed questions

"Table 10 – (Continued)"

	Yes	No	Do Not Know
First administration	8.2	2.2	1.7
Second administration	8.7	1.7	1.7

First Administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010
Note: I removed question 49 "I ask myself questions about how well I am doing while I am learning something new" because of a transcription error.

Debugging Skills (DS)

25. I ask others for help when I don't understand something

40. I change strategies when I fail to understand

44. I reevaluate my assumptions when I get confused

51. I stop and go back over new information that is not clear

52. I stop and reread when I get confused

Table 11

Regulation of Cognition: Debugging Skills (DS)

Strategies used to correct comprehension and performance errors

Average of responses to three posed questions

	Yes	No	Do Not Know
"Table 11 – (Continued)"			
First administration	8.0	1.0	0.3
Second administration	9.0	2.3	0.7

First Administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010
Note: Question 40, "I change strategies when I fail to understand" and question 52, "I stop and reread when I get confused" were removed because of a transcription error.

Evaluation

19. I ask myself if there was an easier way to do things after I finish a task

24. I summarize what I have learned after I finish

36. I ask myself how well I have accomplished my goals once I've finished

38. I ask myself if I have considered all options after I finish a problem

50. I ask myself if I learned as much as I could have once I finish a task.

Table 12

Regulation of Cognition: Evaluation (E)

Analysis of performance and strategy effectiveness after a learning episode			
Average of responses to five posed questions			
	Yes	No	Do Not Know
First administration	7.4	3.4	1.2
Second administration	8.2	2.8	0.6

First Administration: Analysis of responses to the MAI given on February 9, 2010
Second Administration: Analysis of responses to the MAI given on March 16, 2010

Discussion

According to Schraw and Dennison (1994a, p.460), metacognition "refers to the ability to reflect upon, understand, and control one's learning. It is "independent of intellectual ability" and so while (I believe) my student participants exhibit competent behavior and abilities in other areas of their lives, their lack of success at reading in a world of text driven media belies their true abilities in other areas of their lives. The purpose of conducting this research in an actual adult education setting was supposed to capture what I hoped would be a positive reflection of the education they had been engaged in. Nonetheless, I was prepared for either outcome. On one hand, I expected a set of results that indicated that their teachers had not taught them the metacognitive skills fluent readers employ, or they had not picked them up as a natural consequence of reading. On the other hand, I thought they could demonstrate that their estimation of their reading abilities matched their abilities. As we can see from responses to the Metacognitive Awareness Inventory, a sizeable percentage of the respondents feel good about their abilities. There is usually no doubt that people do learn more when they are interested in the subject (question 46), but it remains to be seen if they are actually good judges of how well they understand what they read (question 32). This is particularly interesting in light of the responses to question 20. In the first application of the survey nine out of twelve responded that they had control over how well they learn, with a quarter of them stating that they did not know if they did. After the readings were done and the second survey was given, the "do not know" response dropped away and while the "yes" response improved, there were still five who now said they had no control. This is at variance with a majority, seven out of twelve, or 58 percent, stating they understood their intellectual capabilities. Five of the respondents stated they did not

know if they had a full understanding. Some could not tell if they understood their

capabilities or not.

Rationale for Holistic Analysis of Written Responses

In beginning this section, I stated that I did not design this project to be a case

study of individuals, but rather an attempt to gather information from a typical class in

adult education. This is why there is a difference in the labeling of participants'

response packets randomly (A,B,C…etc.). The same student may have a different

alphabetic designation for each module. However, the student participants were not

randomly picked to take part in this class but had taken the Test of Adult Basic

Education and scored high enough in the reading test (9.0 or higher on the TABE) to

participate in a class designed to enhance their abilities to do college work and improve

their performance on the job. All effort over the two-year period of the course that these

students participated in was designed to assist them in gaining promotions at work by

increasing their communication skills through computer and communication classes as

well as introductory classes in supervision and basic business management.

We backed up the curriculum classes the students were taking as part of the

program with classes in basic skills. We addressed writing, grammar and mechanical

issues generally considered "language arts." In the research, I sought an aggregate

response, a representative example, of what these students could do when tasked with

the necessity of responding and interpreting nominal adult literature. These books are

available in the marketplace, and in the case of *All Quiet on the Western Front*, a work

of literature with a history of popular demand in school and among average readers for

nearly a century. The book, *The Lost World*, comes right out of popular fiction recently

published and popularized since Michael Crichton's first book on the subject, *Jurassic Park,* which was a highly popular movie in 1993, and led to two sequels on the same theme. The novel was not obscure by any means, and I had counted on my students being able to recognize the theme intertextually because of *Jurassic Park's* success and the overwhelming media attention and its long runs in movie theaters. The third novel I chose, *The What is the What*, is not as well known, but I had counted on its subject matter to arouse some affective response in my students due to its setting in Sudan's Darfur region and because it was a novelization of an African boy's personal account of survival under brutal circumstances.

All but three of my students were African American, with one Hispanic student, so I did not want to restrict myself to the normal academic canon of Western literature, which is usually biased in favor of European, even Anglo-American, themes and characters. My original plans were to use at least two more African American writers and situations, but due to the restriction of time on the length of the class, I had to choose what I felt would be the most accessible in impact and subject matter. In a future iteration of this research I would plan to have more control over the issues that limited the present study, issues I cover in the "limitations" section of this paper.

These responses are from a fairly naïve population regarding research protocol, and constitute honest attempts to address the situation the participants agreed to leading up to the actual research I conducted. Their responses are very revealing in what they were not able to do as well as what they were able to do with this task. In the following analysis I do not make excuses for why these students were not able to read and write as well as I had hoped. Their own work reveals, that, as minority students from an urban

environment who did not get the best education, just what research has already shown us: that we have a small group of people – this one class - who may be representative of those working in laboring jobs throughout the United States who struggle to comprehend what they read and have difficulty adequately expressing themselves in writing about what they read when asked to do so.

The third element of this research was the rich picture description exercise I incorporated to see if I could see behind the curtain of their written work into what they understood but did not have the words for. That analysis follows this one in a separate analysis centered on artistic representations of the ideas they formed while reading the passages.

Lloyd-Jones (1992) reminds us in "The Right to Write: Some History," that the document, *The Student's Right to Write*, which was prepared by the Commission on Composition in the early 1970's addressed recognized flaws and conflicts in judging students' writing fairly and consistently. Recommendations in this article sought to get away from the simplistic multiple choice scoring as well as "root out negativism and reductionism – excessive correction and simple minded prescriptions" (Lloyd-Jones, 1992, p. 6). Mullis (1984) states that using holistic scoring is a valid and consistent vehicle for determining if students have followed the teacher's instructions. She says, "holistic scoring provides information about the range of overall writing quality exhibited by a population of students...However, it does not provide specific prescriptive or diagnostic information" (Mullis, 1984, p.18; see also Cooper, 1977, p. 3).

The task I set before my research participants was a two-fold reading/ writing assessment. They were to read the passages I assigned twice with an intervening written piece. In the first writing assignment for each module, I expected my respondents to be able to identify the action and situation the characters were participating in. I chose the three pieces to be transparent enough to have obvious relationships with issues beyond the text that I thought the reader would know. The *Lost World* piece has its obvious tie-in with the Jurassic Park/ dinosaur movie phenomenon and all its spin-offs. The *All Quiet on the Western Front* selection, contained obvious references to battle such as unrolling barbed wire and fear under constant bombardment. *The What is the What* passage also contained conflict, fear, escape, and hopefully would engender some resonance among my participants with a young African villager on the run from brutal marauders in Sudan.

I was under no illusion realizing that I had a range of abilities to contend with, but I did expect responses from all of them, and at least some measure of identification with each of the readings. I chose these works for emotional impact primarily to assist with gut responses and familiar situations my students may have run across in their own schooling, exposure to the popular media, and possible personal identification with oppression as in the passage from *The What is the What.* I purposely did not spend a semester preparing them for just such an exercise because I was not looking for how well students do with extensive preparation. I wanted a raw account of how well or poorly they would do if I prepared them moderately with instructions and some practice to insure they knew what I was asking them to do. I estimate that nearly two thirds of

the group of twelve cannot read or write well enough to express themselves in conventional written English. Nor did many follow instructions to write a second piece.

Some responses fulfilled the requirements of the instructions. Many did not. They were filled with errors and so poorly written that I decided to analyze these first. I did these first and separately in a holistic fashion formulated by NCTE and ETS to guide teachers in using rubrics for scoring writing. This process does without the usual list of red mark cataloging of mechanical errors that serve only to discourage students from expressing themselves. According to Mullis (1984), the virtue of a holistic and direct scoring of students' writing lies in the fact that descriptors of what was asked of the student is the template for scoring and not the mechanical checklist of errors that traditionally line the margins of a student's paper. Red error marginalia noticing only what was wrong choke off creativity in favor of judging grammatical and spelling errors as if they themselves were the basis of good writing and not fluency, creative expression, and inventiveness of thought.

Readings and Responses

Although I evaluated each of the responses the participants handed back, in this section I restrict the number of analyzed responses to three responses from each of the three readings. The others are located in Appendix G. Although each participant had difficulties expressing himself adequately, some were more effective than others. Artistic talent for the illustrations was left to their individual artistic abilities. The one exception to this format highlights the issues we are currently faced with in this country; second language speakers. Within the workplace, they manage to find their way through the basics of English expression as a matter of survival. They may become

conversationally adept, and read (using clues from their first language when possible), yet have great difficulty writing. They often fall far below adequate abilities in a general academic sense. For working parents with adult responsibilities, opportunities for proper education along these lines are generally sporadic. Economic needs take precedence. At every level in the world of work there is a pressing need to be able to read instructions, memos, safety instructions, and guidelines for the operation of equipment and computerized recording and parts ordering systems. This includes the ongoing installation of computers in company vehicles. Often they rely on the skills of their more bilingually accomplished friends and co-workers. We need to keep in mind that literacy difficulties even for native English speakers can be equally as basic. The first response I evaluate is the one from my Hispanic student who tested well on the TABE reading test, but as we can see, was not able to respond to the reading in written English. Nevertheless, his Spanish is good, even if his response is short.

Responses from Second Language Participant and Analysis

This was my student's response to the first reading from *The Lost World*.

> [Original] Realmente esos hombres estaban temerosos de semejante animal oservandolo. Venir hacia ellos. Coe caminaba con sus imenses patas, Gigantes.
>
> [Translation] Really these men were afraid of such a large animal observing him. It came towards them. Coe. Walked with his immense giant feet.

There was no second reading or response as I had requested of the group, as we will see with other responses and the lack of them.

As for the second reading, from *All Quiet on the Western Front*, it is evident that this participant got the general idea that this was a rest period between battles, but no

extension of the idea beyond the simple statement that this is a break for the soldiers.

There is no second response, yet the accompanying picture from this student shows

soldiers and barbed wire and a stand of trees.

[Original] Ellos Eston en pie de Gerra y tambien soperando (esperando?) la

clemencia dle tiempo.

[Translation] They are at war and are (…) during the merciful time of rest.

Figure 1: Participant A's *All Quiet on the Western Front* Illustration

This participant was not able to write in English, and was not even very specific

about the events in his own language. However, if we look at his illustration, a different

picture of his understanding emerges. Here is a landscape of the battlefield as he

imagined it. A row of red dots as a boundary of sorts may signify barbed wire or a line

of fire. Soldiers on a ridge in the distance among the trees complete a full composition

of his rendition of the battlefield. While there is no close-up of soldiers in trenches or

lined up dodging incoming rockets, this picture shows that he understood the place and type of action that the short passage he read indicated. With minimal information about the overall picture, he drew upon his collective knowledge to render what he understood.

For the third reading, *The What is the What*, this participant is more specific in his reference to a peaceful community and the protagonist witnessing the "wickedness of others" and having to flee for his life.

[Original]: Esta hombre solia ser una persona tranquila como su pueblo su comunidad sus, Armistades principal. mente su familia, que una ves perdio por la maldad de otros fue pore so que corrio para salvad su vida propria.

[Translation]: This man used to be a quiet person like his community his friends principally his family that he lost because of the wickedness of others the reason he ran for his life.

Figure 2: Participant D's *The What is The What* Illustration

There is no second reading or reflection on what he had read. Nonetheless, I consider it reasonable for a second language learner to have enough difficulty getting

through the passage the first time, much less managing a second reading with commentary. In the picture that he drew there are two figures sitting around a campfire, a camel standing nearby the Dinka boy hiding nearby in the grass. This, in itself, shows that what he could not express in words, he could picture. Despite the lack of a fluent ability to write in English, he was able to respond to the text in Spanish, a clear indication he could read the passage well enough for comprehension. Furthermore, he drew a picture of the boy hiding in the grass on the edge of the encampment of members of the band of raiders that had attacked his village. This was late in the story so there is every indication that he followed the action through to the end. While he did not have the written English language skills to express himself, the image in his mind is clearly expressed in his representation of this scenario in the passage. Notice that he even drew a camel instead of a horse; a further indication that he was aware that the action was in a desert or near desert and that the Dinka boy was hiding from these men who were calling out to his possible presence on the edge of their encampment.

His work is the only one I tracked as a particular individual. His responses are the most illustrative of a number of problems encountered in this exercise, and is also an opportunity to address a very real situation in adult education today: educating immigrants in English to a level where they can be successful in school and at work. The rest, as stated above were not tracked the same way. To keep from reciting a litany of difficulties the twelve students had writing their responses trying to explain what the understood and what problems they may have overcome in their reading, I chose three representative examples from each of the three passages I had them read. Although some responses were better written than others, some could not translate their

understanding into an illustration, or drew well but did not write a second paragraph.

There are different deficits and strengths running through the twenty-three responses. I

did not intend to itemize the difficulties each student had. The overall composite picture

of the use of metacognitive skills and strategies and the use of intertextual abilities by

these participants during the process of reading is a mixture of varying abilities. The

others can be found in Appendix G along with evaluations of their work.

First Reading:

Selection from The Lost World by Michael Crichton

Chapter: "Power" (pp. 142 – 145)

They drove the explorer to the back of the main building, heading for the power station.
On the way they passed a little village to their right. Thorne saw six plantation-style
cottages and a larger building marked "Manager's Residence." It was clear that the
cottages had once been nicely landscaped, but they were now overgrown, partially
retaken by the jungle. In the center of the complex, they saw a tennis court, a drained
swimming pool, a small gas pump in front of what looked like a little general store.

Thorne said, "Wonder how many people they had here?"
Eddie said, "How do you know they're all gone/"
"What do you mean?"
"Doc – they have power. After all these years. There has to be an explanation for it."
Edie steered the car around the back of the loading bays, and drove toward the power
station, directly ahead.
        The power station was a windowless, featureless concrete blockhouse, marked
only by a corrugated-steel rim for ventilation around the top. The steel vents were long
since rusted a uniform brown, with flecks of yellow.
        Eddie drove the care around the block, looking for a door. He found it at the
back. It was a heavy steel door, with a peeling, painted sign that said: CAUTION
HIGH VOLTAGE DO NOT ENTER.
        Eddie jumped out of the car, and the others followed. Thorne sniffed the air.
"Sulfur," he said.
        "Very strong," Malcolm said, nodding.
        Eddie tugged at the door. "Guys I got a feeling…"
        The door opened suddenly with a clang, banging against the concrete wall. Eddie
peered into darkness inside. Thorne saw a dense maze of pipes, a trickle of steam
coming out of the floor. The room was extremely hot. There was a loud whirring
sound.
        Eddie said, "I'll be damned." He walked forward, looking at the gauges, many of
which were unreadable, the glass thickly coated with yellow. The joints of the pipes

were also rimmed with yellow crust. Eddie wiped away some of the crust with his finger. "Amazing," he said.

"Sulfur?"

"Yeah, sulfur. Amazing. He turned toward the source of the sound, saw a huge circular vent, a turbine inside. The blades, spinning rapidly, were dull yellow.

"And that's sulfur, too?" Thorne said.

"No," Eddie said. "That must be gold. Those turbine blades are gold alloy."

"Gold?"

"Yeah. It would have to be very inert." He turned to Thorne. "You realize what all this is? It's incredible. So compact and efficient. Nobody has figured out how to do this. The technology is – "

You're saying it's geothermal?" Malcolm said.

That's right," Eddie said. "They've tapped a heat source here, probably gas or steam, which is piped up through the floor over there. Then the heat is used to boil water in a closed cycle – that's the network of pipes up there – and turn the turbine – there which makes electric power. Whatever the heat source, geothermal's almost always corrosive as hell. Most places, maintenance is brutal. But this plant still works. Amazing."

Along one wall was a main panel, which distributed power to the entire laboratory complex. The panel was flecked with mold, and dented in several spots.

"Doesn't look like anybody's been here in years," he said. "And a lot of the power grid is dead. But the plant itself is still going – incredible."

Thorne coughed in the sulphurous air, and walked back into the sunlight. He looked up at the rear of the laboratory. The glass at the rear of the building was shattered.

Malcolm came to stand beside him. "I wonder if an animal hit the building."

"You think an animal could do that much damage?"

Malcolm nodded. "Some of these dinosaurs weigh forty, fifty tons. A single animal has the mass of a whole herd of elephants.   That could easily be damage from an animal, yes. You notice that path, running there? That's a game trail going past the loading bays, and down the hill. It could have been animals, yes."

Thorne said. "Didn't they think of that when they released the animals in the first place?"

"Oh I'm sure they just planned to release them for a few weeks or months, then round them up when they were still juvenile. I doubt they ever thought they – "

They were interrupted by a crackling electrical hiss, like static. It was coming from inside the Explorer. Behind them, Eddie hurried toward the car with a worried look.

"I knew it," Eddie said. "Our communications module is frying. I knew we should have put in the other one." He opened the door to the Explorer and climbed in the passenger side, picked up the handset, pressed the automatic tuner. Through the windshield, he saw Thorne and Malcolm coming back toward the car.

And then the transmission locked. " – into the car!" said a scratchy voice.

"Who is this?"

"Dr. Thorne! Dr. Malcolm! Get in the car!"

As Thorne arrived, Eddie said, "Doc. It's that damn kid."

"What?" Thorne said.

"It's Arby."

Over the radio, Arby was saying, "Get in the car! I can see it coming!"

"What's he talking about?" Thorne said, frowning. "He's not here, is he, is he on this island"

"But how the hell did he - ?"

Dr. Thorne! *Get in the car!"*

Thorne turned purple with anger. He bunched his fists. "How did that little son of a bitch manage to do this?" He grabbed the handset from Eddie. "Arby, God damn it – "

"It's coming!"

Eddie said, "What's he talking about? He sounds completely hysterical."

"I can see it on the television! Dr. Thorne!"

Malcolm looked around at the jungle. "Maybe we should get in the car," he said quietly.

"What does he mean, television?" Thorne said. He was furious.

Eddie said, "I don't know, Doc. but if he's got a feed in the trailer, we can see it, too." He flicked on the dashboard monitor. He watched as the screen glowed to life.

"That damn kid," Thorne said. "I'm going to wring his neck."

"I thought you liked that kid," Malcolm said.

"I do, but – "

"Chaos at work," Malcolm said, shaking his head.

Eddie was looking at the monitor.

"Oh, shit," he said.

On the tiny dashboard monitor, they had a view looking straight down at the powerful body of a Tyrannosaurus rex, as it moved up the game trail toward them. Its skin was a mottled reddish brown, the color of dried blood. In dappled sunlight, they could clearly see the powerful muscles of its haunches. The animal moved quickly, with out any sign of fear or hesitation.

Staring, Thorne said, "Everybody in the car."

