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READING, WRITING, AND METACOGNITION:

THEORETICAL CONNECTIONS AND TEACHING METHODS

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A Thesis

Presented to the

Faculty of

California State University,

San Bernardino

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In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

in

Composition

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By

Mary Ellen Cushman

MAY 1992

READING, WRITING, AND METACOGNITION:
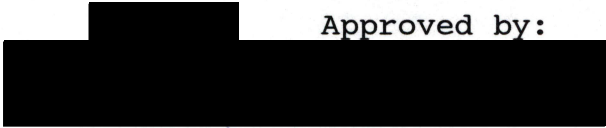
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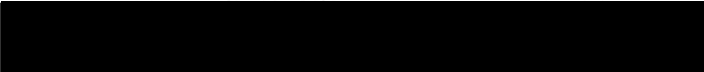
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By

Mary Ellen Cushman

May 1992

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ABSTRACT

In recent reading and writing research, one trend has been to seek overarching cognitive processes employed during both acts of literacy. This paper posits three previously unnoticed relationships between reading and writing: 1) the formation of a thought-world which is the cluster of ideas and associations related to a particular literacy event; 2) the establishment of a progression of interrelated ideas from the thought-world; and 3) the creation of intersentence cohesion by filling gaps. These connections, when taught using a pedagogy which interweaves reading and writing, can develop our students' metacognitive abilities, i.e., their abilities to consciously control their thinking. In this paper, I wish to discuss these connections between reading and writing, to suggest and exemplify a diverse pedagogy grounded in these connections and geared toward developing students' metacognitive flexibility, and to indicate how metacognition can bridge the social and cognitive dimensions of literacy.

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INTRODUCTION

Although reading and writing seem to employ disparate activities, they share a number of wide reaching cognitive processes that are essential to the production of meaning. An examination of the scholarship of several fields--education, literary criticism, cognitive psychology, and composition--points to connections between the cognitive processes of reading and writing. Because the majority of research done in reading takes place in education, and because the bulk of research done in writing is conducted in composition, scholars exploring the interaction between reading and writing can't afford to disregard one field or the other. In addition, the exploration of cognitive processes of both reading and writing broadens the scope of research into cognitive psychology and reader-response literary criticism. Furthermore, a multidisciplinary approach to literacy compensates for bias that might creep into an analysis of reading and writing connections. Since many researchers view literacy "with either a reading perspective or a writing perspective," their "ability to discern certain kinds of connections or interactions between the two processes" diminishes (Kucer 43). Certain cognitive strategies used in both reading and writing materialize from an exploration of literacy using a multidisciplinary approach.

Three commonly shared cognitive processes emerge from a fusion of literary criticism, education, and composition research:

1. Forming a thought-world: students combine prior knowledge with new knowledge created during an act of reading or writing to form a world of thought. In other words, meaning makers (readers and writers) bring to a text beliefs, perspectives, predilections, and assumptions that have been shaped by individual experiences within a culture. Moreover, as meaning makers encounter the text, further understandings and perceptions form. All of these together comprise a body of thought.

2. Establishing congruity: individuals derive a progression of interrelated ideas to establish congruity in their thought-world. This complicated process emerges as meaning makers leave the confines of their thought-world to communicate to others. They do so by choosing and organizing which ideas of their thought-world to relay in light of their goals for communicating and by planning ways to obtain these goals.

3. Making intersentence connections: readers and writers employ expectations and reflections in order to produce meaning from a set of sentences. Meaning makers fill the gaps of uncohesive sentences by noticing when their anticipations are frustrated by the text.

Once these commonly shared cognitive processes are taught, students will be able to consciously control their thinking.

An examination of the scholarship from a number of the most prolific knowledge producers in reading and writing establishes these connections. The work of education specialists in reading such as Brown and Campione, Tierney and Pearson, and Garner highlights the cognitive processes of readers in all levels of education; the research of Flower and Hayes, and Bereiter and Scardamalia, all of whom are at the forefront of cognitive process scholarship in composition, further points to these connections; in addition, scholars such as Kucer, Squire, and Tierney and Pearson, who have extrapolated a number of cognitive processes that appear to be shared during both reading and writing, supports the relationships under scrutiny. Even though many of these scholars have attempted to establish connections between the thought processes involved in reading and writing, their research has been conducted through either a reading or writing filter (Kucer 43). Written from a perspective keenly sensitive to both acts of literacy, this paper asserts a "more dynamic relationship between reading and writing which has [previously] gone unnoticed" (Kucer 43). This research attempts to develop those subtle similarities between the cognitive processes of reading and writing that, in the end, offer instructors a means to teach metacognition.

The purpose of this research, then, is twofold: to develop these connections between cognitive reading and writing processes, and to exemplify how meaning makers develop an awareness of their own meaning making processes. The first three chapters of this paper describe how meaning makers move from a world of thought, to a specific representation of their thought, to the most minute cognitive processes involved in meaning making. Chapter four examines how meaning makers, readers and writers, move into a metacognitive awareness of their reading and writing by becoming aware of the thought processes outlined in the first three sections. Each chapter introduces the cognitive process to be discussed and includes supporting research from Wolfgang Iser, a reader-response literary critic, research from cognitivists working in education, and scholarship from cognitivists studying composition. Furthermore, with an eye toward producing useful theories, each section includes pedagogical applications for the cognitive process discussed. The first section considers how readers and writers build worlds of thought, providing an overall picture of the meaning making process.

CHAPTER ONE

THE NATURE AND PROCESS OF THOUGHT-WORLD PRODUCTION WITHIN

THE COGNITIVE ACTS OF READING AND WRITING.

THOUGHT-WORLD: In every literacy act, meaning makers develop

complete worlds of thought. These worlds include

individual's prior knowledge brought to the literacy

act, the knowledge created and destroyed by interaction

with the text, and the task requirements of the

literacy act. The knowledge brought to and crafted from

a literacy event, when combined, produces a thought

world.

An examination of the cognitive process research done

in education and composition confirms that readers and

writers bring their prior knowledge of the world to the

text. When people engage a text, either in writing or

reading, they use their previous knowledge to generate new

thoughts. These new thoughts unite with their old thoughts

to create a complex scheme of ideas which will be referred

to as the thought-world. With explicit instruction, students

become aware of this body of cerebrations. This instruction

will in fact teach students to consider their thinking,

teach them metacognition. To begin with, the definition and

function of thought-worlds will be established through an

assimilation of literary criticism, education, and

composition research, and will be followed by an exploration of possible teaching applications for this theory.

Meaning makers form thought-worlds, complete bodies of associations and ideas, when they interact with a text. Iser discusses "the gestalt" to exemplify how the actions of reading blend to form the world of the reading. A "gestalt" of the text "is not given by the text itself; it arises from the meeting between the written text and the individual mind of the reader with its own particular history of experience, its own consciousness, its own outlook" (Iser 59). Since readers come to a text with different information about the world; that is, background knowledge, they create unique gestalts of the text. When readers engage a text, the words of the text fuel thoughts; thus meaning is created by the interaction of readers and prose. Every thought and feeling associated with the text constitutes the readers' gestalts, or thought-worlds, of the text. Iser's theory also states that the products from the interactions between readers and their texts depends upon their personalities as well as the words on the page.

Readers form distinct bodies of thought because their ways of understanding experiences are different. For example, one reader may find Brett Ashley in Hemingway's The Sun Also Rises strong, androgynous, and capable; still another may see her as understanding, and self aware; yet another may find her bitchy, selfish, and promiscuous.

Individuals approach reading with their differing perspectives, and these perspectives contribute to what Iser calls the gestalt. The characteristics they understand Brett to have depend on the thought-world they built about Brett Ashley. The readers' perspectives are derived from their background knowledge brought to the text. Even though Iser's description of the gestalt building process is vague and abstract, this idea of building a world of thought from any literacy act, or act of reading or writing, is useful in describing a common cognitive process to both reading and writing.