The men climbed hurriedly in. On the monitor, the tyrannosaurus moved out of the view of the camera. But, sitting in the explorer, they could hear it coming. The earth was shaking beneath them, swaying the car slightly.

Thorne said, "Ian, what do you think we should do?"

Malcolm didn't answer. He was frozen, staring forward, eyes blank.

"Ian?" Thorne said.

The radio clicked. Arby said, "Dr. Thorne, I've lost him on the monitor. Can you see him yet?"

"Jesus." Eddie said.

With astonishing speed the Tyrannosaurus rex burst into view emerging from the foliage to the right of the Explorer. The animal was immense, the size of a two-storey building, its head rising high above them, out of sight. Yet for such a large creature it moved with incredible speed and agility. Thorne stared in stunned silence, waiting to see what would happen. He felt the car vibrate with each thundering footstep. Eddie moaned softly.

But the tyrannosaur ignored them. Continuing at the same rapid pace, it moved swiftly past the front of the Explorer. They hardly had a chance to see it before its big head and body disappeared into the foliage to the left. Now they saw only the thick counterbalancing tail some seven feet in the air, swinging back and forth with each footstep as the animal moved on.

"So fast!" Thorne thought. "Fast!"

Selected Individual Participant Responses to The Lost World

The responses were transcribed as written, mistakes and all.

Participant B's Written Response:

In the story "The Lost world" I come to the conclusion that somehow multiple time periods go combined in to one. I think somehow the doctors opened a gateway to the prehistoric past, and the dinosaurs got out.

Participant B's Second Written Response:

In the second read I feel I've got a better understanding. Some group of people or doctors with a lot of money a(nd) backing went to a remote island. On the (island) they conduct experiments with the ecosystem and the wildlife. Things get out of control when they try to recreate prehistoric times. They are forced to evacuate the island or the dinosaurs ate them. Maybe they were tring to create a real life prehistoric tourist attraction. The project was disserted. Now the doctors are going back to see what came to be of the island.

Analysis of Participant B's Written Responses:

This participant read and responded twice and drew a picture as instructed. This response shows some imagination in his speculation that a gateway or wormhole was opened giving the dinosaurs access to this time-period. There is a BBC program dedicated to just that, but it would only be speculation on my part that there was an intertextual connection here. In the second reading he makes the connection between

the story and "Jurassic Park." While his first reading may or may not have made sense to him, he followed up with a second reading where he picked up more information and was able to articulate, not only a new sense of the passage, but a reflection on having made better sense. This reflection upon his discovery (a "click") as described by Garner (Garner, 1987, p.19) is an example of metacognitive awareness.

This participant also made the connection between the current exploration and the tourist attraction of the movie and that things got out of hand leading to the evacuation of the island. This is an example of finding intertextual connections between the reading and the movie, "Jurassic Park," he had seen. There are no syntactical errors. There are only a couple of grammatical errors that do not detract from the overall effective response to the prompt.

Participant C's First Written Response:

> This story is about experience of a group of people, who visit an abandon village from the past. He seen old building which got them signs, that people use to live there but vanish.
>
> There notice a power plant that was old and abandon, but was still functional. There was a high present of sulfur in the air. They observe the way this power station was design. They notice some damages at the back of the building which they suspect an animal that may have cause. But when the radio lost transmission they were warn to et in the explorer and get out of there. They notice in the monitor what was coming toward them was a Tyranosaur rex. It miss them going so fast. This area seem to be where time lapse together. No Tyranosaur rex can exist with radio and explorer.

Participant C's Second Written Response:

A group of people drove the explorer passed a little village and notice a complex empty but once was maintance well. The notice a power station, which was empty, but seemed to working. They inspect the building and area. Notice some damage to the building. In the back they saw an animal trail. When Eddie try to transmit they were old to get in the car. They were in danger. A Tyrannosaur Rex was coming toward them. It passed by them fast. This explain why the building was empty.

Analysis of Participant C's Written Responses:

In the first reading this respondent misses the main point of the story and concentrates on the presence of the sulphur laden power station and the enigmatic radio transmission. A number of grammatical and spelling errors detract from clear written expression. He picks out details about the damage to the building and the coming of the dinosaur but does not make the connection for the clues in the reading that this is a scientific exploration and this team is there on purpose. This participant does show a good sense of logic when he states that it is impossible that dinosaurs can exist in an era of humans, radios, and trucks. Catching the anomaly is an indication that he made a metacognitive connection between the prehistoric past and today's world. In the second reading the respondent picked up more detail about the danger the team was in, but failed to understand why the building was empty. There is a metacognitive connection concerning differences between two eras, but the participant largely misses the storyline by implying that it was happenstance. The conclusion he reached was that the building was empty because of the presence of the dinosaur. This is an indication of the failure to

notice the other features of the team's exploration indicating a lack of the ability to catch inferential clues.

Participant H's First Written Response:

> Three doctors, friends and co-workers were on an island for so job related experiment. What they found blow their minds. I don't think they knew they would fine an underground source for power. They know or at least one of them knew there would be sulfur. They also discover gold. They seem to be prepared for this trip on the island with a radio, and a T.V. monitor. But what they were not prepared for was a young man coming in over their radio. Someone they know from work or their neighborhood to come over the air and what seems to sound like is save their lives. Some of them believed him when he warned them of the danger and the other's didn't until they could see for their selves on the monitor. All of them were shocked to see the T-Rexs. as if they were dreaming as if they had heard of the myth but can actually see for themselves. I kinda puts me in the mind of the T.V. show Lost. or that other movie about dinosaurs. being that they have a car to drive in radios and a T.V. monitor

Participant H's Second Written Response:

> Okay now I'm not sure if they are on a movie set or where they are and what I do understand is that the animals were let loose to play or whatever and never were put back up and now that they are bigger and faster they can not be control the place where they are is abundant and if people are living they are in hiding. Maybe its an old Science building where they set aside dinosaurs egg and were

studying them and they out grew them? The island is described as a jungle and they were wondering how many people used to and still lived there.

Analysis of Participant H's Response:

At first his participant is not sure about the reason for the team's presence on the island, and vacillates between the explorers being surprised and being prepared for what they encounter. He makes the intertextual connection between the text, "Jurassic Park" and the TV series, "Lost." This writer is using a lot of guesswork trying to figure out just what is going on in the story. Although the guesses are not always correct, they are evidence of a constant metacognitive inquiry process while he reads, and again, while he writes. In the second paragraph he becomes alert to another possibility that the dinosaurs are not mythological creatures that surprise the team, but creatures, once confined, are now roaming the island and anyone who was there is still alive or in hiding. As in "Jurassic Park" he speculates that these creatures came from dinosaur eggs and the fact that the creatures subsequently overran the island. There are numerous errors in verb tense; a failure to use the past tense correctly, and sentence fragments. While the written work has a number of grammatical errors, this participant has an image of the scene and the action that takes place at the power plant. This speculation and willingness to try and make sense of the situation shows an active mind trying out different explanations for what he is reading. In the second reading, he picks up a more accurate picture of the scenario and the reasons behind the presence of dinosaurs. He could not have done that unless he had seen "Jurassic Park," since the theme of the movie was to bring dinosaurs back to life in the present era using the DNA in eggs that had been discovered.

The Second Reading:

Selection from *All Quiet on the Western Front* by Erich Maria Remarque, (pp. 59 – 62)

At regular intervals we ram in iron stakes. Two men hold a roll and the others spool off the barbed wire. It is that awful stuff with close-set, long spikes. I am not used to unrolling it and tear my hand.

After a few hours it is done. But there is still some time before the lorries come. Most of us lie down and sleep. I try also, but it has turned too chilly. Near to the sea one is constantly waked by the cold.

Once I fall fast asleep. Then waking suddenly with a start I do not know where I am. I see the stars, I see the rockets, and for a moment I have the impression I have fallen asleep at a garden fete. I do not know whether it is morning or evening, I lie in the pale cradle of twilight, and listen for soft words which will come, soft and near – am I crying? I put my hand to my eyes, it is so fantastic; am I a child? Smooth skin; - it lasts only a second, then I recognize the silhouette of Katezinsky. The old veteran, he sits quietly and smokes his pipe, - a covered pipe of course. When he sees I am awake, he says: "That gave you a fright. It was only a nosecap, it landed in the bushes over there."

I sit up, I feel myself strangely alone. It's good Kat is there. He gazes thoughtfully at the front and says:

"Mighty fine fire-works if they weren't so dangerous."

One lands behind us. Two recruits jump up terrified. A couple of minutes later another comes over, nearer this time. Kat knocks out his pipe. "It makes a glow."

Then it begins in earnest. We crawl away as well as we can in our haste. The next lands fair among us. Two fellows cry out. Green rockets shoot up on the sky-line. Barrage. The mud flies high, fragments whizz past. The crack of the guns is heard long after the roar of the explosions.

Beside us lies a fair-headed recruit in utter terror. He has buried his face in his hands, his helmet has fallen off. I fish hold of it and try to put it back on his head. He looks up, pushes the helmet off and like a child creeps under my arm, his head close to my breast. The little shoulders heave. Shoulders just like Kemmerich's. I let him be. So that the helmet should be of some use I stick it on his behind; - not for a jest, but out of consideration, since that is his highest part. And though there is plenty of meat there, a shot in it can be damned painful. Besides a man has to lie a whole month on his belly in the hospital, and afterwards he would be almost be sure to have a limp.

It's got someone pretty badly. Cries are heard between the explosions.

At last it grows quiet. The fire has lifted over us and is now dropping on the reserves. We risk a look. Red rockets shoot up to the sky. Apparently there's an attack coming.

Where we are it is still quiet. I sit up and shake the recruit by the shoulder. "All over, kid! It's all right this time."

He looks around him dazedly. "You'll get used to it soon," I tell him.

He sees his helmet and puts it on. Gradually he comes to. Then suddenly he turns firey red and looks confused. Cautiously he reaches his hand to his head and looks at me dismally.

I understand at once: Gun-shy. That wasn't the reason I had stuck his helmet over it. "That's no disgrace," I reassure him: Many's the man before you has had his pants full after the first bombardment. Go behind that bush there and throw your underpants away. Get along – "

Selected Individual Participant Responses to All Quiet on the Western Front

The following are the responses from *All Quiet on the Western Front*. Even though the written responses for this module have more substance, the failure to reread the passage (which of the three was the shortest), makes it impossible to gauge whether anything was learned. This was a common problem and makes me wonder if part of the problem with readers in basic education classes is that they do not follow directions and so miss the lessons they engage in through lack of follow through. As with the other responses, there are far too many errors to keep repeating (sic) after each mistake the writer makes. The responses were transcribed as written, mistakes and all.

Participant F's First Written Response:

This unit was out in the field on a combat mission. The writer tell how cold it was and the cold of the night usually the you up from sleep. He stated usually he didn't know his position seeing the sky, the stars. This remind him of his childhood. They begin to be attack. This terrify them, they were coming out in fear. More explosion came, then it grow quiet. The young man has his first bombardment. He explain it a normal to feel this way. Many did this in the past.

Participant F's Second Written Response:

The write shared about his experience on the battlefield. He explain how cold it was and how the first attack came to the camp. Everyone was sleep and the

surprise attack. They heard the cry from fellow recruits (….?) was terrified. At the end he tried to comfort some of the men.

Analysis of Participant F's Response:

There is a second reading here, but there is no indication the reader gained anything from reading the passage a second time. The writer understands that the men are in combat and that it is a cold night, but both paragraphs are a jumble of impressions and no references to who is performing the action. In the second paragraph he states that everyone was asleep, which is not correct, as is the general statement that Paul comforted "some of the men" when it was only one; a scene described in detail in the passage.

Participant I's First Written Response:

I am not sure of the time frame but I am sure it was over 60 ears ago not quite sure what war they were fighting either. But I an tell by the dilect (sic) that these guy were in the South West. The one telling the story was fairly young. Maybe his first real war. And just when his thought he was at home watching the firework as a young child on his front lawn he came back to reality from the sound of a large bang. He found comfort in helping one of his war buddy with his wound.

Participant I's Second Written Response:

As the soldiers prepare themselves for war the tr to get some rest. Some are ready some are scared they are awaken by the sounds of bombs being shot at them. They dont fire back in return. Instead they move to a safe place and just when they think it is over more shots ring out scaring one guy so bad he jumps

straight out of his helmet. The guy who is telling the story puts it back on he

takes it off and crawls into his arms for comfort like a child would do there

father when they are scared after the fight are the drill is over he tell the guy to

go behind the tree and clean his self up b/c he had crapped in his pants

Analysis of Participant I's Response:

This writer is correct that this conflict took place over sixty years ago, but is not

sure of the conflict. He guesses that they are in the South West from their dialect.

While this shows he is thinking and is alert to dialect, he is off by an ocean and a

continent. Nevertheless, this speculation shows he is metacognitively alert to the dialect

and is not afraid to speculate. He also surmises that this is the soldier's first real war,

which is correct. All of these young men were students together and enlisted as a

group, which was common for World War 1 for both the Germans and the British. He is

generally correct in his overview. There is a second reading and paragraph for this

participant that elaborates on the first reading. Although he gets the general information

correct, references are not made to clarify who jumps into whose arms, and the

paragraph ends with a single run on sentence.

Participant K's Written Response:

In the story "All Quiet on the Western Front", at first the reader imagines a

snowy wintry scene. Not too sure as to why, but as the story continues it is very

obvious that this scene is one of a war, or battle ground. I imagine military men

lying down on the ground ducking and covering from gunfire, and falling

missiles. As the story goes, green flares shot up high in the sky. The reader also

imagines two men, as the story focuses on, one man extremely scared out of his

mind, and the other not. As the story explains, the read can only image the soldier that is not so scared allowing the frightened soldier to bundle hisself under him as protection.

Analysis of Participant K's Response:

This participant is not very sure that this is a scene from a war even though words like "barbed wire, " rockets," and "barrage" are used throughout. Yet, the writer does use the word "imagine" to describe his visualization of the scene however he sees it, which is a good sign of metacognitive thinking. Evidently, the beginning of the selection was not very clear to the reader, but as the scene continued, the image of soldiers on a battleground became more "visual" to this reader, as is the scene of Paul comforting the frightened recruit. The use of "hisself" is a glaring error in reflexive pronoun use. There is no second reading.

Third Reading:

Selection from The What is the What by Dave Eggers (2006) (pp. 90 – 93)

One by one the rest of the girls were lifted by pairs of men and fastened onto their horses. They threw each girl onto a saddle and then used a rope to secure them, as they would a rug or a bundle of kindling. I watched as they took the twins I knew, Athok and Awach Ugieth, and tied them to different horses. The girls wailed and reached for each other and when the horses moved on, for a moment Ahok and Awach found themselves close enough to hold hands and they did so.

After an hour, the action dissipated. Those Dinka who would fight had fought and were now dead. The rest were being tied together to be taken north. The raid was near its conclusion and was, for the murahaleen, a success. Not one among their ranks had been injured. I looked for Moses and William K but did not see either. I could see Moses's hut, and what looked like a person lying in the entrance.

But there was a shot from a tree and a horseman, with darker skin than most of the murahaleen, fell forward on his mount, and slid slowly off, his head landing hard on the dirt, his foot still caught in the stirrup. Quickly ten horsemen surrounded the tree. A flurry of words in Arabic, spitting with fury. They aimed their guns and fired, two dozen shots in seconds and a figure fell from the tree, landing heavily on his shoulder, dead. He wore the orange uniform of Manyok Bol's militia. I looked closer. It was

Manyok Bol. He was the only rebel this day, Michael. Later I would learn than (sic) he was cut into six parts and thrown down my father's well.

-Get up!

I heard a voice I knew. I turned to see a boy standing over the body near his uncle's hut – it was a woman lying on the ground, her hands and fists at her sides.

-Get up!

It was Moses. He was standing over the woman, who was his mother.   His mother had been burned in her hut. She had escaped but she was not moving and Moses was angry. He nudged her with his foot. He was not in his right mind. I could see from a distance that she was dead.

-Up! he yelled.

I wanted to run to Moses, to hide him in the church with me, but I was too afraid to leave my hiding spot. There were too many horsemen now and if I ventured out we both would surely be caught. But he was simply standing there, asking to be found, and I knew he had lost track of the dangers around him. I needed to run to him and decided that I would, and would suffer the consequences; we would run together. But at that moment, I saw him turn, and saw what he saw: a horseman coming toward Moses who looked no bigger than a toddler in the shadow of the horse. Moses ran, and made a quick run around the ashes of his home, and the horseman turned, now with a sword raised high over his head. Moses ran and found himself along a fence, without outlet. The horseman bore down and I turned away. I sat down and tried to dig myself into the earth under the church. Moses was gone.

As the darkness approached, many of he raiders left town, some carrying their abductees, others whatever they had scavenged from the homes and from the market. But still hundreds were in the village, eating and resting as the last of the homes smoldered. There were none of my people visible; all had run or were dead.

When night approached, I planned my escape. It had to be dark enough to pass under cover of night, and loud enough to hide any sounds I might make. As the animals overtook the forest I knew I would not be heard.   I saw the Marial Bai Community Center fifty yards away and needed only to make it that far. When I did, I threw myself onto the ground, in the shadow of the roof, now unhinged. I waited, holding my breath, until I was satisfied no one had seen or heard me. Then I was gone, into the forest.

That was the last time I saw that town, Michael. I leapt into the woods and I ran for an hour and finally found a hollow log and slid into it, backward, legs first.   There I lay for some hours, listening, hearing the night overtaken by the animals, the distant fires, the occasional pops of automatic gunfire. I had no plan. I could continue running, but I had no ideas about where I was or where I would go. I had never gone farther than the river with my father, and now I was alone and far from any path. I might have continued but I could not decide on even a direction. It seemed possible that I would choose a path and find it taking me directly to the murahaleen. But it was not only them I feared now. The forest was not man's now; it was the lion's, the hyena's.

A loud crackle in the grass and I sprung from my log and I ran. But I was too loud. When I ran through the grass I seemed to be begging the world to notice me, to devour me. I tried to make my feet lighter but I could not see where I was placing

them. It was black everywhere, there was no moon that night, and I had to run with my hands rigid in front of me.

Michael, you have not seen darkness until you have seen the darkness of southern Sudan. There are no cities in the distance, there are no streetlamps, there are no roads. When there is no moon you fool yourself. You see shapes before you that are not there. You want to believe that you can see, but you see nothing.

After hours of falling through the brush, I saw orange in the distance, a fire. I crawled and slithered toward it. I was beaten now. I was bleeding from all parts of my body and decided that even if this was a Baggara fire, I would allow myself to be captured. I would be tied up and taken north and I no longer cared. The thicket under me cleared and soon I was on a path. I lifted myself to the form of a man and ran to the orange flames. My throat heaved and my ribs ached and my feet screamed with the pain of thorns and my bones striking the hard path. I ran quietly, thankful for the silence of the hard earth under my feet, and the fire came closer. I had had nothing to drink since morning but knew I could ask for water when I reached the fire. I slowed to a walk but still my breathing was so loud that I did not hear the sounds of whips and leather straps and men. I could smell the musty odor of their camels. These men were close to the fire but apart from those who kept the fire.

I crouched and heard their voices, their words spoken in Arabic. I dropped to my knees and inched along the path, hoping to find the fire before the voices found me. But soon I knew that the voices were the keepers of the fire. The voices were so close to the fire that the fire had to be a murahaleen fire.

- Who is there? A voice asked. It was so close I jumped.

There was movement almost directly above me, and now I could see them, two men on camels. The animals wee enormous, blocking out the starts. The men wore white and protruding from the back of one man I could see the jagged shape of a gun. I held my breath and made myself a snake and moved backward, away from the path.