Thought-world creation occurs in both reading and writing, an idea supported by both cognitive reading theory and cognitive writing theory. James Squire, an education researcher, asserts that background knowledge critically influences the process of meaning making. In "Composing and Comprehending: Two Sides of the Same Process" he postulates "a critical factor in shaping the quality of both composing and comprehending is the prior knowledge the pupil brings to the reading and writing" (28). The readers' understanding of the text depends upon their knowledge before encountering the text at hand. Once readers encounter a text, the text is then added to their future background knowledge. Squire quotes studies by Rosenblatt (1976) and Richards (1929): "the knowledge and attitudes that readers bring to a text help determine the meaning that each derives from the text"

(28). Whenever people read a text, their knowledge of the subject and the world emerges and adds to their creation of a world of thought. Without prior knowledge, readers lack developed thought-worlds because they can't supplement the text as well.

Squire also refers to Anderson's (1977), Pearson's (1978) and Langer's (1982) work in cognitive psychology to further demonstrate his belief in the importance of prior knowledge in the literacy act. These cognitivists posit that "when linguistic aptitude is held constant, the reader's schemata--the sum total of his or her world knowledge and skill in retrieving these attitudes and ideas--may be the most important variable in determining the quality of comprehension" (28). When reading a text, literary or scholarly, the knowledge people bring to the text about the subject significantly affects their understanding of the text. In order to develop thought-worlds readers annex their prior knowledge.

For example, when interacting with a psychology textbook, those students who have background knowledge about psychology will build a larger thought-world than those students who muddle through the difficult terminology of psychology because they lack background knowledge. Background knowledge aids students in either assimilating or accommodating new information. When meaning makers have prior knowledge, they have networks of thought into which

they add, assimilate, new information (Hoffman et al. 39).

When students have never been introduced to the material to
be learned, they have no networks of thought into which the
information can be placed. In this case, they need to modify
their existing schemes of thought, or accommodate the new
information (Hoffman et al. 39). Both assimilation and
accommodation, notions posited by Piaget, occur when
students have prior knowledge with which to work. If
students who muddle through psychology texts could obtain
background knowledge, they would be able to engage the text
more fully. In essence, without background knowledge, the
construction of thought-worlds falters.

Individuals who form thought-worlds also mobilize
background knowledge, a notion researched by the noted
education scholars, Tierney and Pearson. Prior knowledge is
mobilized in the reading of a text: "at just the right
moment [readers] access just the right knowledge structures
necessary to interpret the text at hand in a way consistent
with [their] goals" (Tierney and Pearson 35). Reading
demands interaction, interaction that requires the readers
to create meaning from the text by employing their
background knowledge of the subject. Knowledge mobilization
is essential to thought-world building because readers
attach the information gleaned from the text to information
they already have, thus giving them a way of incorporating
the text into their thinking.

Moreover, S. Kucer's compilation of current cognitive research in reading and writing embellishes the description of thought-worlds. In his first (of four) universals governing the cognitive basics of reading and writing, Kucer states that "readers and writers construct text-world meanings through utilizing prior knowledge which they bring to the literacy event" (31). Every time meaning makers encounter a text, they bring to that experience all of their previous knowledge. The fusing of the text and their own ideas creates what Kucer calls "text-world meanings," what are also part of the thought-world of the text. Kucer's research with schema, or the complicated framework of ideas that make up individuals' previous experiences, shows that every experience with text "requires the language user to locate background knowledge which is relevant to the communicative situation" (32). As readers and writers attempt to establish meaning, they must summon their own knowledge of the world. The more knowledge called forth and altered by interaction with the text, the more the meaning makers build the world of thought.

Prior knowledge plays a key role in readers forming a thought-world, as this survey of reading education research shows. Yet, the role of this knowledge in writing is not as clearly labeled in cognitive writing theory. The vast amount of research done by Flower and Hayes, the premiere cognitivists in the field of composition, reveals what

similarities exist. Flower and Hayes speak of a process
similar to that of thought-world building when they discuss
"generating." During the writing process, generating occurs
when the writer calls forth "information relevant to the
writing tasks from long-term memory. We assume that this
process derives its first memory probe from information
about the topic and the audience presented in the task
environment" ("Identifying" 13). At the initial encounter
with an assignment, writers retrieve all useful data
regarding the task at hand. World building, when writing,
typically comes from idea generating techniques: free
writing, clustering and any other types of "associative
reveries" (Flower and Hayes, "Identifying" 13). These data
trigger the retrieval of other data closely associated to
them. This generating process lasts until all the
connections are made, until writers have created the body of
thought for their piece. While substantial research in
thought-world building for writing has only recently begun,
it's safe to assume that prior knowledge of the audience,
topic, and writing community aid the writers during this
process. The writer will brainstorm, or instantiate schema,
to gather data related to this subject; the total collection
of ideas comprises the thought-world. Thought-worlds help
writers discuss the topic thoroughly: the more thought
brought into an assignment, the more potential for thought
in the paper. Therefore, the goals and tasks of the literacy

event initiate thoughts necessary for both readers and writers to build a world of ideas.