- Is that a Dinka boy? said a voice.

I listened and the men listened.

A Dinka boy or a rabbit? the same voice asked.

I continued to slither, inches at a time, my feet feeling their way behind me until they encountered a pile of sticks that move loudly.

- Wait one hissed.

I stopped and the men listened. I stayed on my stomach, still, breathing into the earth. The men were good at being quiet, too. They stood and listened and their camels stood and listened. It was silent for days and nights.

- Dinka boy! he hissed.

The man was now speaking Dinka.

- Dinka boy, come out and have some water.

I held my breath.

- Or is it a Dinka *girl*? said the other.

- Come have some water, said the first.

I remained there for days and nights more, it seemed, unmoving, I lay watching the silhouette of the men and their camels. One of the camels relieved itself onto the path and that got the men talking again, now in Arabic. Soon after, the men began to

move. They moved slowly down the path and I stayed still. After a few steps, the men stopped. They had expected me to move when they moved, but I stayed on my stomach and held my breath and buried my face in the soil.

Finally the men rode off.

But the night would not end.

I knew I had to leave the path, which was path of the Baggara now. I ran away from the path and hereafter the hours of the night tumbled over each other without shape or order. My eyes saw what they saw and my ears heard my breathing and the sounds that were louder than my breathing. As I ran thoughts came in quick bursts and in the moments between I filled my mind with prayer. *Protect me God. Protect me God of my ancestors.* Go quiet. What is that light? A light from a town? No. Stop now. No light at all. Curse these eyes! Curse this breath! Quiet. Quiet. *God who protects my people I call upon you to send away the murahaleen.* Quiet. Sit now. Breathe quiet. Breathe quiet. *Protect me God protect my family as they run.* Need water. Wait for dew in morning, Sip water from leaves. Need to sleep. *Oh, God of the sky, keep me safe tonight. Keep me hidden, keep me quiet.* Run again. No. No. Yes, run. Must run to people. Must find people, then rest. Run now. *Oh God of rain, let me find water. Let me not die of thirst.* Quiet. Quiet. *Oh God of the soul, why are you doing this? I have done nothing to ask for this. I'm a boy. I'm a boy. Would you send this to a lamb? You have no right.* Jump log. Ah! Pain. What was that? Stop. No, no. Run always. Keep running. Is that the moon? What is the light? *My ancestor! Nguet. Ariath Makuei, Jokluel hear me. Arou Aguet, hear me.*

Selected Individual Participant Responses to The What is the What?

Participant A's first Written Response:

> In the story I get the since that there is a struggle for something on. Is it land or
>
> power? I don't know. The Arabic speaking raiders came to take over the people
>
> and anyone who showed resistance were killed. The ones that surrendered were
>
> taken north somewhere maybe to be sold. The boy or girl that is telling the story
>
> has somehow manage to escape. He or she is watching all this take place. They
>
> decide to run to look for help, but find themselve right where they are trying to
>
> run from.

Participant A's Second Written Response:

> In the second reading I started to ask myself, who is Michael? And I get the feel
>
> that the narrator is a male. He must have survived the ordeal and is telling the

story to someone named Michael. Who is Michael? And why are one group of

people taking over the other? What are they fighting for?

Analysis of Participant A's Response:

While this reader is unsure of the reasons for the conflict, he does use his

metacognitive strategies to question his reading. He has a good grasp of the situation

and the events especially the attack and the abduction or killing of those who resist. He

also notes that the boy escapes, but changes from singular to plural in the two sentences

that state this. In the second reading there are more questions concerning the individual

this narrative is directed to. Unaware that this is Southern Sudan and the Darfur region,

the reader begins to ask questions as to why and where the conflict is taking place.

Participant C's First Written Response:

A father telling his story to his son of his terrible time back in Sudan how he

escaped. As a child he saw the killing of his people woman, children, and men

he watch people un for their lives only to be killed by another Arbic (sic) on a

camel 10 ft away.

Participant C's Second Written Response:

After reading the story a second time maybe it's a lady telling the story some of

the thoughts aplanning (sic).Remind me of what a girl or a woman would do

think things all the way out before making a move.

Analysis of Participant C's Response:

In the first written response, this participant at least grasps the idea that this is a

narrative of an event even though he gets the relationship wrong. There are no

relationship clues in the passage so it is a fair guess that this is a story of a past event

told by a father to his son. However, in the second written response he shifts gears to speculating about how a woman would think in a similar situation. This only confuses the matter more and has nothing to do with an explication of the narrative.

Participant J's Written Response:

> It seem to be about a village that was over taking by some savage, that rape and kidnapped the women and kill all the men destroyed the people of the villages home. And as all this was going on a little boy watch in his hiding spot wanting to do something but just so scared to do so afraid that he might be killed or tied up to be sent up north, but he not taking any chances to find out so he runs away from the destruction of his life and village but run to where he not sure he is lost because he has never been as far as the river only with his father who might be dead or sent north. So now he is alone with no one to help him he is thirst and sleeping and just delusion. He stumble onto a path (he?) were he is talking to himself that he dont care about what happen to him at this point he say until two men come toward him on camels and he runs and hade in the brush until they leave.   Now after all that running and being cut up (scraped?) up and crying he stop and pray to ask for help and guides.

Analysis of Participant J's Written Response:

In this writer's rush to get everything down there are multiple errors in past tense and a sense of the rush of a stream of consciousness as if he was trying to get it all out in one breath. While the writer does cover the ground from the vicious raid to his flight through the forest, this breathlessness leads to a number of errors in sentence construction (run-ons), failures to use the past tense consistently, and spelling errors,

especially the common sight word "hade" for "hide." He did read all the way through

since he calls of the image of the boy praying to his ancestors for guidance.

Discussion of Student Responses

The respondents believed themselves to be both aware of and capable of using

appropriate strategies during their reading. In the first survey given 10 out of 12 said

they used strategies that have worked in the past, and in the second application of the

survey all twelve stated that they did so. The majority in the first survey, nine out of

twelve, said they did so automatically, and in the second application, eight out of twelve

said they did so automatically. It is possible for a reader to use reading strategies and

still misunderstand what he or she has just read. Taylor (1992) discusses why it is

necessary for readers to understand the textual structure of what they are reading.

Authors write with a purpose and organize their material according to the type of work

they are writing, such as "a simple story [that] consists of a situation that is introduced,

developed and resolved," (Taylor, 1992, p. 221) or the organization of a textbook with

chapter and paragraph headings, topics under discussion and illustrations. The reader

needs to be able to recognize these patterns in different genres in order to pace their

reading speed and capabilities accordingly.

The author of a novel, such as the excerpts from the ones the students read,

works to create a plausible "world" or version of reality, he or she will often develop a

plot line with different strands, character interaction, and subplots in order to continue

to hold the reader's interest and creatively develop the story. If readers cannot hold the

concurrent levels of interaction and threading of the story line, they will fail to

comprehend what they are reading and it will simply not make sense to them. What they

are not able to understand from the reading may be reflected in any written analysis or summation of the material.

Skilled readers are able to detect the differences in the materials they read and are aware of the organization of the text; the general and specific nuances of plot and character development, and hold in mind the various twists and turns of the storyline. Readers who struggle with the meanings of words, read sentence by sentence, or lack an understanding of the differences between the types and purposes of textual material (i.e. non-fiction vs. expository textual material) will not be able to hold a working summary of the material in mind as they go along. Young readers, and struggling adult readers as well, often fall into this category because they have not developed the mental strategies that allow more accomplished readers to do so. Consequently, it is not surprising that "poor readers have more difficulty stating the important ideas in text than do better readers" (p. 222) (from Winograd & Bridge, 1986).

The participants had at least an hour and fifteen minutes to do each exercise. Class time was limited which is why there were specific instructions each step of the way. With the exception of the third reading, which was a bit longer than the other two, I did try to keep the amount of reading to a minimum while allowing the story to complete one scenario which I had hoped had enough emotional content to capture their interest and keep them reading. However, the results show that either the participants were slower readers than I thought, simply did not choose to follow directions, or found the number of tasks they were asked to do were too many things for the time allotted.

Afflerbach, Pearson and Paris (2008) state that, "*Reading skills* are *automatic actions* that result in the decoding and comprehending of texts with speed, efficiency,

and fluency, usually without the reader's awareness of the components or controls involved." They are reading habits that the reader acquires over time by reading and underpin the reading ability. On the other hand, "*Reading strategies* are *deliberate, goal – directed attempts to control and modify* the reader's efforts to decode text, understand words, and construct meanings out of text" (Afflerbach, et. al. 2008, p. 15). The difference between the two is that while skills become embedded in the reader's mind and operate at an underlying level; the reader can identify these strategies. Pausing between paragraphs to consider what the reader has just read is a strategy, and is a decision made consciously, either to reflect on a point, digest the information, or evaluate whether or not he has understood what he has just read. This is a specific awareness, as is the ability to summarize the information. The practiced reader engages these strategies as he reads. It is the ability to monitor one's reading and to adjust for complexity, nuance, critical reflection or any number of conscious decisions that readers decide upon while reading. In order to be a strategy, it needs to be flexible, meaning that the reader – an accomplished reader in this case – can use it or not, or use another strategy before either going on, or deciding to re-read. As the authors state, "the hallmark of strategic readers is the flexibility and adaptability of their actions as they read" (Afflerbach, et. al., 2008, p. 16). The phrase, "as they read" is an important one because the reader engages these conscious decisions during active reading. Automatic skills are at work supporting the ability to read at a basic level, but strategies are under deliberate control of the reader.

According to Garner, in "Metacognition and Self-Monitoring Strategies," (1987), "Strategies have cognitive, metacognitive, and affective components" (Garner,

1987, p. 245). However, unlike Afflerbach, Pearson and Paris (2008) she considers cognitive skills as strategies since her point is that strategies lead the reader to a goal. Therefore, a cognitive skill such as reading headings, discerning the differences between the types of fruit and vegetables in the reading, and the reading of graphic displays is also a strategy.

Metacognition enters the picture when the reader is alerted in the course of his reading that something is amiss (a "clunk"), or he has made a necessary connection (a "click") (Garner, 1987, p. 242). When the reader asks, 'do I understand this?' we are now in metacognitive territory (Garner, 1987, p. 246). When I find my mind wandering as I read, and call myself back to the material, I am using a metacognitive strategy. Afflerbach would say that only that type of recognition during the process of reading is a metacognitive strategy. My knowledge of the differences between fruits and vegetables is cognition: knowing. I have the skill to tell the difference because I know what they are, but there is no strategy involved in this. Garner also says that there is an affective component to metacognition. This is directly related to the interest a student has in the reading. "Do I like this? Am I interested? "This is boring," and the like. As Flavell (1987) states it, metacognition is a matter of "knowledge and cognition about cognitive objects, that is, anything cognitive" and is not limited to reading or learning but includes "any kind of monitoring" including things considered psychological understandings, "acquired world knowledge, (and) cognition about one's own or someone else's motives." All of our reasoning about why and how we do things and understand things can be considered metacognitive.

If we look at the results in this table for Knowledge of Cognition, there seems to be some major disconnects in the participants' thinking. The participants claim to be able to use appropriate strategies and read effectively by their response to question 35. Twelve respondents claim to be able to use different strategies, nine out of twelve state they can use other cognitive abilities to compensate for reading difficulties, yet eight out of twelve state that they do not know when the strategy they are using will be effective in gaining an understanding of the text.

Table 13

Knowledge of Cognition: Conditional Knowledge (CK)

Knowledge about when and why to use learning procedures					
Number		Coded Question	Yes	No	Do Not Know
15.	CK	I learn best when I know something about the subject	12	0	0
18.	CK	I use different strategies depending on the situation	12	0	0
26.	CK	I can motivate myself to learn when I need to	11	1	0
29.	CK	I use my intellectual strengths to compensate for my weaknesses	9	1	2
35.	CK	I know when each strategy will be most effective	3	1	8

Second Administration: Analysis of responses to the MAI given on March 16, 2010

Discussion of Holistic Scoring

It is all too easy to pick out glaring examples of incorrectly spelled words or failures to use the past tense when called for. But, this I believe is the English teacher's dilemma. How do you reward expressive thought without overlooking the misspellings,

incomplete sentences, and failing to use the past tense – an inability that seems to run through most of the examples I gathered here? In an assignment such as this, where reading comprehension is critical there is the difficulty of determining whether the writer makes sense of what he has read, has not grasped the theme of the reading passage at all or lies somewhere along a continuum.

Also, what does it mean to relate to reading, writing and illustrating to our emotions as I have indicated these participants have done to greater or lesser extent? In *The Psychology of Writing: The Affective Experience*, (1989) Alice Brand calls this "hot cognition," uniting "the cognitively blind but arousing system of emotion with the subtle intellectual apparatus," or stated in another way, "What hot cognition means is cognition colored by feeling," and "Emotion is the currency by which social intercourse is transacted" (Brand, 1989, p.1). Damasio (1999) has done extensive research on the nature of our emotional makeup and its connection to cognition and consciousness. In *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*, he states that, "consciousness allows feelings to be known and thus promotes the impact of emotion internally, allows emotion to permeate the thought process through the agency of feeling." Emotions are also present, "when the mind of an organism conjures up from memory certain objects and situations and represents them as images in the thought process" (Damasio, 1999, p. 56). Although Lakoff and Johnson (1980/2003) devoted their explanation of metaphors to a linguistic understanding of how we relate to our world, I see no conflict in extending the metaphorical to the expression of emotions and feeling. It is no secret photographs of our family emotionally affect us, as do scenes of war and abuse in the media. We have emotional, often gut-wrenching reactions to what

we see and what we envision in our minds as we read. In *I Am A Strange Loop* (2007), Douglas Hofstadter expresses this very concisely and with great emotional impact in relating what he feels will happen to him as he anticipates watching a video of his wife Carol, who died in 1993. He says this about this anticipated experience:

> When, someday, I first watch our videotapes with Carol on them, my heart is going to break because I'll be seeing her again, living her again, being with her again – and though I'll be filled with love, I'll also be pervaded by the feeling that this is *fake*, that I am being tricked, and all this will make me wonder just what is going on inside my brain....[T]he symbols in my brain that will be triggered, reactivated, resuscitated, brought back to life forth first time since she died, and that will be dancing inside me – will be just as strong as when they were sparked in my brain when she herself was there....The dance of the symbols inside my brain sparked by the videos will be *the same dance*, and danced by *the same symbols*, as when she was right there before me (Hofstadter, 2007, p. 238, italics in the original).

Hofstadter not yet viewed these videos of his life with his late wife, and yet he already knew the feelings and the emotional impact they would engender. Not only that, he was aware that in his mind he knew these images were a false reality, and despite that knowledge he would feel his feelings and relive the symbolization of all that the memory of her would bring. If that is the case for one man with a real memory of a living person, then I am sure that emotional impacts and the revelation of them in the words and pictures of my students can be just as real, even conveyed as they were through print because of the images evoked by the author in relating the story.

Analysis of Participant Illustrations for The Lost World

Figure 3: Participant B's *The Lost World* Illustration

Participant B drew an island covered with green trees and blue water with a bright yellow sun in the sky. Although the illustration is in color, the subject is simply a landscape of an island with trees and a bright sun. There is no indication that the participant connected the setting of the story, richly illustrated as it is, with the exploration of the island for traces of the inhabitants or the dinosaurs that now roam the island on their own. Missing completely are any pictorial representations of the vehicle, the team of explorers, or the dinosaur that runs past the power station. The picture looks as if this participant did not, or chose not to make the illustration a connection between the activities that took place in the power plant compound and his written response.

Figure 4: Participant C's *The Lost World* Illustration

Participant C's drawing shows much more of a connection to the story than the written responses. There is the outsized T-Rex and a schematic of the little "village" that were in close proximity to the power station. In this illustration we can see that in this case, what the "writer" was unable to do, the "artist" was able to illustrate. Here is the connection between mentally envisioning the scene described in the story and drawing it, but a lack of ability to describe it in writing. Comparing this with the response from the Hispanic participant, we can see parallel difficulties in expression. What cannot be written can be drawn, story-like, based on images held in the mind. Nowhere in the reading was the Tyrannosaurus Rex described, other than being very large, yet every respondent who drew the creature knew what one looked like and could draw a reasonable likeness of it.

Figure 5: Participant H's *The Lost World* Illustration

Participant H drew a colorful jungle scene with a road, buildings and a vehicle. There is

perspective involved with the power plant foregrounded and the compound's other

buildings in the background among the trees. Tall green grass fills the picture. The

illustration, along with the ideas expressed in the written responses, reveals the

participant has an active imagination, and shows an understanding of the location and

the general situation. This picture with the team confronting the dinosaur, with smiles

no less, is full of motion and energy. This indicates a full mental representation of the

scene and the event. The vehicle is parked outside the power plant and trees surround

the buildings. The road curves and lends animation to the illustration. Even the details

of the broken windows in the plant and the presence of double doors show a close

reading. The picture is alive with waving grass and bending palm trees. Even the

dinosaur looks menacing, as well as ghostly, because it is only an outlined figure in red. This lends an air of eeriness to the colorful jungle scene.

Analysis of Pictures from All Quiet on the Western Front:

Figure 6: Participant F's *All Quiet on the Western Front* Illustration

Participant F's picture shows a lively and confused battle scene with tree and helmet and lines of stick figure men. There are explosion and airbursts. It is labeled, "Being attact." Although the passage relates a lull in the battle with time to unroll barbed wire and wait out the next bombardment, this participant captures the essence of warfare with all its confusion and frantic activity. The lone tree near the sheltered area Paul and his comrades find themselves is there, as is a helmet and exploding bombs in the foreground. This shows the reader's active imagination and engagement with the reading and a willingness to illustrate warfare in an active rendition.

Figure 7: Participant I's *All Quiet on the Western* Front Illustration

Participant I drew a full color trench with figures, barbed wire fence and rockets flying over. A stick figure is hiding behind a tree. There are stars and a moon overhead and what looks like a beach. This is an action-packed, colorful, and imaginative rendition of the situation complete with incoming rockets and enemy trenches. The fact that the soldiers are located near the sea is also drawn in, as is the barbed wire and the carefully rendered soldier behind the tree (complete with knothole). This shows that the reader was able to richly picture the scene and took care to do so in a dynamic way.
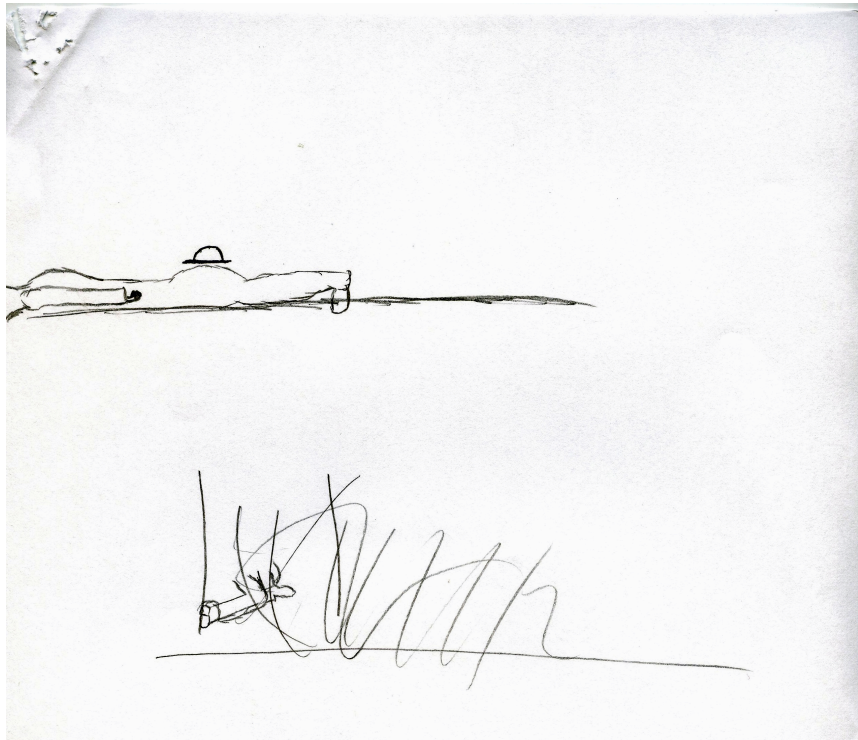
Figure 8: Participant K's *All Quiet on The Western Front* Illustration

Participant K's accompanying picture is a simple line drawing of a man lying on ground with helmet covering his behind. There is nothing in the picture beyond this. No image shows that the participant captured anything else in the scene depicted in the story. The written response, despite its grammatical mistakes, notes, "As the story explains, the read can only image the soldier that is not so scared allowing the frightened soldier to bundle hisself under him as protection." Despite the written observation of Paul protecting the recruit, the picture does not show any more than a prostrate body with a helmet on its behind.

Illustrations from *The What is The What:*

Figure 9: Participant A's *The What is The What* Illustration

Participant A's picture shows two houses (huts) aflame and a smoke rising from the burning huts. It richly reflects the internalized image the participant must have held in his mind. The large angry looking flames are bright red and the huts are drawn as straw (or wooden) huts just as there would be in a village of this sort. The church front is a good representation of a stone church with a cross at the top of a steeple and a stained glass window over the double doors. This participant captured the anguish represented in the shape of the huts and the ferocity and deep red of the flames with an intensity of feeling. The huts themselves seem to be crying out, so that even with the absence of drawn figures, what the reader starkly conveyed what he felt and envisioned.

Figure 10: Participant C's *The What is The What* Illustration

The central image in participant C's picture is a grass hut resembling a woman's face wearing an expression of extreme alarm. The windows resemble eyes raised upward in dismay and the doorway a red (lipstick?) mouth shaped as if crying out for help. Next to the hut a figure is gunned down by red lines coming from the black-hatted figure standing near the camel while a handgun floats in mid air. There is an overarching sky of sickly green and purple. The camel is smiling. How much of this reveals a deeper psychological identification with the scene is open to interpretation. There is definitely an emotional as well as a visual identification with the scene described at the beginning of the passage.

Figure 11: Participant J's The What is The What Illustration

The picture of the boy that accompanies participant J's written work shows a

well-done sorrowful full-face portrait of the boy hiding in a bright green and brown log

under a tree. The look of distress captured in the boy's face could be read

metaphorically as a representation of all this person has gone through in the passage.

Now hiding within a hollowed out log, he is relatively safe but clearly unhappy.

Discussion and Analysis of the Illustrations

How do we make connections with the words we use to describe a scene such as

the ones presented here? What can we say about the pictures we draw in our heads to

illustrate what we see in the mind's eye? What does it mean when I suggest that our

minds act as a superior compositor blending language use, visual stimulation, inner

imagination, and, according to Lawrence Shapiro a total physical experience of mind

and body known as "embodied cognition"? (*Embodied Cognition*, 2011; See also

Jäkel's article, "The metaphorical concept of mind: 'Mental activity is manipulation'"

in *Trends in Linguistics*, pp. 197 - 229). According to Bergen, Polley and Bergen in

their chapter "Language and Inner Space" in *Language, Cognition and Space,* (2010),

we have a "spatial brain," a brain that has both highly specialized functions as well as

globally connected perceptual functions throughout the brain's neural structure. Our

current capabilities in brain research at this time, while very sophisticated, do not allow

us to accurately pin down where linguistic expression and the images that accompany

(or precede) it lie. However, research has so far shown that we are able to create and re-

create mental experiences in the world, "known as mental imagery or mental

simulation" because we use the "same neurocognitive resources (the motor or

perceptual systems, for instance) that are typically used for acting or perceiving aspects

of the world." What had been previously thought of as strictly a linguistic "mental

exercise" is actually grounded in how we perceive the world metaphorically (See

Lakoff and Johnson 1980/2003), grounded in both "spatial and abstract meanings."

These polysemous neural connections go "beyond mere language, such that an

understanding of abstract concepts is grounded in experiences with their spatial

counterparts" (Bergen, et. al., 2010, p. 80). I propose that these internal representations

of particular realities and experiences also extend to what we read, express in writing,

and illustrate. Therefore, in this light, the particular understandings, half

understandings, and perceptions in the responses of the participants in this study are

both linguistic and semiotic at the same time, and are visual images that humans express

in spoken and written language. Whether they do it well (in academic terms), or poorly,

as we can see from examples gathered in this research, this is done seamlessly,

employing grammatical symbolic structures as Casad explains in Langacker's terms. Even though he was speaking of the phonological structures we employ in explaining the world, I suggest that it is all one. I believe this to be so since, "In Langacker's view, therefore, all grammatical structures are inherently symbolic regardless of their internal complexity" (Eugene Casad, "Seeing it in more than one way" in *Trends in Linguistics: Language and the Cognitive Construal of the World* p. 32). In *Philosophy in a New Key,* Langer (1942) put it this way:

> The meanings given through language are successively understood, and gathered into a whole by the process called discourse; the meanings of all other symbolic elements that compose a larger, articulate symbol, are understood only through the meaning of the whole, through their relations with the total structure (Langer 1942, p. 97).

This "total structure," as Langer puts it, and the entire process of human expression through symbolism, language (Media in all its forms), our bodily actions and reactions in human experience are multifaceted. At the same time, they are interwoven as perception, apperception, motion and manipulation, inner consciousness and non-conscious awareness that comprise our *being.* This is ("Sein" or "essent"), as expressed by Heidegger in his *An Introduction to Metaphysics* (1959). (See also Bode's reference to William James and perception in *How We Learn* p. 131).

What can we say about these pictures, keeping in mind that this is not art therapy? The participants were tasked with drawing a picture of their impressions of the passages they read; something that stood out in their mind as significant or they could see in their mind's eye that related to the story. It was an open-ended exercise intended to draw

from the participants' their non-verbal representations, a form of mental picturing that was to complement the written work to capture non-conscious understanding. First, we used the MARSI survey to check what they thought about their reading abilities. Then we applied the MAI inventory to check if they were in touch with the cognitive and metacognitive aspects of their reading and learning from what they read. This was done twice to capture any changes that may have been recognized between the first reading /writing exercise and the second. I hoped the illustration would capture non-verbal mental images that the participants had in their minds that were not amenable to the written word. Some did this with more proficiency than others, but that was not the purpose. This was not an art lesson. I was looking for metacognitive and intertextual elements that complemented or uncovered impressions for which the participants had no words. I was not planning to look at the pictures from a purely psychological viewpoint, nor did I plan to look for flaws or hidden meanings. Nonetheless, I have had to press into service elements of the fields of art therapy and metaphor in an effort to reach valid (meaning not outlandish) conclusions about the relationships between the rich picture description and their written work. I used this as a way to see past the surface features of their renditions and counter any effort on their part to say what they thought I wanted them to say as a way of breezing through the exercise.

As described by J. Coady of the Waterford Institute of Technology in Ireland (N.D.), soft systems methodology (SSM) often uses rich pictures as a way to envision ways to solve problems in organizations. There is no issue of right or wrong associated with them and they should be seen as "individualistic expressions" to represent thoughts

about solving a situation without the use of syntax. In this way they are open-ended

thought models.

CHAPTER 5: FINDINGS AND SUMMARY DISCUSSION

General Analysis of the Responses

Just as Johnson-Laird approaches language, inference, and relational models
from a Cognitive Science standpoint, Langacker states that Cognitive Grammar "seeks
an accurate characterization of the structure and organization of linguistic knowledge as
an integral part of human cognition" (Langacker, 2002, p. 102). In their discussion of
categorization in thought and language in *Cognitive Linguistics*, Croft and Cruse (2004)
use the term "conceptual category" to explore how we use "cognitive tools" to
conceptualize and represent. In my analysis I intended to explore this aspect, along
with the symbolic and intertextual representations of my participants. My plans were to
balance the procedures of analysis of my participants' responses in their written and
pictorial work with insights gained through the field of Neurolinguistics, a Mental
Models approach (Johnson-Laird), along with Psycholinguistics (Pinker) and Cognitive
Linguistics (Langacker), which are non-computational/Connectionist approaches to
language formation and use. Churchland (2002) frames her argument for a brain-
biology of neurological patterning as one that underlies our representative capacities. It
is admittedly very difficult at this stage of scientific endeavor to see neurons at work.
Consequently, she uses *artificial neural networks*, (italics mine) computer models,
which are based on her explorations into neural brain biology. Her work as a
neurologist has led her to believe that what we understand is basic to the brain's

capacity to represent the world through the Mind, at first prototypically and non-linguistically using *similarity relations* (italics hers), and then, through human evolution, through symbolic and linguistic representation (Churchland, 2002, pp. 273 – 319).

Lakoff and Johnson state that we compose our linguistic world, and as an extension, our interpretation of reality, through metaphor. Since Johnson-Laird states that we model the world of our perception with only partial information and never fully represent the world, so Lakoff and Johnson state, "Metaphor is one of our most important tools for trying to comprehend partially what cannot be comprehended totally." We use "an imaginative rationality" since "truth is relative to understanding, which means there is no absolute standpoint from which to obtain absolute objective truths about the world" (Lakoff & Johnson, 1980, p. 193).

Students, (competent and marginal readers as well) do not always use or need to use, all the strategies at their disposal, nor are they likely to use the correct strategy to solve every problem in reading. One reason for this is that reading is not a linear process in which raw text goes in one end and comes out as polished understanding through another. According to Spiro and Myers (1984), it is difficult to isolate any one particular strategy and its use in an individual from another. Relying on a psychology of individual differences model, they state that reading is a very complex "broad and irregularly overlapping family of activities" such that "reading can be shown to involve every conceivable activity of the mind" (Spiro & Myers, 1984, p. 471). It would make sense, therefore that skills and strategies are called into play automatically and fluently by proficient readers or selectively as they are needed. As Spiro and Myers point out:

everybody is different. "People process information differently, depending on variations in the kinds of purposes for reading, in the relative demandingness of reading tasks, in the type of text being read, and its structural characteristics, and in the familiarity of the material, among other things" (Spiro & Myers, 1984, p. 476). If this is a matter of problem solving, then arguments for an executive function or central processor make sense. Kluwe's (1987) exploration of the executive function in reading and human problem solving considers that the range and variability of the problems humans solve, "make plausible the assumption that there is something like a central regulatory component in information processing systems, an executive" (Kluwe, 1987, p. 33). If we consider that there is an executive function, or a central processing decision maker in the makeup of our Mind/Brain, then there is a rationale for stating that we make (or fail to make) strategic decisions during reading.

In order for something to be a strategy, it must be something that the reader can use or not according to the reading situation. Readers must be able to see beyond ambiguities in text in order to make correct assumptions about the information they are faced with, the author's intent and tone, and the allusions and metaphors that comprise written material. Goldman (2004) sees this through the lens of a "knowledge society" in which the ability to read critically is not only necessary for the individual but applicable to society as a whole. In this way it would also be possible to describe our own critical thinking processes as a knowledge society between our ears. Gernsbacher's (1990) research into reading resulted in the development of her theory of "structure building" as a process of memory cell formation and activation (Gernsbacher, 1990, p. 87) that produce signals to build a layer by layer understanding of what has been read. This is

done through a process of *suppression* and *enhancement* that governs the ambiguity inherent in much of language because of multiple meanings that the reader must choose among. For example: in reading a text about insects the word *bug* meaning insect is activated while the word *bug* meaning a problem in an electronic circuit is suppressed thus maintaining the context of the material being read. Her research results claim that, as in Johnson-Laird's theory, we build mental structures and patterns that correspond to the world of experience, thought and imagination the reader develops as he or she reads. Cornelissen, Hansen, Kringelbach & Pugh in *The Neural Basis of Reading,* (2010), describe a more neurological brain mapping contribution based on a set of studies investigating dual channels of word recognition. They state that English has a *deep orthography* (italics in the original), and the reader must also, "map" 1,120 graphemes from the 40 phonemes that make up the English language in order to comprehend the text (Cornelissen, et. al., 2010, p. 41). Therefore, as in Paivio's Dual Coding Theory (DCT), we understand what we read, both through a process of sounding out the words as we see them (the grapho-phonemic route), as well as a lexical-semantic route in which we access meaning directly from stored memory, i.e. the lexicon (Cornelissen, et. al., 2010, p. 81). Furthermore, reader self-efficacy is a necessary ingredient. "Learners do not engage strategies – or persevere in using them at the first sign of hard work or frustration – if they do not believe themselves capable of completing the task at hand." …. "In a situation like this, skill matters less than will. Learners' beliefs about their ability to perform a task are more potent than personal skill in determining their willingness to attack (and persevere at) that task" (Garner, 1992, p. 248). As Bower and Morrow say in their conclusion:

The principles readers use to explain and understand the actions of

storybook characters are much the same as those they use to understand people's

actions in everyday life. We build mental models that represent significant

aspects of our physical and social world, and we manipulate elements of those

models when we think, plan and try to explain events of that world. The ability

to construct and manipulate models of reality provides humans with our

distinctive adaptive advantage…. (Bower & Morrow, 1990, p. 48).

There is another aspect of this as well. In research conducted with freshmen

college students by Glenberg, Wilkinson and Epstein in 1982, they describe the

cognitive disconnect between *actual* reading comprehension skills and *perceived*

reading skill as, "The illusion of knowing." Using contradictions in paragraphs written

for this purpose they found that in texts of 1600 words and three paragraphs the

participants believed they had comprehended the passages and found the discrepancies

when they had not. New, but contradictory information introduced in the third

paragraph went unchallenged. This phenomenon occurred even when the participants

were told there were errors in the paragraphs they were to read (Glenberg, et. al., 1982,

p. 601). This problem of self-perception of abilities may lie in how we ask the question.

While I do not believe it fully applies here because these participants were asked to

demonstrate their abilities as well as appraise themselves in the questionnaire, we

should note the research of Nicholls, Cheung, Lauer and Patashnick. Their 1989

research explored the role of self-perception in light of the student's motivation and

attitudes towards the schoolwork they were asked to do. They measured error detection

against whether the participant showed signs of being ego driven, motivated by competition and a desire to place well among others, and task driven, inclined to do well personally, which, "implies that one's goal is to increase one's understanding, to accomplish something one had not previously done, or to improve one's performance" (Nicholls, et. al., 1989, p. 68). One conclusion derived from this relates to how teachers instruct (structure classroom learning) and how students perceive their standing among their peers. In competitive classrooms, it may be that the measure of ability (as reflected in today's societal values) is how well a person can out-do the other in the race for prominence. This may be a false measure of ability, since research participants are usually asked by researchers to appraise themselves with no reference to how they perceive their abilities relative to their peers; which, psychologically, may be a more accurate reflection of where they think they stand academically. They conclude that we might do better as a society (educationally speaking), if we placed more value and attention on "students' interpretation of the subject matter that is put before them" than how well they can persuade the teacher and others that they themselves alone are able to accurately perceive their academic abilities (Nicholls, et. al., 1989, p. 80). Kroll and Ford's (1992) research attempted to clarify issues related to self-esteem, comprehension monitoring and the illusion of knowing. Their research was follow-up research to Glenberg, Wilkinson, and Epstein's research and the motivational research by Nicholls, Patashnick, & Nolan in 1985, "Adolescents' theories of education" as well as the 1989 article on individual differences referenced here.

Findings and Summation

How do the participants in this study compare with other research among the adult population? If we look at the executive summary of research conducted by the National Assessment of Adult Literacy (NAAL) for 2003, *Literacy in Everyday Life*, (Kutner, Greenberg, Jin, Boyle, Hsu, & Dunleavy 2007), we can see that with a research population base of 19,000 adults aged 16 and older stated that, "adults who had not completed high school and were not currently enrolled in school," were more likely than adults with higher levels of education to be *Below Basic* in prose, document, and quantitative literacy (Chapter 3, p. 37). The demographic summary (http://nces.ed.gov/naal/kf_demographics.asp#3) for prose literacy states that there were fewer adults in the *Below Basic* range in 2003 as opposed to 1992. Still, of all the subjects, (19,000 of them) a full 14 percent were below basic and another 29 percent were considered to be reading at the basic level. This represents an estimated 43 percent of the U.S. population. I had a population of twelve who seemed to fall between *Below Basic* and *Intermediate* (another 44 percent of the population). All were working at a service level job or crew leader position in their organization. The NAAL study did not research writing skills, nor did it measure reading comprehension in relation to non-verbal (pictorial) understanding as this research did. The overall statistics for the reading abilities of adults in the United States seems dim or at least marginal, but their research into reading competency using surveys and textual materials does not tell the whole story. If we are to fully measure reading comprehension, we need to do so in relation to writing ability and the ability to express oneself on paper, and look behind the scenes with more creative assessments to capture non-verbal comprehension as well.

What I believe I found is, that, among this group, what they could not write they could picture. Furthermore, what they could picture had a direct bearing on their understanding despite marginal reading and writing abilities. Looking back to the responses by the Hispanic student in this study we can see that it was difficult for him to write in English. However, his responses in Spanish were insightful, if short. Furthermore, when we look at the illustrations he drew, we can see that he understood more than he could express. This is so with others in the study who were able to capture some aspect of what they read. Other examples from other students in appendix G also tell the same story. Another factor that showed up in the rich picture description exercise was that, even though these participants did not have the words to convey how they felt,

Also at issue were the perceptions students had of their abilities. In the two surveys the participants filled out, it is quite apparent that these participants believed themselves to be academically competent. Reviewing the information from the Metacognitive Awareness of Reading Inventory (MARSI) fully half of the participants rated themselves high in global reading strategies, five students rated themselves as medium in this regard, with only one considering himself low (MARSI table 2). A majority of the participants (eleven out of twelve) rated themselves high at solving problems as they read (MARSI Table 3). For the questions concerning support strategies to assist them as they read, eight students indicated a moderate use of strategies such as looking back in their reading to clarify a passage, highlighting significant words or phrases, taking notes or underlining as they read. When we look at the Metacognitive Awareness Inventory (MAI), several issues stand out. In the first

application of the instrument (table 7 question 5, Declarative Knowledge), participants

were asked if they understood their strengths and weaknesses. Seven out of 12 said they

did while 5 said they did not know. Yet, for question 12 "I am good at organizing

information," and question 32, "I am a good judge of how well I understand something"

eight out of twelve rated themselves highly. In the second application of the survey the

responses for question five remained the same, while nine out of twelve stated they now

were good judges of how well they understood what they read. For the questions on

procedural knowledge (PK,Table 9) ten participants said they used strategies they had

used in the past, but as this research has stated, the use of any particular strategy or

strategies does not guarantee they will lead to comprehension. In the same set of

questions, nine out of twelve were confident they used helpful strategies automatically

in the first application; dropping only by one in the second application. From these

responses and others throughout the inventories it may be fair to say that most of these

respondents judged themselves as capable readers, a few declaring themselves

proficient at the task and even fewer as not proficient or not knowing whether they were

proficient or not. Without a standard to go by, these declarations of competency remain

matters of self-report, and as a result are suspect. According to Freund and Chasten

(2011), we might call this level of self-evaluation as the *better-than-average-effect*

(Freund & Chasten, 2011, p. 296, From Guenther & Alicke, 2010). Why is this so?