The compilation of these studies suggests two characteristics of thought-worlds: they are totally unique to every individual, since every person brings various types of prior knowledge to the literacy act; and bodies of thought, as their name implies, are cumbersome worlds of all ideas and reactions connected to the text or topic. The first characteristic has the charm of allowing for differing interpretations of texts. No two thought-worlds are the same. The second characteristic, the large territory and nebulous boundaries of thought-worlds often make them difficult to control. Many times students feel overwhelmed by the many ideas they've generated from reading or for a piece of writing; they experience difficulties trying to determine what information should go where; they feel as though they've over studied; their papers go off on tangents. Since thought-world building has been delineated as an overarching cognitive process in both reading and writing, teaching students the characteristics of this process leads them to a metacognitive awareness of their own thought-worlds.

PEDAGOGICAL APPLICABILITY OF THOUGHT-WORLD BUILDING:

Research done in both reading and writing theory suggest that the term thought-world applies well to the actions of mobilizing prior knowledge and creating new knowledge during the literacy act. Assuming that the cognitive process of building a collection of thoughts belongs to acts of both reading and writing, students should benefit from explicit instruction regarding how to create metacognitive awareness of thought-worlds. While I'm working on the assumption that metacognitive skills are teachable, researchers including Flavell (1978), Brown and Campione (1983), and Garner (1987) have enjoyed some degree of success in teaching metacognition (Nickerson et. al. 294). The evolution of these metacognitive strategies improves with explicit instructions and guidance from the teacher. In keeping with the extensive research stemming from Vygotsky's theory of zone of proximal development (e.g., Paris et al. 1984; Hansen and Pearson 1983), primary, secondary and even post secondary students who received explicit methods, instructions and guidance for metacognition developed an ability to critically read their own writing and the writing of others from a number of perspectives. Metacognitive skills that apply equally well to reading and writing have yet to be outlined. Using common processes established in this paper as a foundation, pedagogies emerge which foster

metacognitive skills in our students, skills that apply well to both reading and writing.

Thought-worlds represent a large amount of thinking engaged in during a literacy act of reading or writing. If instructors explained, before assigning a reading or writing task, that students would each be creating their own world of thoughts and feelings during the assignment, then the context would be established for thinking about the components of the world. Students' thoughts are then objectified enough to be analyzed.

From this point, teachers can offer the students four basic methods the student can employ in analyzing their own thought-worlds: knowing when you know, knowing what you know, knowing what you need to know, and knowing the utility of active intervention" (Brown, "Metacognitive" 458-61). "Knowing when you know," or realizing that you don't understand a text or assignment, sounds relatively simple (Brown, "Metacognitive" 458). Yet, many students continue reading and writing regardless of whether or not they understand the text. Students routinely muddle through complex textbooks or writing assignments without acknowledging that the information of the text is difficult and requires special attention. However, if explicit instructions were given to students to express when they understand or don't understand, then their attention would be focused on this aspect of their world building. As soon

as students begin to think about their understanding,
metacomprehension, they begin to distance themselves their
thinking; they begin to objectify their thinking.

Once they feel they don't understand, students need to
pinpoint exactly what they don't understand, another
seemingly simple task of metacognition. But the distance
between feeling confusion and describing what is causing
that confusion can be great. Brown, although primarily
working with the cognitive processes of children, admits
that "under certain conditions even college students may
have difficulty estimating that state of their own
knowledge" ("Metacognitive" 460). However, knowledge of the
thought-world initiates the metacognitive awareness
necessary to locate the source of befuddlement. Instructors
could inform students that once the students feel
bewildered, the students need to express what the source is.
Questions such as, "What words or phrases are confusing
you?, What don't you understand?, What are you trying to
write here?, and What's your goal?," will lead students to
think about what exactly they don't understand. Students may
feel uncomfortable about their reading or writing, but may
not have the motivation, knowledge, or strategy to identify
the location of their discomfort. When students come to
identify what they don't know, they can proceed to assess
their bodies of thought and to locate what they need to know
to reduce their perplexity.