Freund and Kasten further state that other research on self-concept and accurate

judgment finds we usually underestimate or overestimate our capabilities because we

assess ourselves inaccurately due to a "lack of metacognitive insight" (From Ehrlinger

& Dunning, 2003). Kruger and Dunning (2003) are quoted as noting that, "people with

low abilities and skills are especially affected by the tendency toward inflated self-views" (Freund & Chasten, 2011, p. 299). This seems to be balanced by a tendency of those who do well to underestimate their abilities. However, it does not help, as Carr, Borkowski and Maxwell (1991) state at the beginning of their study that,

"Underachievement is a widespread problem in the United States, with prevalence estimates ranging from 15% to 50%" (from Gallagher, 1985; Gowan, 1955; Raph, Goldberg, & Passow, 1966; & Terman and Oden, 1947). This may be explained by research (Fine, 1967; Shaw & Black, 1960; Terman and Oden, 1947; Piontkowski & Calfee, 1979; Zelniker & Jeffrey, 1979) as well as anecdotal evidence from the classroom that:

> "Attributional beliefs and self-esteem may be of particular importance in explaining metacognitively based behaviors of underachieving students because underachievers generally have low self-esteem and external attributional orientations....In terms of their strategic and metacognitive performance, underachievers are less persistent in the accomplishment of goals especially with difficult learning assignments" (Carr, et. al., 1991, p.108).

We can compare the foregoing estimate with the 2003 NAAL study whereby an estimated 43% of the population reads at the *Below Basic* and *Basic* level, while another 44% may read at an *Intermediate* level. We may very well be living the Lake Wobegon mythology that all of our children (and adult students alike) are above average. According to research conducted by Maxwell and Lopus (1994), the Lake Wobegon Effect is real. "Overstated achievement may produce biased estimates of the

relationship between achievement and educational inputs." (Maxwell & Lopus, 1994, p. 201)

In my anticipation of this issue I decided to use rich picture description to counterbalance the problem with self-report. The use of this form of information gathering is based on philosophical and psychological observations as well as growing neurological evidence that we see what we speak, that we categorize and prioritize our world linguistically, experientially, reflectively, and with our senses. Even the caves at Lascaux and other places in the world where early humans lived and drew representations of animals with petrographs attest to the primacy of visual images to convey beliefs, symbols, and records of events long before we began to read and write. In their research approach using illustrations, Mayer and Anderson (1991) conducted research with students studying science that paired pictures with text. They discovered that "Students who read passages containing explanative illustrations that were mapped to explanative text (i.e. words with pictures) performed substantially better on test of problem solving transfer than did students in the words-before-pictures group." As further proof of Paivio's Dual Coding Hypothesis, they found that verbal instructions that were accompanied by illustrations were "more effective in promoting creative problem solving than was giving separate verbal explanations and visual explanations" (Mayer & Anderson, 1991, p. 484).

In this research, I wanted to see if a combination of writing with reading would lead to a better understanding of the passages the participants read. What I discovered was that writing is a real problem for my students, more than likely due to a lack of writing instruction. Most of these participants were not able approach and structure the

writing task in a holistic manner that emphasizes fluency and creative expression over correctness. Organization and correctness are a later step towards being able to express one's thoughts on paper. However, the pictures the students drew revealed another side to reading comprehension, the visual component. Their illustrations revealed affect and emotion in the process of creating mental and situational patterns out of what they read. They drew their understanding and interpretation of the text rather than struggling through rewording their thoughts and impressions in an essay or summary. For people who have problems reading text, such as dyslexics, who struggle with the orthography, or the deaf, who have no phonetic information to guide them in their reading, an educational format such as this could possibly be helpful for them just as it would be to adults engaging in remedial and basic education. In drawing out their understandings and narrating their discoveries before putting pen to paper, they could illustrate their comprehension first. As with Reichen's children, they could then write about what they drew, thus furthering their writing ability by writing in response to their own creations, and as a consequence lowering their stress while raising their self-efficacy.

Implications for Teaching

I think that a greater emphasis on writing across the curriculum, and as an integral part of instruction, needs to be more fully encouraged and implemented. In this research project I found that more than a few of my participants lacked the ability to put their thoughts into words, words that explore the ideas they were presented with in the texts they read. This is one reason that metacognitive strategies and conscious awareness of "real time" corrective practices during the process of reading is so essential to understanding how to improve classroom practice. Writing is an important

way to make connections that convey to other people what a person knows and has worked out in human reasoning and understanding. It is essential for the use of the Internet, and it is essential in everyday communication at every level, from writing a memo, an email message, or an academic essay. We make connections, and these connections convey and build relationships. They are intertextual and shuttle back and forth between major discourses as well as in the subtexts we read in the intentions and actions of others. According to Lemke's (1992) idea of semiotic intertextuality:

"Many research agendas require that we construct patterns of relationships among text: between test item and written response, between teacher question and student reply, between student discourse and textbook discourse, between teacher language and community language, between written curriculum document and records of classroom discourse, between a text written by one student and that written by another, and so forth" (Lemke, 1992, p. 258).

This is so because, "Every text, the discourse of every occasion, makes social meanings against the backgrounds of others (Lemke, 1992, p. 257). It is through the interpenetration of all forms of communication that humans use, that we make meaning, that we use the semiotic nature of every variance on the theme to understand our world. In short, "Semiotic intertextuality will be the cornerstone of our understanding of how meanings are made and used in our brave new world (Lemke, 1992, p. 266). As Lemke understands it, the teacher in the classroom, has, and can have, at his or her disposal whatever is necessary to teach a lesson and to assist students to connect these forms of "language" to learn.

What I would like to take away from this research is what I need to do to make it possible for adult students to do the same. In order to get to this point there are social agendas for education that need to be recognized concerning the purposes of education. These conflicts of purpose in education seem to be directly related to the statement recorded earlier by one of the participants in this research: "Why do I have to learn this crap?" This was not just an isolated question about the need for a little grammar instruction as originally perceived, but a philosophical one about the need for and the purposes of continued education. Nicholls, Patashnick and Nolen (1985) noted this problem in their research into what adolescent students actually thought about education and its purported benefits. In "Adolescents Theories of Education" (as well as in their 1989 research into academic motivation), they raise the question as to whether it is advisable to promote school "for the status and economic gains it can bring" (Nicholls, et. al, 1985, p. 691). This attitude about education is presently a prevalent and pervasive cultural message in our free market capitalism - economics focused society. This is an important attitude we need to learn from if we are to fully prepare students to encounter and act responsibly in the world.

Research in this field by Nicholls and others has discovered that one prevalent attitude is that school is considered a vehicle for social mobility, but not in the manner we normally perceive the benefits of education. This viewpoint is punctuated by, "the position that education should increase one's status and income" and is "most likely to be associated with academic alienation and least likely to be accompanied by commitment to learn, satisfaction with learning in school, and plans to attend college (Nicholls, et. al., 1985, p. 691). This idea is exacerbated by the belief among a segment

of the student population that they are "successful when they do well without effort, 'put one over' on the teacher, or have easy work." These students are "more likely to believe that students succeed in school if they know how to impress people and act as if they like the teacher." Their research revealed that this belief is as strong in its own way as studying to learn and understand is. The social and economic view of school as a necessary evil on the pathway to success without effort has its opposite paradigm in the following statement:

> "Views that school should prepare students to be socially responsible and useful, to understand the world, and to be motivated to continue learning are all, like task orientation, associated with beliefs that academic success follows from interest, effort, and collaborative learning" (Nicholls, et. al. 1985, p.691).

The former attitude guarantees that remedial education will be with us for a long time. As Henry Ford said, "If money is your hope for independence you will never have it. The only real security that a man will have in this world is a reserve of knowledge, experience and ability." Unfortunately for the students who are encouraged to attend school simply to find a better job, improve their résumé, or only get a smattering of education (enough to get by) as a way to get a good paying job, their dreams may never be realized.

Implications for Further Research

If school is to become relevant to students, and to the future of schooling in general, then we must come to realize more fully that "the mind is an adept pattern recognizer and builder" (Gee, 2005, p. 66). We must implement new strategies that recognize and put students in contact with learning formats that are multi-modal, multi-

sensory, and create a highly charged (and entertaining and challenging) environment.

At present, according to Gee and other educational researchers over the years, this is

what we deny our children. With more knowledge as to how we can apply these

learning strategies in adult learning situations, it may be possible to improve the formal

education of adults who return to school to improve their life and work circumstances.

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APPENDIX A: PROJECT CONSENT FORM

College of Education
9201 University City Blvd.
Charlotte, NC 28223

Informed Consent Form
(For City Workers)

Project Title and Purpose:

An Inquiry into Intertextual Cognition Among Adults Attending Adult Basic Skills Classes, Using Reflective Writing as a Key to Understanding the Cognitive Processes Involved in Reading Comprehension

The purpose of this project is to investigate the metacognitive connections and strategies that may exist during a reader's active reading experience and if/how might an intervening written exercise between two readings of the same material assist in the individual's process of making meaning of what they read. The procedure will include a Metacognitive Awareness Reading Strategies Inventory (MARSI) at the beginning of the study and a Metacognitive Awareness Inventory (MAI) at the beginning and conclusion of the study. Each reading selection will also have an illustration/ picture description component following the reading as a further exploration into what the reader may have "seen" or interpreted while reading that does not lend itself to written expression.

This is a qualitative research project and is Action Research as described by Quigley & Kuhne (1997). "[A]ction research provides a systematic discovery process that has helped hundreds of adult educational practitioners understand, analyze, interpret, and resolve day-to-day problems in the educational workplace." Furthermore, "as a process of *inquiry*, action research encourages one to adopt an enhanced critical perspective on aspects of one's work and work environment" (from O'Neil & Marsick, 1994). (Editors' notes, p.1)

Investigator:
This is a dissertation research study that will be conducted by Wm. Peter MacMonagle, M.A. and PhD Candidate. The responsible faculty member is David Pugalee, Professor in the Middle and Secondary, K-12 Education Department

Eligibility:
To the Participant: You have been asked to participate in this study because you are a current student in a CPCC workplace basic skills class and have responded to my "request for volunteers" announcement in class.

Overall Description of Participation:
Participation in this research project is as follows:

1. Taking a Metacognitive Awareness Reading Strategy Inventory (MARSI). This is a basic (30 question) survey of the participant's reading skills.
2. Taking a pre and a post Metacognitive Awareness Inventory (MAI). This is a more specific (52 questions) inventory of the participant's conscious knowledge of the strategies the participant uses while reading.
3. Reading a short text taken from a selection of literature or popular fiction, writing a short reflective essay on the participant's thoughts, or impressions of the reading.
4. Reading the selection again and noting what understanding or changes in understanding may have taken place during the second reading.
5. Drawing a picture or illustration that shows an impression, emotional response, sense of meaning, or depiction of relationships the reader has taken or created in his or her mind as a result of the reading.

Tie-in to the Doctoral Dissertation:
This project is the research for my doctoral dissertation.

Length of Participation:
This project is estimated to take no less than four weeks and no more than eight weeks in the first part of the fall semester of 2009.

Volunteer Statement:
You are a volunteer. The decision to participate in this study is completely up to you. If you decide to be in the study, you may stop at any time. You will not be treated any differently if you decide not to participate in the study or if you stop once you have started. You will be given an opportunity to review the study before I submit it to insure I have not misrepresented your or any of your statements.

Confidentiality Statement:
No biographical data will be collected. The only demographic data that will be noted is that all participants are working adults over 25 and enrolled in an adult education class. Any information about your participation, including your identity and place of work, is completely confidential. The following steps will be taken to ensure this confidentiality:

1) Your name will be coded on all paperwork, surveys and reading modules you complete. I will be the only one to know who you are. No one else will know the names of those who have agreed to participate.

2) In any publication of the research results, you and your employer's identity will be altered, and the particular class you are attending will be given a generic "adult education class" designation.
3) Only two people will have access to the data will be myself, and the individual student/participant involved.
4) Upon request you will be given a completed manuscript of the study.

Statement of Fair Treatment and Respect:
UNC Charlotte wants to make sure that you are treated in a fair and respectful manner. Contact the university's Research Compliance Office (704-687-3309) if you have questions about how you are treated as a study participant. If you have any questions about the actual project or study, please contact Mr. Peter MacMonagle at 704-575-4045; wpmacmon@uncc.edu or Dr. David Pugalee at 704-687-6888 or by email at David.Pugalee@uncc.edu.

CPCC Participant Consent Statement:
 "CPCC is eager to ensure that all research participants are treated in a fair and respectful manner. If you have any concerns or questions about your treatment as a subject in this project, contact Dr. Terri Manning, Planning and Research, P.O. Box 35009, Charlotte, NC 28235 (704) 33-6597.

Approval Date:
This form was approved for use on Month, Day, and Year for use for one year.

Participant Consent:
I have read the information in this consent form. I have had the chance to ask questions about this study, and those questions have been answered to my satisfaction.   I am at least 18 years of age, and I agree to participate in this research project. I understand that I will receive a copy of this form after I and the principal investigator of this research study have signed it.

_____ Participant Name
(PRINT)   DATE

_____
Participant Signature

_____
Investigator Signature   DATE

APPENDIX B: SURVEY CONSENT FORM

January 17, 2010

Phase One of Metacognitive Research Project

Consent Form for Initial Survey/Questionnaire for Research into the connections between reading comprehension and writing.

1.   Metacognitive Awareness of Reading Strategies Inventory
2.   Metacognitive Awareness Inventory

By signing this consent form I acknowledge that Mr. MacMonagle has explained to me that the two attached surveys I am taking will be used confidentially for research purposes only. I am only consenting to the use of the two surveys. A second consent form will be used if I volunteer for the reading/writing portion of the research project.

The surveys and the identification of any participants will be used for analytical purposes and all results will be put together and reported as a group (in the aggregate) with no identifiers as to who answered the questions. All surveys will be held in a safe location and will not be shared with others for individual comparison.

They will be destroyed upon completion and acceptance of Mr. MacMonagle's doctoral dissertation.

Signature of principal researcher: _____
                              William P. MacMonagle

Signature of Participant: _____

Date Survey taken: _____

APPENDIX C: MODULE INSTRUCTIONS

Basic Instructions for completing the modules

Please Read First:

1. **Read** the selection through once.
2. **Write** about your understanding of the action, events, or story. Please write as much as you possibly can – at least a full paragraph or two - as much as you can think of.
3. Include anything you imagine is happening to the people in the story.
4. **Read** the story selection a second time. Now **write** another paragraph and **Think**: Is there anything you understand better about the story this time. Does anything new come to mind?
5. **Draw a picture** or illustration from your imagination that may have come to you as you read the story. Did you picture it in your "mind's eye" ? What image or images came to you as you read? This is not an art lesson. Do not worry if you do not draw well. You can make a diagram or other kind of picture.

When you are finished, hand it in.

Thank you,
Peter

APPENDIX D: MARSI SURVEY AND RUBRIC

Metacognitive Awareness of Reading
Strategies Inventory (MARSI)

Directions; Listed below are statements about what people do when they read
academic or school-related materials such as textbooks, library books, etc.
Five numbers follow each statement (1, 2, 3, 4, 5) and each number means
the following:
• 1 means I never or almost never do this."
• 2 means "I do this only occasionally."
• 3 means "I sometimes do this" (about 50% of the time)
• 4 means "I usually do this."
• 5 means "I always or almost always do this"
After reading each statement, circle the number (1,2, 3,4, or 5) that applies to
you using the scale provided. Please note that there are no right or wrong
answers to the statements in this inventory.

Table
Metacognitive Awareness of Reading Strategies Inventory

Type	Number	Strategies			SCALE		
GLOB	1.	I have a purpose in mind when I read.					
			1	2	3	4	5
SUP	2.	I take notes while reading to help me understand what I read.					
			1	2	3	4	5
GLOB	3.	I think about what I know to help me understand what I read.					
			1	2	3	4	5
GLOB	4.	I preview the text to see what it is about before reading it.					
			1	2	3	4	5
SUP	5.	When text becomes difficult, I read aloud to help me understand what I read.	1	2	3	4	5
SUP	6.	I summarize what I read to reflect on important information in the text.	1	2	3	4	5
GLOB	7.	I think about whether the content of the text fits my reading purpose.	1	2	3	4	5
GLOB	8.	I read slowly but carefully to be sure I understand what I'm reading.	1	2	3	4	5
SUP	9.	I discuss what I read with others to check my understanding.					
			1	2	3	4	5

Table
"Metacognitive Awareness of Reading Strategies Inventory (Continued)"

GLOB	10.	I skim the text first by noting characteristics like length and organization.	1	2	3	4	5
PROB	11.	I try to get on track when I lose concentration.	1	2	3	4	5
SUP	12.	I underline or circle information in the text to help me remember it.	1	2	3	4	5
PROP	13.	I adjust my reading according to what I'm reading.	1	2	3	4	5
GLOB	14.	I decide what to read closely and what to ignore.	1	2	3	4	5
SUP	15.	I use reference materials such as dictionaries to help me understand what I read.	1	2	3	4	5
PROB	16.	When text becomes difficult, I pay closer attention to what I'm reading.	1	2	3	4	5
GLOB	17.	I use tables, figures, and pictures in text to increase my understanding.	1	2	3	4	5
GLOB	18.	I stop from time to time and think about what I'm reading.	1	2	3	4	5
GLOB	19.	I use context clues to help me better understand what I'm reading.	1	2	3	4	5
SUP	20.	I paraphrase (restate ideas in my own words) to better understand what I'm reading.	1	2	3	4	5
PROB	21.	I try to picture or visualize information to remember what I read.	1	2	3	4	5
GLOB	22.	I use typographical aids like boldface and italics to identify key information.	1	2	3	4	5

Table
"Metacognitive Awareness of Reading Strategies Inventory (Continued)"

GLOB	23.	I critically analyze and evaluate the information presented in the text.	1	2	3	4	5
SUP	24.	I go back and forth in the text to find relationships among ideas in it.	1	2	3	4	5
GLOB	25.	I check my understanding when I come across conflicting information.	1	2	3	4	5
GLOB	26.	I try to guess what the material is about when I read.	1	2	3	4	5
GLOB	27.	When text becomes difficult, I reread to increase my understanding.	1	2	3	4	5
SUP	28.	I ask myself questions I like to have answered in the text.	1	2	3	4	5
GLOB	29.	I check to see if my guesses about the text are right or wrong.	1	2	3	4	5
PROB	30.	I try to guess the meaning of unknown words.	1	2	3	4	5

Metacognitive Awareness of Reading Strategies Inventory Rubric

1. Write your response to each statement (i.e., 1.2,3/ 4, or 5) in each of the blanks.
2. Add up the scores under each column. Place the result on the line under each column.
3. Divide the score by the number of statements in each column to get the average for each subscale.
4. Calculate the average for the inventory by adding up the subscale scores and dividing by 30.

Global Reading Strategies (GLOB Subscale)	Problem-Solving Strategies (PROB Subscale)	Support reading Strategies (SUP Subscale)	Overall Reading Strategies
1.	8.	2.	
3.	11.	5.	GLOB _____
4.	13.	6.	
7.	16.	9.	PROB _____
10.	18.	12.	SUP _____
14.	21.	15	
17.	27.	20.	
19.	30.	24.	
22.		28.	
23.			
25.			
26.			
29.			
GLOB Score _____	PROB Score _____	SUP score _____	Overall Score _____
GLOB Mean _____	PROB Mean _____	SUP Mean _____	Overall Mean _____
Key to Averages: Low	3.5 or higher = High	2.5 – 3.4 = Medium	2.4 or lower =

5. Compare your results to those shown below.

Range   3.5 or higher = High
Range 2.5 – 3.4 = Medium
Range 2.4 or lower = Low

Table

Students and Ratios to Reading Comprehension Skills

Ratio of Participants to Answers given in MARSI Survey

Total participant population = 12
1 Participant = 8.3%
2 Participants = 16.6%
3 Participants = 25%
4 Participants = 33.3%
5 Participants = 41.6%
6 Participants = 50%
7 Participants = 50.3%
8 Participants = 66.6%
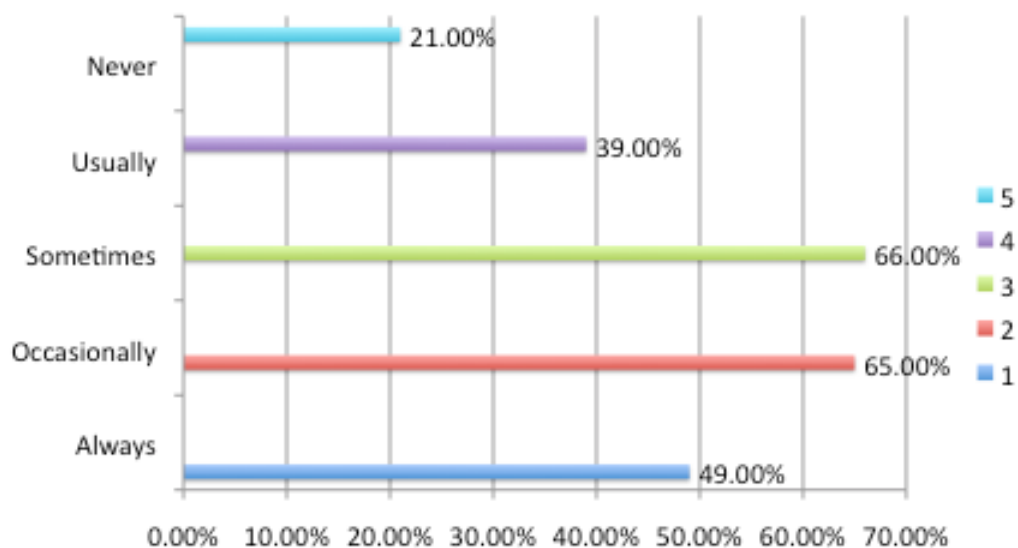9 Participants = 75%
10 Participants = 83.3 %
11 Participants = 91.6%
12 Participants = 100%

Metacognitive Awareness of Reading Inventory

Total percentages from posed questions about reading strategies

- Never — 21.00%
- Usually — 39.00%
- Sometimes — 66.00%
- Occasionally — 65.00%
- Always — 49.00%

Legend: 5, 4, 3, 2, 1

APPENDIX E: MAI SURVEY

Metacognitive Awareness Inventory (MAI)
Schraw and Dennison

Introduction to the Survey

The following questions are designed to better understand what you know and do when you READ, LEARN, and MANAGE NEW INFORMATION in your daily life and in learning situations such as school and other training you engage in as an adult.

Some of them are related to *Knowledge of Cognition*. This means do you <u>know</u> (not what you really do) what kinds of skills are needed in order to read well. Many people know <u>about</u> reading skills, but do not use them. Some people use them but do not use them well. Others both know what they are and are able to use them. This means for ALL types of reading, not just reading for school or educational purposes.

1. Declarative Knowledge: knowledge about one's skills, intellectual resources, and abilities as a learner.
2. Procedural Knowledge: knowledge about *how* to implement learning procedures (e.g. strategies)
3. Conditional Knowledge: knowledge about *when* and *why* to use learning procedures.

This questionnaire also ask questions about how well you actually use reading strategies during your reading in order <u>to think ahead</u> about what may be next, <u>look back</u> on what you have read (reflection) to see if you understood what you read, or how you <u>make corrections during your reading</u> as you go along to make sure you understand. This is called *Regulation of Cognition*, and is made up of:

1. Planning: planning goal setting, and allocating resources *prior* to (BEFORE) learning.

2. Information Management Skills: skills and strategy sequences use on-line (AS YOU ARE LEARNING) to process information more efficiently (e.g., organizing, elaborating, summarizing, selective focusing.)

3. Monitoring: assessment of one's learning or strategy use.

4. Debugging: strategies used to correct comprehension and performance errors.

5. Evaluation: analysis of performance and strategy effectiveness after a learning episode.

Directions: Please read the questions and answer YES or NO by circling the appropriate word next to the numbered statement. If you do not know if you use this skill circle DNK for "Do not know."

The Metacognitive Awareness Inventory
Gregg Shraw UNLV

I think it's safest to use the MAI in the same way that others have...as a measurement of knowledge and regulation of cognition. Correlating this with
reflection and writing processes sounds interesting. Using qualitative data to
link with the MAI also would be a good idea for validity reasons.

Gregg

From Appendices A, and B, of the article.

Note: The codes were removed for the student edition.

<div align="center">

Metacognitive Awareness Inventory (MAI)
Schraw and Dennison

</div>

1. I ask myself periodically if I am meeting my goals. (M)
2. I consider several alternatives to a problem before I answer. (M)
3. I try to use strategies that have worked in the past. (PK)
4. I pace myself while learning in order to have enough time. (P)
5. I understand my intellectual strengths and weaknesses. (DK)
6. I think about what I really need to learn before I begin a task. (P)
7. I know how well I did once before I finish a task. (P)
8. I set specific goals before I begin a task. (P)
9. I slow down when I encounter important information. (IMS)
10. I know what kind of information is important to learn. (DK)
11. I ask myself if I have considered all options when solving a problem. (M)
12. I am good at organizing information. (DK)
13. I consciously focus my attention on important information. (IMS)
14. I have a specific purpose for each strategy I use. (PK)
15. I learn best when I know something about the topic. (CK)
16. I know what the teacher expects me to learn. (DK)
17. I am good at remembering information. (DK)
18. I use different strategies depending on the situation. (CK)
19. I ask myself if there was an easier way to do things after I finish a task. (E)
20. I have control over how well I learn. (DK)
21. I periodically review to help me understand important relationships. (M)
22. I ask myself questions about the material before I begin. (P)
23. I think of several ways to solve a problem and choose the best one. (P)
24. I summarize what I have learned after I finish. (E)
25. I ask others for help when I don't understand something. (DS)
26. I can motivate my self to learn when I need to. (CK)
27. I am aware of what strategies I use when I study. (PK)
28. I find myself analyzing the usefulness of strategies I use when I study. (M)
29. I use my intellectual strengths to compensate for my weaknesses. (CK)

30. I focus on the meaning and significance of new information. (IMS)
31. I create my own examples to make information more meaningful. (IMS)
32. I am a good judge of how well I understand something. (DK)
33. I find myself using helpful learning strategies automatically. (PK)
34. I find myself pausing regularly to check my comprehension. (M)
35. I know when each strategy will be most effective. (CK)
36. I ask myself how well I accomplished my goals once I'm finished. (E)
37. I draw pictures or diagrams to help me understand to help me understand while learning (IMS)
38. I ask myself if I have considered all options after I solve a problem. (E)
39. I try to translate new information into my own words. (IMS)
40. I change strategies when I fail to understand. (DS)
41. I use the organizational structure of the text to help me learn.
42 I read instructions carefully before I begin a task. (P)
43. I ask myself if what I'm reading is related to what I already know. (IMS)
44. I reevaluate my assumptions when I get confused. (DS)
45. I organize my time to best accomplish my goals. (P)
46. I learn more when I am interested in the topic. (DK)
47. I try to break studying down into smaller steps. (IMS)
48. I focus on overall meaning rather than specifics. (IMS)
49. I ask myself questions about how well I am doing while I am learning something new. (M)
50. I ask myself if I learned as much as I could have once I finish a task. (E)
51. I stop and go back over new information that is not clear. (DS)
52. I stop and reread when I get confused (DS)

Operational definitions of component categories:

Knowledge of Cognition

1. DK - Declarative knowledge: knowledge about one's skills, intellectual resources, and abilities as a learner.
2. P - Procedural knowledge: knowledge about *how* to implement learning procedures (e.g. strategies)
3. Conditional knowledge: knowledge about *when* and *why* to use learning procedures.

Regulation of Cognition

1. Planning: planning goal setting, and allocating resources *prior* to learning.
2. Information management: skills and strategy sequences use on-line to process information more efficiently (e.g., organizing, elaborating, summarizing, selective focusing.
3. Monitoring: assessment of one's learning or strategy use.
4. Debugging: strategies used to correct comprehension and performance errors.
5. Evaluation analysis of performance and strategy effectiveness after a learning episode

Table 11 CK 1

Knowledge of Cognition: Conditional Knowledge (CK)

Knowledge about when and why to use learning procedures

Number Know		Coded Question	Yes	No	Do Not
15.	CK	I learn best when I know something about the subject	11	1	0
18.	CK	I use different strategies depending on the situation	11	1	0
26.	CK	I can motivate myself to learn when I need to	11	0	1
29.	CK	I use my intellectual strengths to compensate for my weaknesses	8	3	1
35.	CK	I know when each strategy will be most effective	3	3	6

First administration: Analysis of responses to the MAI given on February 9, 2010

Table 12 CK 2

Knowledge of Cognition: Conditional Knowledge (CK)

Knowledge about when and why to use learning procedures

Number Know		Coded Question	Yes	No	Do Not
15.	CK	I learn best when I know something about the subject	12	0	0
18.	CK	I use different strategies depending on the situation	12	0	0
26.	CK	I can motivate myself to learn when I need to	11	1	0

"Table 12 CK 2 (Continued)"

			Yes	No	Do Not Know
29.	CK	I use my intellectual strengths to compensate for my weaknesses	9	1	2
35.	CK	I know when each strategy will be most effective	3	1	8

Second Administration: Analysis of responses to the MAI given on March 16, 2010

Table 13 P1

Regulation of Cognition: Planning (P)

Planning goal setting, and allocating resources prior to learning.

Number		Coded Question	Yes	No	Do Not Know
4.	P	I pace myself while learning in order to have enough time	9	2	1
6.	P	I think about what I really need to learn before I begin a task	6	6	0
7.	P	I know how well I did once I finish a task	5	4	3
8.	P	I set specific goals before I begin a task	8	3	1
22.	P	I ask myself questions about the material before I begin	3	8	1
23.	P	I think of several ways to solve a problem and choose the best one	6	1	2
42.	P	I read instructions carefully before I begin a task	x	x	x
45.	P	I organize my time to best accomplish my goals	8	3	1

First Administration: Analysis of responses to the MAI given on February 9, 2010

Table 14 P2

Regulation of Cognition: Planning (P)

Planning goal setting, and allocating resources prior to learning.

Number		Coded Question	Yes	No	Do Not Know
4.	P	I pace myself while learning in order to have enough time	6	5	1
6.	P	I think about what I really need to learn before I begin a task	9	2	1
7.	P	I know how well I did once I finish a task	7	3	2
8.	P	I set specific goals before I begin a task	9	2	1
22.	P	I ask myself questions about the material before I begin	6	4	2
23.	P	I think of several ways to solve a problem and choose the best one	11	0	1
42.	P	I read instructions carefully before I begin a task	11	1	0
45.	P	I organize my time to best accomplish my goals	6	6	0

Second Administration: Analysis of responses to the MAI given on March 16, 2010

Table 15 IMS 1

Regulation of Cognition: Information Management Skills (IMS)

Skills and strategy sequences use on-line to process information more efficiently (e.g., organizing, elaborating, summarizing, selective focusing).

Number		Coded Question	Yes	No	Do Not Know
9.	IMS	I slow down when I encounter important information	8	2	2

Table 15 IMS 1 (Continued)"

13.	IMS	I consciously focus my attention on important information	8	3	1
30.	IMS	I focus on the meaning and significance of new information	10	1	1
31.	IMS	I create my own examples to make information more meaningful	x	x	x
37.	IMS	I draw pictures or diagrams to help me understand while learning	0	11	1
39.	IMS	I try to translate new information into my own words	11	1	0
41.	IMS	I use the organizational structure of the text to help me learn	6	2	4
43.	IMS	I ask myself if what I am reading is related to what I already know	8	1	3
47.	IMS	I try to break studying down into smaller steps	7	4	1
48.	IMS	I focus on overall meaning rather than specifics	8	2	2

First Administration: Analysis of responses to the MAI given on February 9, 2010

Table 16 IMS 2

Regulation of Cognition: Information Management Skills (IMS)

Skills and strategy sequences use on-line to process information more efficiently (e.g., organizing, elaborating, summarizing, selective focusing).

Number Know		Coded Question	Yes	No	Do Not
9.	IMS	I slow down when I encounter important information	12	0	0
13.	IMS	I consciously focus my attention on important information	11	0	1

"Table 16 IMS 2 (Continued)"

Number		Coded Question	Yes	No	Do Not Know
30.	IMS	I focus on the meaning and significance of new information	12	0	0
31.	IMS	I create my own examples to make information more meaningful	x	x	x
37.	IMS	I draw pictures or diagrams to help me understand while learning	1	8	2
39.	IMS	I try to translate new information into my own words	12	0	0
41.	IMS	I use the organizational structure of the text to help me learn	7	2	3
43.	IMS	I ask myself if what I am reading is related to what I already know	10	1	1
47.	IMS	I try to break studying down into smaller steps	7	5	0
48.	IMS	I focus on overall meaning rather than specifics	8	2	2

Second Administration: Analysis of responses to the MAI given on March 16, 2010

Table 17 M1

Regulation of Cognition: Monitoring (M)

"Real time" assessment of one's learning or strategy use

Number Know		Coded Question	Yes	No	Do Not
1.	M	I ask myself periodically if I am meeting my goals	10	2	0
2.	M	I consider several alternatives to a problem before I answer	11	1	0
11.	M	I ask myself if I have considered all options when solving a problem	9	2	1

"Table 17 M1 (Continued)'

Number		Coded Question			
21.	M	I periodically review to help me understand important relationships	8	2	2
28.	M	I find myself analyzing the usefulness of strategies I use when I study	3	3	6
34.	M	I find myself pausing regularly to check my comprehension	8	3	1
49.	M	I ask myself questions about how well I am doing while I am learning something new	x	x	x

First Administration: Analysis of responses to the MAI given on February 9, 2010

Table 18 M2

Regulation of Cognition: Monitoring (M)

"Real time" assessment of one's learning or strategy use

Number Know		Coded Question	Yes	No	Do Not
1.	M	I ask myself periodically if I am meeting my goals	10	1	1
2.	M	I consider several alternatives to a problem before I answer	11	1	0
11.	M	I ask myself if I have considered all options when solving a problem	9	0	3
21.	M	I periodically review to help me understand important relationships	8	1	3
28.	M	I find myself analyzing the usefulness of strategies I use when I study	6	4	2
34.	M	I find myself pausing regularly to check my comprehension	8	3	1

"Table 18 M2 (Continued"

49.	M	I ask myself questions about how well I am doing while I am learning something new	x	x	x

Second Administration: Analysis of responses to the MAI given on March 16, 2010

APPENDIX F: READABILITY FORMULAS

Table

Readability results from WordsCount Website
http://www.wordscount.info/readability.html

The Lost World Chapter "Power"

Formulas Consulted	Data	Formulas Used	Data
SMOG Grade	7.76	SMOG	7.76
Gunning-Fog Index	6.51	Gunning-Fog	6.51
FleschÂ-Kincaid Grade	4.4		
Flesch Reading Ease	79.3		
Dale-Chall Index	10.04		
Dale-Chall Grade	16+	Dale-Chall	16.0
		Averaged Grade Level	10.09

Note: From Wikipedia, the free encyclopedia: "The Flesch/Flesch-Kincaid readability tests are designed to indicate comprehension difficulty when reading a passage of contemporary academic English." A Flesch Reading Ease score of 90-100 indicates that an 11 year-old student (6th grade) can understand the text, while a score between 60-70 should be understandable by 13 to 15 year old students. The FleschA-Kincaid grade indicates that a student in an American school finishing the 3rd grade should be able to understand the passage. However, according to a 2010 study published in the *Journal of the Royal College of Physicians of Edinburg* the Flesch-Kincaid "significantly underestimated reading difficulty" and recommends that the SMOG formula be used in formulating webpage readability "comprehensible to the average patient."

J R Coll Physicians Edinb 2010; 40:292–6
doi:10.4997/JRCPE.2010.401
© 2010 Royal College of Physicians of Edinburgh

http://en.wikipedia.org/wiki/Flesch%E2%80%93Kincaid_readability_test

The Simple Measure of Gobbledygook readability formula (SMOG) is used to estimate the number of years of schooling a student needs to understand the passage. It is considered slightly more accurate than the Gunning-Fog Index.

http://en.wikipedia.org/wiki/Smog_readability

The Gunning fog index can be used to estimate how many years of education a person needs to understand a text on a first reading.

http://en.wikipedia.org/wiki/Gunning_fog_index

The Dale-Chall formula gives a raw score with a corresponding grade level equivalent. Consequently, for this reading passage the 9.23 score indicates grades 13-15, meaning a freshman in college (a high school graduate ready for college) should be able to understand the reading.

http://en.wikipedia.org/wiki/Readability#The_Dale.E2.80.93Chall_formula

Table

Readability results from WordsCount Website
http://www.wordscount.info/readability.html

All Quiet on the Western Front

Formulas consulted	Data	Formulas used	Data
SMOG Grade	7.3	SMOG	7.30
Gunning-Fog Index	6.21	Gunning-Fog	6.21
FleschÂ-Kincaid Grade	3.89		
Flesch Reading Ease	85.75		
Dale-Chall Index	9.23		
Dale-Chall Grade	13-15	Dale-Chall Grade	13.0
		Averaged Grade Level	8.84

Table

Readability results from WordsCount Website http://www.wordscount.info/readability.html

The What is the What

Formulas Consulted	Data	Formulas Used	Data
SMOG Grade	6.44	SMOG	6.44
Gunning-Fog Index	5.24	Gunning-Fog	5.24
FleschÂ-Kincaid Grade	3.34		
Flesch Reading Ease	88.22		
Dale-Chall Index	8.85		
Dale-Chall Grade	11-12	Dale-Chall	11.0
		Averaged Grade Level	7.56

APPENDIX G

Remaining Responses, Illustrations and Comments

Participant D's First Written Response:

> For the first part of this story you would think that some people were traveling
> in their car and got lost. Then they came up on land that had been aboned for a
> long time and their was no one around. They went into a old power station that
> still worked, but they could not figure out way. And ever thing about the hold
> place had them pulzzled.

Participant D's Second Written Response:

> Now after reading it th second time you get the felling the their in some pleace
> like Juraci Park or something and that large animals (Tyrannosaurus Rex) has
> eat ever one who was there before them and is now about to eat them too

Analysis of Participant D's Response:

> With no prior information to go on the reader first assumes that this is some kind
of outing or general exploration. The team runs across an old power station which
puzzles them, which is not so. The team does know where they are, but the reader does
not catch on until the second reading proving the validity of rereading when you do not
understand the first time through. This is a metacognitive strategy. The participant also
makes the intertextual connection between the movie "Jurassic Park" and this text.
Therefore, despite the sparse information and a number of grammatical and spelling
errors detract from the reading, the writer does catch on that the previous inhabitants
had probably been eaten and the present team was in danger of the same fate.