When students objectify their thinking, they can then examine this conglomeration of ideas for possible ways of categorizing their information. Sophisticated meaning makers "know that there are certain categories of information essential for them to complete a task effectively" (Brown 460). That is, strong readers and writers are able to assess their knowledge and thinking to see how new information needs to be either, again in Piagetian terms, accommodated or assimilated into their current thought-world. Knowing what information needs to be learned to complete a task enables students to effectively solve problems, problems including memorizing texts, reading texts critically, and completing writing assignments. When students understand their thought-worlds, they can critique their own thinking because they've distanced themselves from their thoughts: theoretically, they should be able to correct areas in their thinking that lack necessary depth, or that remain unclear to them.

When students assess worlds of thought and find they're incomplete, they can employ strategies to rectify the situation. Students who are cognizant of their thought-worlds, who know when, why, and what they need to know, can couple this information with an effective strategy to remedy their problem. Students who need to memorize terms and definitions from texts can spend more time rehearsing definitions and testing their knowledge. Students

consciously control their bodies of thought read a text that much more critically because they're able to assess how the new information coincides with old. For writers, self awareness of generated thoughts helps them understand if they have enough background knowledge to adequately discuss the topic at hand; they then gauge their research against their awareness.

While thought-world building and critiquing are vital mental activities that have more applications than listed here, one problem arises in deciding the most efficient method for teaching students to engage in this activity. Perhaps the best method for teaching these metacognitive skills requires students to write summaries of their world of thought (Brown 1980, and Brown and Campione 1990). Producing summaries involves "(a) judgment of which ideas in a text are important, and which are unimportant; (b) application of rules for condensing text; and (c) production of an abbreviated text in oral or written form" (Garner 56). Brown and Day distinguish rules for condensing a text by recasting Kintsch and Van Dijk's three rules: which include omitting unnecessary repetition and material, using a superordinate term for any kind of list, focusing on the topic sentences of paragraphs and creating a topic sentence if none exists (Garner 57). In producing summaries of the thought world of the literacy act, students employ the same cognitive skills required for metacognition. Summarizing the

thought-world demands students mentally step away from their thoughts, an initial level of metacognition.

Summarizing thought-worlds, like summarizing texts, necessarily requires students to describe the breadth and depth of their thought-worlds. When students understand the thoughts included in their thought-worlds, they also comprehend which information is not included and can take action to rectify the situation. As this paper continues the delineation of the cognitive processes overarching reading and writing, a parallel progression comes forth: the more students employ these connections between reading and writing, the more they need to objectify their thinking. Consequently, the next chapter, which describes how students come to represent their thought-worlds, will demonstrate a further degree of metacognitive development in students.

CHAPTER TWO

THE DEFINITION OF A "CONSISTENT TRAIN OF THOUGHT," THE

PROCESS OF ITS FORMATION AND ITS APPLICATION FOR TEACHING

METACOGNITION

ESTABLISHING CONGRUOUS THINKING: Meaning makers establish

congruity in ideas from the thought-world of their

literacy act when they present a primary idea with the

support of subordinate ideas.

Thought-worlds are collections of ideas created from

engaging a topic. When the need arises to communicate about

the topic of reading or writing, people report selected

thoughts comprising the thought-world. The thought-world

narrows into a manageable collection of notions when meaning

makers cull and communicate their primary ideas. They begin

to organize their bodies of thought as they select the

primary ideas to communicate and the secondary ideas to

support the primary ideas. In both cognitive reading and

writing research, the ways in which individuals organize

their thinking in order to communicate effectively have been

studied. A comparison of this education and composition

scholarship reveals the common cognitive process of

establishing interwoven sets of ideas from the often

disjointed and nebulous world of thought, establishing

congruity. If students learn the strategies which help build

a consistent train of thought, they can organize their own bodies of thought. In other words, if students consciously deploy this cognitive process of weaving a consistent train of thought, they begin to manage their own thought-worlds; the pedagogical applications for this theory lead students to metacognition.