Figure: Participant D's *The Lost World* Illustration
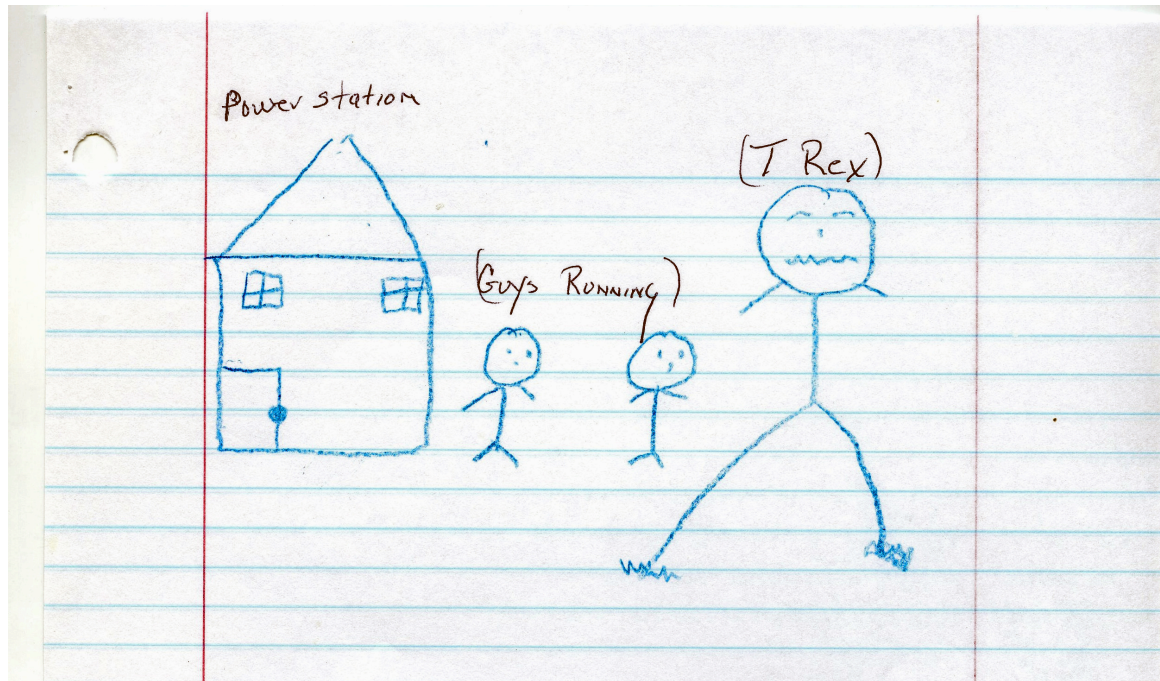
Participant D's accompanying picture is one of three stick figures. Two are designated human and the third, the larger one, is the Tyrannosaurus -Rex. There is a power station in the background. This picture was not drawn on the plain sheet of paper included for this purpose. It does not look as if there was any effort made to illustrate the scene even as the respondent wrote about it. It is a sketchy response as there are no features or a demonstration of imagination in this line drawing, regardless of the person's general artistic ability (or lack of it).

The Lost World: Participant E's Written Response:

This was like a movie that was happening. It seems to me that they were on an island and ran across a town that was build and found a power station that was stil working it look looked old and out of shape but it work it doesn't say how the got on the island. They run into a big dinosour witch they were scared as

hell they seemed to no a lot about these animals so they must study them. It

really does not look like they are going to make it, but you never no because

they something about it, so it may help them get threw the sticky problem that

they are in.

Analysis of Participant E's Response:

This one written response from this participant is full of observations about what

might happen given the circumstances the team was facing. This forward thinking

shows that he may have been anticipating possible outcomes as he read. This is a

distinct reading skill. Because there is no second reading and written response it is not

possible to know if he was able to draw any inferences about the mission of the team,

although he did understand that they wanted to study the dinosaurs. He compares it to a

movie in his mind, which is an indication that he was able to visualize the events as they

happened. He states that he does not know how they got on the island or what their

purpose really was. This is understandable because in this chapter there is no prior

reference to the purpose of the exploration. The fact that he noted the lack of an

explanation is a metacognitive "click," as he felt he did not have information that would

have settled his uncertainty. A number of spelling and syntactical errors detract from an

easy reading of the paragraph, and there was no second reading so it is not possible to

tell if the participant was able to glean further information.

Figure: Participant E's *The Lost World* Illustration

Participant E's accompanying sparse picture depicts a large dinosaur approaching a vehicle and the power station. This illustration has shows a fierce and menacing dinosaur with barred teeth and a forward lurching stance. The size of the T-Rex appears to be in proper proportion to the vehicle and the building. He has the idea of the menacing dinosaur, the presence of the building and the vehicle (lacking wheels), but beyond that it is featureless. Nonetheless, it is a clear indication that the one impression he had in his mind was the fierce dinosaur looming over the building and vehicle. It is possible that, since movies about dinosaurs such as "Godzilla" and "Jurassic Park" are a common theme in movies, the image he held in mind correlated to these earlier films as a mental example of what he could draw. After all, the dinosaur is not described, and every participant that drew a Tyrannosaurus Rex knew what one looked like. There must be a mental representation of this kind of scene in his mind, and in the minds of the other participants that has been enacted in books, television, and movies for decades.

Participant F's Written Response:

What I got out of it was Eddie drove his car. Looking around and the came

across a plantation village. I seem that it had been empty for a long time. There

was a gas tank, empty swimming pool, general store and a tennis court. As the

guys keep driving they saw a power station. That has damage. It seem to them it

haven't been running in a long time. They smelled sulphur in the air. They

notice something big is in there with them. As they made they way out someone

told them to run and hide.

The Lost World: Analysis of Participant F's Response:

The response from this participant is sketchy and lacks any detail. There are

only simple sentences and sentence fragments that spell out items mentioned in the

chapter such as the empty buildings, a gas tank and items in the village, but no response

to the actions of the team. He does not name the creature and confuses the situation by

assuming the dinosaur was in the power plant with them. There is only the vaguest

notion that "someone" warned them to leave. The paragraph is unfinished indicating a

lack of time or lack ability to hold ideas in working memory to restate the situation

properly.

Figure: Participant F's *The Lost World* Illustration
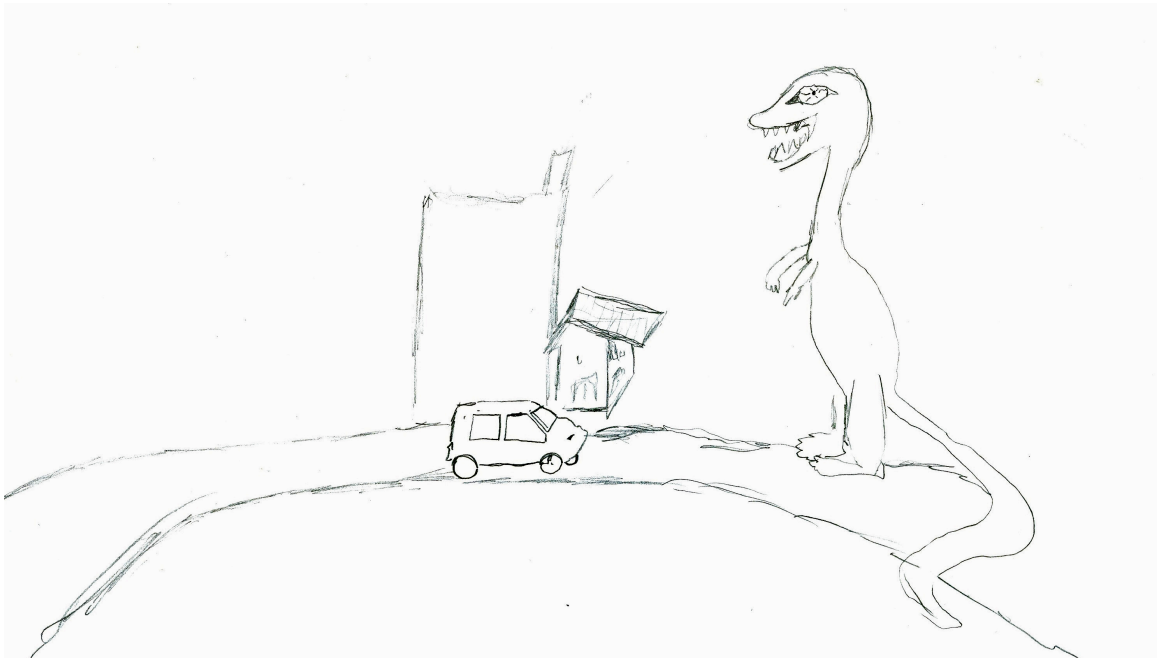
Participant F sketched a building with a car on the road with a dinosaur standing over it. This illustration captures the elements of the issue: that the team's vehicle is parked outside the power plant (complete with smoke stack) and a menacing Tyrannosaurus looms overhead. There is evidence of some artistic ability here since the dinosaur is drawn to size with barred teeth one menacing eye. The buildings and the vehicle on the road next to the power plant are drawn using perspective. The global aspect of the presence of the one Tyrannosaurus Rex, the buildings and the vehicle must have been pictured in the participant's mind despite the participant's poor writing ability.

The Lost World: Participant G's Written Response:

> What I got out of th story was this plant was out in the middle of no where it has closed down for some reason. It was sitting in the path way where big animals travel back and for. Out in the jungle away from everybody.

Analysis of Participant G's Written Response:

This participant missed the whole reason for the team's exploration of the power plant. He concentrates on the power station sitting along the path the dinosaurs use to get from one place on the island to another, and makes no references concerning actions of the team, such as receiving a radio message to get away from the location. A sentence fragment ends the paragraph. This may be another example of not holding information in working memory, or could just indicate poor reading skills whereby the reader selectively recognizes familiar words and uses them, failing to understand the scene and the action of the team in the story.
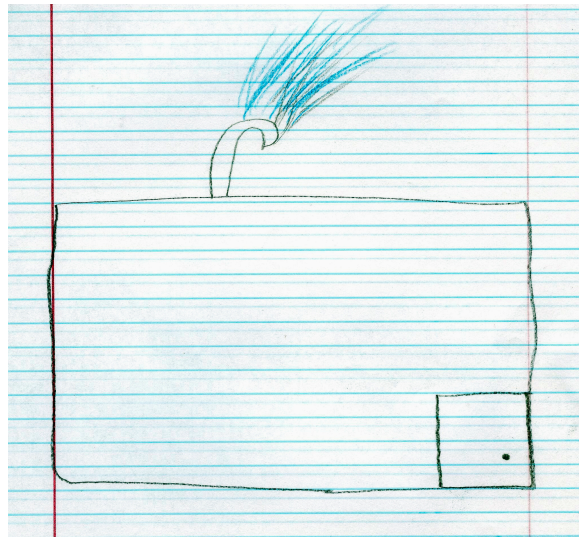

Figure: Participant G's *The Lost World* Illustration

Participant G's picture is a square box building with a door in a corner with a pipe and smoke coming out of it. This illustration was also drawn on lined paper despite the inclusion of drawing paper in the packet, but beyond that, even as an illustration it lacks revealing any elements of the story or the reader's ability to imagine and represent any more than a one dimensional drawing of a featureless building, save for the door and the smoke stack.

Participant J's Written Response:

In the story there were three men that were investigating a, what they thought was a power station. It was a concrete square building no windows and a rusted tin Roof. All three men entered the building to find out that the power station was still operational, but that everything was corroted (sic) with sulpher (sic). They said sulpher filled the air and was on everything they could see. They saw a small amount of steam coming up from under the floor of the building. As they stood out side looking at the loading docks they heard the two way radio come in, it was a kid telling them to get back in the car because it was coming straight at them. Turns out that the animal coming at them was a T-Rex came out of the jungle right beside their car. It disappeared into the jungle again just as fast as it appeared.

Analysis of Participant J's Response:

This writer concentrates on the scene at the power plant, which is well described, and the warning that comes over the radio warning them of the approaching Tyrannosaurus Rex. There is also a good segue to the need of the team to evacuate the area because of the approaching dinosaur. There is no mention of the larger

background story that was implied in the passage. This writer sticks to a very select scene that he describes well. There are a number of spelling errors, which may have been unfamiliar words to the writer.
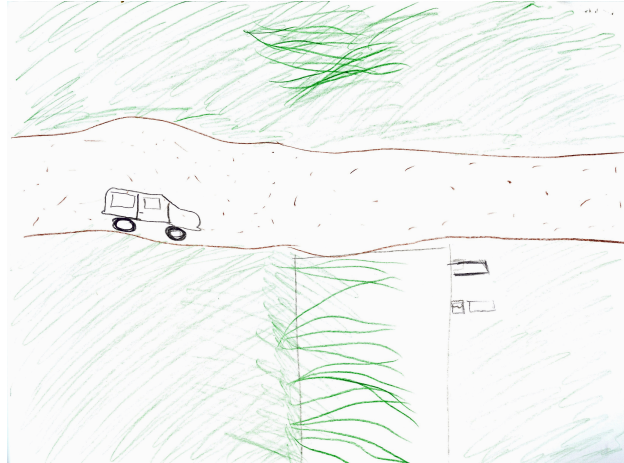

Figure: Participant J's *The Lost World* Illustration

The primary subject in participant J's picture is a truck on a road near what seems to be buildings. Despite the rather complete written description the power plant and its condition, the illustration captures only the vehicle on a road surrounded by tall grass. Everything drawn has a "flat" look to it with no discernable characteristics except the vehicle, which was drawn complete with windows and doors and fat black tires. Participant I's first Written Response:

> In this reading I am introduced to a group of men that appear to be scientists or
> engineers exploring a place with great mystery and danger. It is a place that is
> jungle-like, once inhabited and beautiful, now a mystery to these men searching
> for answers on many things such as how power was generated. They find the
> power station, a geo-thermal plant that is still operating after much neglect.
> Before long, a kid's voice is heard over a communication device in the car
> warning them of danger coming their way in the forma of a giant dinosaur. The

kid's voice generates anger amongst a couple of the men because he is not supposed to be in this dangerous place.

Participant I's Second Written Response:

There is much left to guess before and after the passage, but what I see differently or additionally after a second read is detail such as name of the charachters (sic), turbine blades composed of gold allow, the by product Sulphur coming from the plant, and the intensity of the anger and panic of these men while they try to escape.

Analysis of Participant I's Response:

This participant shows a flair for writing and uses the metaphorical phrase "a place with great mystery and danger" to describe the island. He uses the historical present and well thought-out phrases and sentences that show he personally responded to the event. He is aware that there is more to the story but concentrates on what he has on the page using specifics to support his recognition that the plant is in great disrepair and yet is still operational. There are misplaced ideas in the response that indicates possible skimming through the text, such as the island being a mystery and his thought that the men are angry and in panic when they get the radio message to leave. The second written response only picks up on surface features such as the gold that was used in the turbines. However, the last sentence lets the reader know that he is aware that there is missing information, both as to the purpose of the exploration of the island and future outcomes. Responding in this way shows a metacognitive awareness of missing information and his inability to give a complete rendition of the action as a result.

Participant K's Written Response:

> In this story there were four explorers Dr. Torne, Dr. Malcolm, Eddie and Arby.
> One day Dr. Thorne, Dr. Malcolm and Eddie went exploring a jungle. They
> came across a old town that really was well abandon and lost to jungle. While
> searching the town they see that it has a power station still running. The
> explorers were amaze to see that it powered by a heat source using steam to turn
> the tourbanes.
>
> After checking out the building one of the notices animal tracks and dents on the
> door as if something was trying to get in. At the same a sound starts to come
> over their Cb in car. It was Arby telling them to get in the can and its on its way
> toward them. Not knowing what was coming they listen and got in. While in the
> car they feel the ground shake. It was a two storey T Rex that scared so much
> that they couldn't speak. But with is speed and agility the T Rex disappeared
> into the jungle right next the car that the explorers were in.

Analysis of Participant K's Written Response:

> This response is a fair generalization of the events, with the exception that this
team of explorers did not just happen upon what they found but were searching the
island purposefully. A particular difficulty this writer has is using the past tense. This is
evident throughout the two paragraphs. This does not obviate the ability of this writer to
use descriptive ("speed and agility") phrases, as well as remember, or remember to refer
to the story to write a fairly accurate succession of events and the names of the men on
the team.

Figure: Participant K's The Lost World Illustration

This illustration from participant K is of a dinosaur, the back of the Explorer and the building next to it. Even as a line drawing, it captures the static elements in the passage. The dinosaur going past the vehicle, and a good rendition of the back of a truck complete with tire treads and rear view mirrors. The dinosaur is rounded in shape as if the participant knew what a T-Rex looked like. There are palm trees in the background indicating the tropical island location. The power plant is shown in disrepair with broken windows and a patched roof. The presence of little plants along the base of the building shows a willingness to add to the picture, and the dinosaur's tail is actually shown under the chassis of the truck showing some artistic sense.

All Quiet on the Western Front

Participant B's Written Response:

The story seem to be about a young man in the Army or some military and he is

so nervous and can't sleep so he just glazing up at the star wondering about life

hoping and praying that nothing happen as he set and glaze off into space and listen to the other men asleep he notice that the older man is up as well smoking a pipe so he creep over to him to hopefully get some comfort about this war the easy in mind the man just tell him to relax and keep com that everything is going to be ok as they sat there talk a loud sound come out and the sky lights up like the 4th july and all the men jump up scared the young man jumps in the older man lap holding him like a baby holds his mom.

The older man tells the to keep low and chill out then another light shines to see were they were out the young man shits himself so the older man tells him to trash them funky things and prepare for war.

Analysis of Participant B's Response:

Broadly speaking this reader has the gist of the story. He runs through items in the narrative. He misses the dream sequence and the waking up to reality and skips to the portion of the narrative where the veteran reassures him while putting out his pipe. The flow of the writer's thoughts run together so that several elements of the story seem like one event so that the reader has to parse the sentences for himself. There are numerous grammatical errors with verb tense and with run on sentences as if the writer had breathlessly put down everything he could. He does create an appropriate metaphor with the younger soldier holding on to Paul during the bombardment "like a baby holds his mom." Using colloquial language he says of the soldier who soiled his pants "so the older man tells him to trash them funky things and prepare for war." It is a concise statement. However, there is no second reading or written response so it is not possible to tell if there was any change in reading comprehension.

Figure: Participant B's *All Quiet on The Western Front* Illustration

The picture participant B drew has a foreground of grass and a bare tree with explosives overhead. This is a landscape at night with a dark sky, a barren tree and explosions in the sky resembling fireworks. Paul mentions his dream of fireworks as he fell into a short sleep, and here the respondent may have blended that image with the bombardment in the passage. But while the respondent has the time of day correct and the bombardment, there is no other relationship to the story or battlefield conditions.

Participant C's Written Response:

This story was about men who was in the army, they were attacked. It seems to me that they were in the early 1900. One of the men smoked a pipe. I don't think any one smoked pipes at this day and age. It seems to me that they were in some kind of fox hole and the open fie on the men. One of the men was so in the state of shock he begin to panic, by him doing that he was shot he lived. There were a lot of crying and dismay out there. I think it was an eye opening

experiences for they young men, There's a war out there and it real out there observant so they can stay alive.

Analysis of Participant C's Written Response:

This writer does get the era of the story correct, although he misses the described events in the narrative: Paul's dream, Kat's reason for dousing his pipe, and the recruit's crawling into Paul's arms for protection. The writer's narrative is a generalized observation: "There were a lot of crying and dismay out there," and errors in pluralizing. Several sentences do not seem to make sense without a careful re-reading to separate the thought from the written response. There is no second reading or written response, so it is not possible to tell if there was any improvement in reading comprehension.

Figure: Participant C's *All Quiet on The Western Front* Illustration

Participant C's accompanying picture shows a stick figure on the ground with bullets flying and three rockets overhead. This a minimalist rendition of the scene depicted in the story. Incoming rockets or flares light the sky and a lone stick figure lies prone on the ground that consists of one rolling green line.

Participant D's Written Response:

> The story too me was about a young man who just got put in a war. The first
>
> night was peaceful to him that he forgot where he was when he woke up.
>
> Fireworks was shooting all over the place so that he thought it was. As they
>
> crawled away fragments and gunfire went over there heads.

Analysis of Participant D's Written Response:

This is a very short response that tries to encapsulate the event in four sentences. As a summary, it is very limited. He relates Paul's dream sequence succinctly but his sentence: "Fireworks was shooting all over the place so that he thought it was" is correct as far as Paul thinking he was at a fireworks show in his sleep, but the writer fails to complete the thought and the reader has to make sense for himself. There is the common error of confusing the three forms of *there.* There is no broader context stating that the reader knows where these men are, what war this might be and that Bäumer comforts a younger soldier during the bombardment. There is no second reading or written response so it is not possible to tell if there was an improvement in reading comprehension.

Figure: Participant D's *All Quiet on The Western Front* Illustration

Participant D's accompanying illustration shows three starbursts and a half moon over a battlefield with a large bomb centering on the barbed wire line. This is a more complete battlefield scene at night that shows the rows of barbed wire, the lone tree, and the firework-like explosions in the story that may have influence Paul's dream as he dozed off.. A rendition of a half moon and the singular bomb about to hit the earth complete the picture. The coloring of the ground shows that some care with coloration was taken.

Participant E's Written Response:

> I think that they are sitting on guard at war. They have tents, and a few of them can't sleep. The chief is on guard right now. He see's some of his men having trouble sleeping. I think some of the are scared and having nightmares. Some of the men its there first time be at war so quiet nature they don't have a clue what to do and expect. They think they're going to be bomb at any time so ther

shaking in there boots. They are hoping that the calvary hurry up and rescue

them.

Analysis of Participant E's Written Response:

This response is a bit clearer and the reader grasps the difficulty of the men

learning to be calm during a bombardment and catch a bit of sleep in the midst of the

uncertainty. Sentences such as, "The chief is on guard right now" use the historical

present, but misuses "there," for the possessive case "their," uses the possessive "its'

instead of the contraction, and states that they are waiting for the cavalry. The writer

made that part up because the passage does not state that. The over-generalization about

not knowing what to do and all of the men having nightmares indicates that the reader

caught the tone of the passage, but not what was actually written. There is no second

reading or written response so there is no way to tell if there was an improvement in
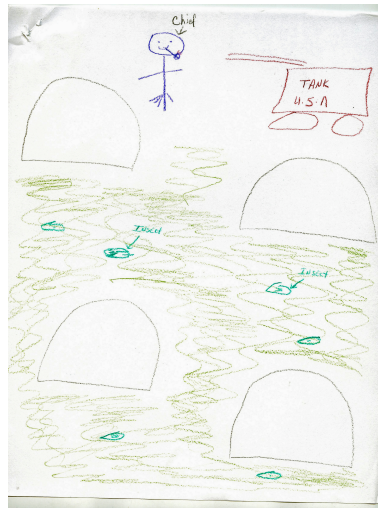
reading comprehension.

Figure: Participant E's *All Quiet on The Western Front* Illustration

Participant E's illustration shows a US tank and a stick figure smoking a pipe –
labeled "chief." Labeled insects dot the ground with three quarter round objects drawn
in which may be the tents mentioned in the response. This was not a battleground with
US forces, but then the particular war or participants were not named in the passage.
Tanks, tents, and insects were not mentioned in the passage yet the participant added
them perhaps from his own imagination, but not part of the story, as is his mention of
the cavalry in his written response.

Participant G's Written Response:

> They are in the military in the middle of a war. Sounds like they r close to an
> ocean or some type of body of water. The guy doing the talking is suddenley
> woke up from sleeping. Then everyone is woke up by the sounds of explosions
> going off. During the bombardment a young new recruit is very scared a takes
> shelter under the first guys arm as if his was a young child. Seeing that the scard
> guy's helmet has fallen off the guy who he is hiding under trys to put it back on
> him but he does not want it, so the guy then puts it on the young kids behind
> seeing that it's the pat of his body that is the highest in the air. At the end of the
> raid the scarded kid looks up at the other guy still with a scared look on his face.
> The 1st guy then tells him to go over to the woods and remove his underpants for
> he has soild them during the raid.

Analysis of Participant G's Written Response:

This writer recognizes that this is a war, and this group of soldiers is stationed
near a body of water, (Probably the North Sea area of the Maginot Line). Once again
there is a problem with verb tense; "everyone is woke up" and, "The guy doing the

talking is suddenley woke up from sleeping." The thought is correct though. The writer

concentrates on the main thrust of the passage, that of Paul comforting the recruit who

soils his pants, and the placing of the young man's helmet on his rear end as it is the

highest part of his body at this time and the most vulnerable. There are spelling errors

that speak of a general problem with using the past tense: "scard, scarded, trys, and

soild." There is no second reading, so there is no way to tell if reading comprehension

improved.

Figure: Participant G's *All Quiet on The Western Front* Illustration

Participant G's accompanying picture is a line drawing of a straight field with a

depression where two stick figures lie. There are two large trees on the side. This

illustration is more accurate in its depiction of a cross section of a trench with barbed

wire and built-up earth mounds next to the tree. Incoming rockets are on a trajectory to

explode on or near the men in the trench. Included is the balloon caption "We're gonna

die," which more than likely echoes the thoughts of the recruits who are new to battle.

Participant H's Written Response:

> From what I've got out of the reading is that these are soldiers who are at war. I think they are on a beach of so (sic) sort and the enemy is fireing (sic) rockets and shooting at them. It is the first time being at war for some of them and they are very afraid, but the vet's that are there is telling the new ones how to handle the situation.

Analysis of Participant H's Response:

> This reader also has a very terse response to the passage and does not elaborate on any one part. In general, it is a fair summary of the overall action, and he picks up on the idea that they are stationed near a body of water, and that they are afraid. A possessive is used for vets instead of the plural and with the word "fireing" the writer fails to drop the "e" before adding "ing." There is no second reading so there is no way to tell if reading comprehension was improved.
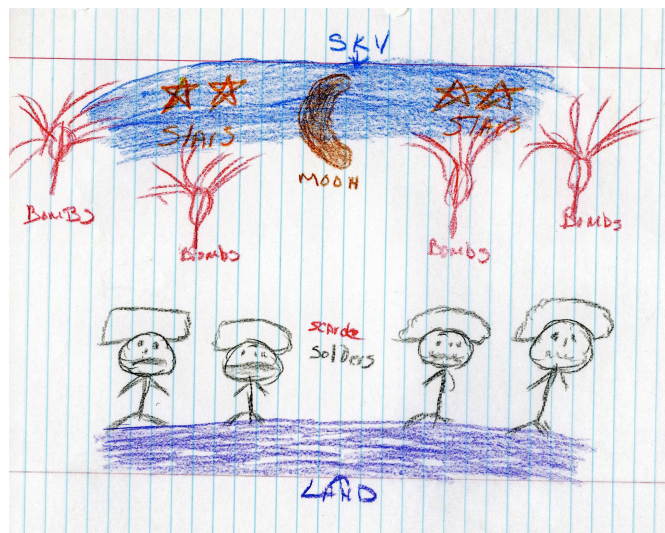

Figure: Participant H's *All Quiet on The Western Front* Illustration

Participant H's picture shows four soldiers lined up with exploding bombs in the sky. The obvious elements in the passage are there: rockets overhead, the night sky complete with a quarter moon, and soldiers in helmets. Everything is lined up as in a portrait with the soldiers labeled as scared, even though the scene describes only the one frightened soldier that Paul took care of.

Participant J's first Written Response:

> In this passage I am introduced to a couple of soldiers that are camped out near the seaside at night. The main soldier who is narrating the story, describes some agonys of war. The first being the difficulty of getting to sleep because of the cold seaside. Second, the constant sight and sound they are enduring from rockets flying and exploding all around them. The main subject in this passage in my opinion is the new recruit and his immense fear towards war. We see how childlike he becomes when he faces his own mortality and later is extremely embarrassed by his actions.

Participant J's Second Written Response:

> In my second reading I realize that I did not remember some details in the first couple of paragraphs. The building of a barbed wire fence in the beginning that broke the skin of the soldier, and the detail of the soldier awaking, feeling as if he were a child again experiencing a celebration from many years before until realizing it was all a dream when he sees the figure of the veteran soldier smoking his pipe. These are the differences between my two readings

Analysis of J's Written Responses:

This reader also picks up on the position of the soldiers near the sea even though there is only one sentence with this information in the selection. The reader focuses in on the frightened recruit and the bombardment. The sentence, "the constant sight and sound they are enduring from rockets flying and exploding all around them" shows the reader has entered emotionally into the scene. The actions and feelings of the frightened recruit as "childlike" show sensitivity to his plight along with the ever-present fear of dying coupled with the embarrassment of soiling his pants out of fear.

The second paragraph is a good example of what I was looking for in an introspective piece that shows several new understandings and finding new information as a direct result of reading a second time and capitalizing on the first written response. The inclusion of the barbed wire stringing, Paul's dream of fireworks and the waking up to see the veteran soldier Kat smoking his pipe is a clue to a second more careful reading that picked up missing elements even though there may not have been enough time to expand on them.
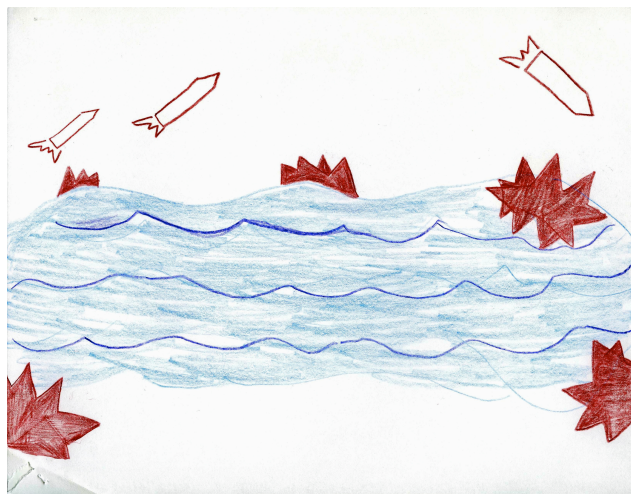

Figure: Participant J's *All Quiet on the Western Front* Illustration

Participant J's accompanying picture shows rockets and bomb bursts over water. This scenario has no relation to the barbed wire landscape the soldiers were actually in. A disconnect exists between what this participant portrayed in the written response and the picture he drew.

Participant L's Written Response:

This story takes place at a time of war. It stars with a few men putting up thier defence using iron stakes and barbed wire to keep the enemy back. After it was set up they take turns sleeping. One of the men had a hard time sleeping with cold air blowing off the sea. Then dreaming of being at a party with star fill sky and fireworks until he realize that it wasn't a dream but they were under attack. They were able to pinpoint them by the smoking pipe old Veteran. They began to crawl to cover and came across a new man that was gun shy and need help.

Analysis of Participant L's Written Response:

This reader gives a good summary highlighting the major points in the passage. Despite a couple of spelling errors, including past tense errors, this is concise and accurate enough. However, there is no second written response so it is not possible to gauge whether or not the reader made any further connections with the story or his perceptions about the story. He also observes (as noted by the veteran smoking his covered pipe) that the enemy could likely be pinpointing their position from the faint glow of his pipe. The writer covers the main points of the action although the lack of a second reading makes it impossible to tell if the writer garnered anything more specific from the passage.
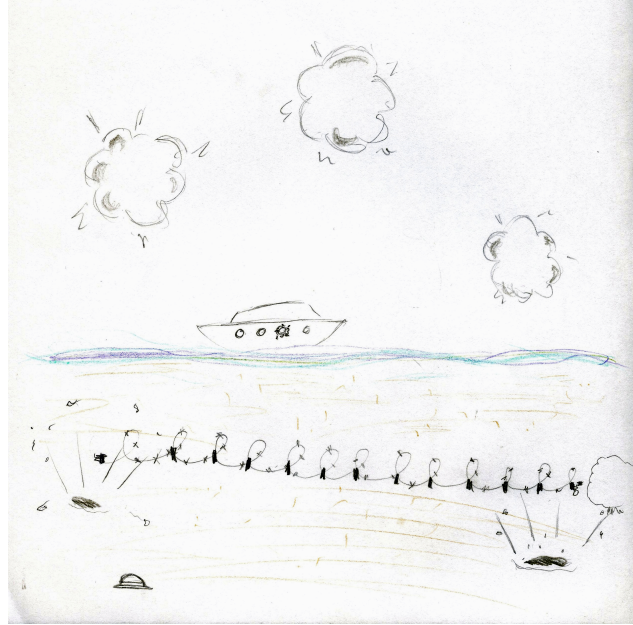
Figure: Participant L's All Quiet on The Western Front Illustration

Participant L's illustration shows a boat on the sea, bomb bursts in the air, and loops of barbed wire. There are active explosions on the ground and an empty helmet. This picture is dynamic in the sense that the airbursts were carefully drawn as was the barbed wire looping its way across the picture. There are two ground explosions with radiating lines indicating explosive lines of force and the clouds of smoke that rise up during an explosion. The only reference to the fact that there may be soldiers is the lone helmet on the ground. The respondent captures the overall nature of battle impersonally with only one line of color indicating the sea near the soldiers' position even though the bombardment was coming from the other direction.

The What is The What

Participant B's written response:

> The story to me was about some Arabic soldiers that rode in on some horses. was (sic) going around killing people they went around taken (sic) things that didn't belong to tem. They was going around killing people and at times some women as well. They burned down towns. Had people running in the woods trying to find a way out.

Analysis of participant B's Written Response:

> This reader has only a vague notion of what is going on and is not clear about the action except that Arabic "soldiers" are killing people. He is correct that some people are trying to escape but there is no connection with the narrator of the story or any specific examples from the story.

Figure: Participant B's *The What is The What* Illustration

Participant B's picture shows a classic Arabic strong man with scimitar, turban, and earrings holding decapitated head. Blood flows along the ground.

Participant E's Written Response:

These people are being attacked by some group or army. They are running short

of transportation. I think they only have two horses and the two young ladies

have those horses. I really don't why there being attacked. I think they made a

clean getaway.

Analysis of participant E's Written Response:

This reader only gets the first part of the story, that there is an attack on a group

of people. Other than that the reader is lost.

Figure: Participant E's *The What is The What* Illustration

Participant E's accompanying picture shows large tree and two stick figure

horses. Arrows point at outlined figure horses and lone figure stands off to the side.

Participant G's Written Response:

In this story the reader imagines (?) that there is a town that had just been

invaded by a group of people called muralaheen, invaded or raided as the story

explans . As the reader continues on there is a clear understanding that the

narrator of the story is one who actually lived in the town that had been raided,

and was explaining the story from first hand. The story explains that the there were horses with men riding them, and women and men at the town being killed and captured. The story also tells us that the muralaheen people looded and salvaged what ever valuables they could find from the raid. The writer tells the beginning of the story from underneath the belly at a church, and further explains how he waited until dark to runaway . Throughout the story the writer is almost captured again mistaking a campfire for a group of helpful people. As the story ends, the writer is left praying and looking for a better life in a new town for him and his family.

Analysis of participant G's Written Response:

This writer is able to summarize the events in the story with the added element of his own imagination. The reader has detached himself from the reading, telling us about the story by telling us what the story says. There does not seem to be an active engagement with the story here, even though he has used his active imagination to recall and relate the events in the narrative.
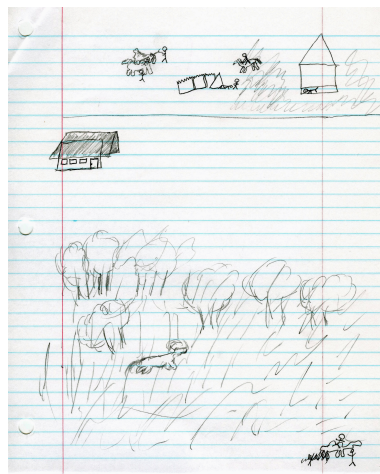

Figure: Participant G's *The What is The What* Illustration

Participant G's accompanying picture is a pencil drawing with a destroyed village in the distance with men on horseback. A figure crouches in the woods in the foreground. A figure also crouches under the larger building, which could be the church.

Participant F's Written Response:

> What I got out of this reading is that it took place in a fariegn (sic) land. And the people in the story was at war. Lots of them were killed or being killed. Now the Dinka boy manged to escap but he was up against great odds. He got away from those who were killing his people but he ended up some place where he did not know, he had no food or water and he was very afried. He had to hid from every thing and every body. But while in hiding he saw a fire of (sic) in the distanced and worked his self towards it. Now the people that were there was not his enemy they wanted to help him.

Analysis of Participant F's Written Response:

> This reader has a general idea of the story but there is no continuity in the telling. Spelling and syntactical errors detract from the reading. The reader does track the narrative to the boy hiding out in the forest near the campfire, yet gets is wrong that they wanted to help him since they were also members of the group that raided the village earlier in the day.

Figure: Participant F's *The What is The What* Illustration

The accompanying picture shows a boy, horse and fire, all labeled. There are stars overhead.

Participant H's first Written Response:

> In this passage I am witnessing a violent takeover of a village that seemed to be
>
> peaceful and without conflict. Graphic accounts from a boy of kidnapping,
>
> torture, burning of huts, and mass murder give me an indication that the raiders
>
> are probably of an extreme religious sect that hates every way of life of these
>
> people. The passage moves into the escape of the boy from his village. He faces
>
> many perils along the way while running through the cover of darkness. Finally
>
> he comes upon a campfire an sees it is not friendly. His movements are too loud
>
> and he is detected. Although he is not seen, a waiting game ensues. The men
>
> finally ride off.

Participant H's Second Written Response:

> After a second reading, I did not find anything new or different.   I will tell you
>
> why. The reason for this is the passage was so engrossing. I found myself
>
> wanting to read more. After a second read, I got no more out of it because I was
>
> so focused the first time.

Analysis of Participant H's Written Response:

This writer manages a succinct and virtually error free account of the raid and
the actions of the boy. He is nearly on target as he speculates on the religious forces that
drive the Muslim north to subjugate the Christian and Animist Darfur region. There is
oil there also; a good enough reason to drive people off the land. The writer traces the
boy's escape and his near miss with the raiders in the darkness in the forest.. In his
second paragraph he gives a reasonable account of why a second reason did not seem
necessary. Alone of all the writers who did not write a second paragraph, he at least
accounts for not going through it a second time.

Figure: Participant H's *The What is The What* illustration

Participant H's accompanying picture shows a man on horseback, gun in holster and sword in hand. There is little in this picture that reflects the well-written description of events in the story. It is almost as if there is a reversal of abilities here. In other responses the writing was labored and scanty while in this response just the opposite so.

Participant I's Written Response

This is a story about a young Dinka child who's family and village were over takened by (Aribis ?). The young Dinka saw his friends get captured by these men. He was so frightened he could not help anyone. So he waited for the night to fall so he could get away from the village. During his journey he could not see anything so it was hard for him to get away. But with a lot of pain he got away from the village. It took him into the dark of night and he was safe for now.

Analysis of participant I's written response:

This short summary is clear and concise. He also makes an astute observation that he was too frightened to help anyone and hid from the militia until it seems safe to run away. The writer concentrates on the escape into the night and the temporary safety the forest and darkness offer him. However, there is no second reading so there is no way to tell if there was an improvement in reading comprehension.

Figure: Participant I's The What is The What Illustration

The accompanying picture consists of trees with half moon in sky.

There is a boy standing by with pants on saying, "I can't see anything" while a

crescent moon floats in the sky.