To represent a thought-world, students choose and arrange their ideas in light of their task(s). Meaning makers choose which of their plenitude of ideas to communicate, and in so doing create the "line of consistency" that represents their bodies of thoughts (Iser 65). Students create these lines of thought every day when they answer questions such as "What are horizontal and vertical experiences in Walker Percy's The Moviegoer?," or "Does women's power ever equal men's?" (Kiniry and Rose 491) or "Do you think it is possible that certain social problems are best solved on a local level?" (Cooper and Axelrod 219). Any answer constructed to queries such as these will undoubtedly include certain insights and thoughts while choosing to disregard other considerations. Because meaning makers can never fully describe their entire world of thought regarding these questions, they must create the illusion of their world of thought, the illusion being sequential, interconnected ideas (Iser 60-3); these illusions are often called linear thought because they are

presented in logical order and are also connected to one
another in meaning.

Congruous thinking, or interrelated ideas that follow
one another, translate to a finite selection of everything
actually thought during the reading or writing of the text.
Iser quotes E.H. Gombrich to support this hypothesis:
"whenever 'consistent reading suggests itself ... illusion
takes over'"(59). Since meaning makers can't possibly
represent all of the thoughts entertained in the
thought-world, any line of thought that attempts to
represent the entire body of thought will be an illusion, a
finite representation of what really went on in the minds of
the people interacting with the text.

As meaning makers select the data to include in their
train of consecutive ideas, they engage in establishing
congruity, what Iser calls a line of consistency.
"Consistency building is itself... [a] process in which one
is constantly forced to make selective decisions--and these
decisions in their turn give a reality to the possibilities
which they exclude..." (Iser 65). Consistency in thought
refers to the order in which interrelated ideas are
presented. As asserted in chapter one, when people have read
a book, they create an entire body of thought about that
book. To communicate about this body of thought, or to let
someone else know their ideas about the book, readers must
create a facsimile of their thought-worlds. Consecutive

interrelated ideas about the book comprise this facsimile, or representation of the thought-world. Readers and writers create trains of thought, or congruous thinking, by supporting their primary ideas with secondary ideas. Both the included and excluded knowledge that form the congruity of thought are part of the thought-world their literacy act, or their reading and writing, has created.

Therefore, any representation of the world of ideas is an attempt to establish a harmonious set of ideas. For readers, the congruity of ideas can be the summary of their views regarding a theme, information, or plot device; for writers the consistent train of thought can be the thesis of their paper, or theme of their story; or for a verbal presentation, the succession of interrelated ideas is the primary thesis and its development in the report. While Iser realizes that "lines of consistency" (what we're calling congruous thinking) are built in every text, his depiction of how readers build these "lines" is highly theoretical and not as well bolstered as his other postulations. Yet, the idea of establishing congruity has merit, and indeed, an idea similar to this has been researched thoroughly by education and writing scholars alike.

Readers and writers create a line of thought based on their knowledge and the rhetorical situation with which they are presented. In organizing the body of thought, individuals attempt to represent their main idea utilizing a

sequence of interconnected ideas. They establish congruity
in their thinking by employing plans and strategies to
organize their bodies of thought. Kucer summarizes research
done by Meyer (1982):

> A macro plan serves as a set of directions for how
> meanings are to be represented within the text. As
> meanings are generated during reading or writing,
> the plan facilitates the creation of an overall
> organizational pattern for the semantic content
> (38).

Any general strategies readers and writers use to guide
their organizations of thought-worlds constitute macro
plans. These strategies, in part based on the requirements
of the literacy act, are grounded in the directions from
assignments (describe, analyze, summarize, understand,
consider, etc.). Moreover, these plans satisfy the
guidelines that describe the audience (assume they know
nothing about the topic, assume your reader is your
professor, assume your readers are hostile to this idea,
explain this procedure as though the audience can not see
it). The organizations of the progression of ideas will
include not only the ideas of the meaning makers, but also
include the information necessary to make others understand.
To achieve harmony in ideas, then, overall strategies
dictate which information to include and exclude.

After meaning makers discriminate between ideas, their

attention focuses on how to relate the ideas, to connect

their thoughts together and thus construct congruity. To

exemplify how to produce congruous ideas that represent the

body of thought Kucer goes on to quote "Salvatori (1983),

Moxley (1984), and Wittrock (1983) [who] have noted that a

critical procedure in both literacy acts is that of

consistency building" (38). To devise congruous ideas that

represent the body of thought, "readers and writers must

seek to relate elements of meaning to one another so that

they form a consistent whole" (Kucer 38). In order to

communicate about a world of thought, people must choose

their main ideas and support these with subordinate ideas.

Moreover, all of these ideas must connect to one another.

Meaning makers will choose parts of their thought-worlds and

organize these ideas in order to communicate. The consistent

whole that Kucer refers to resembles the line of consistency

Iser discussed. Both of these ideas about consistency

describe how readers or writers create congruous thinking:

consistency and congruity in thinking are defined by the

procedures individuals follow in order to ensure that every

idea is related to the last. When readers or writers

assemble congruity in their thinking, they assert main

(primary) ideas with secondary ideas for support. Since

secondary concepts stem from the primary notion, all ideas

are related to each other. Because they're consecutive and

interconnected, the thoughts that represent the world of
thought are congruous.

Goal setting directs the process of organizing thoughts
into an interrelated progression of ideas to achieve
congruity from a thought-world. In their discussion of the
similarities between reading and writing, Tierney and
Pearson describe the development of congruous thinking in a
literacy act. When writers move from the body of thought to
a representation of this, they don't "just throw out ideas
randomly; [they] carefully plan the placement of ideas in
the text so that each idea acquires just the right degree of
emphasis" (35). Tierney and Pearson posit that readers are
just as precise in developing their trains of thought:
successful readers "use [their] knowledge just as carefully;
at just the right moment [they] accesses just the right
knowledge structures necessary to interpret the text at hand
in a way consistent with [their] goals" (35). For readers,
then, setting goals directs their selection of ideas to
include and disregard from their bodies of thoughts.
Readers' goals vary as much as writers' goals: readers can
read just to get the gist, for entertainment, for analysis
etc.; writers can write to inform, persuade, analyze etc.
Each goal carries with it a guide for deciding upon the
information which best communicates the train of thought.
The process of establishing congruous thoughts from the
thought world includes selection of ideas based on goals,

and organization of these ideas in an interrelated progression.

Writers, like readers, organize and goal set to produce a progression of interrelated ideas. Composers, when confronting a new or complex issue," have difficulty moving from their collection of thoughts to a line of thought (Flower and Hayes, "Dynamics" 34). They "must often move from a rich array of unorganized, perhaps even contradictory perceptions, memories, and propositions to an integrated notion of just what it is they think about the topic" (34). In achieving the integrated notion of thought, writers, like readers, often use organizing and goal setting techniques. Writers organize their thought-worlds into manageable sections which include the main topic of the paper developed with secondary ideas and support. Organizing also helps students make decisions regarding the ways in which the information will be arranged (Flower and Hayes, "Cognitive Process" 72). The organizing process helps writers chose "the most useful of materials retrieved by the generating process and to organize them into a writing plan" (Flower and Hayes,"Identifying" 14). In sum, while writers organize, they select and assemble the ideas to include from the thought-world. To establish a train of thought in writing, like reading, people must plan to represent their thought-world using interrelated ideas in a consecutive order.

Certainly organizing keeps writers from feeling overwhelmed from their task of choosing which parts of their thought-world to include. Organizations, when fluid and flexible, allow the writer to alter the line of thought to suit another part of the task or to incorporate another idea. When organizations aren't flexible the paper becomes stilted, the writer becomes unable to write, and in short, the paper fails to represent the thought-world (Rose 393).

Organizing aids writers in making choices concerning which ideas will best represent their thought-world. In the same manner, goal setting aids in establishing congruous ideas by providing the writer with procedural and strategic ways to create the line of thought; namely, goal setting helps the writer decide in which order their ideas will occur. Goal setting seems to be part of "strategic knowledge", a later theory Flower and Hayes developed. Strategic knowledge requires "knowing how to define the writing task for oneself with appropriately demanding yet manageable goals; [and] having a large body of high-level procedural knowledge on which to draw" (Hayes and Flower 1108). These goals have two qualities which render them useful in the production congruous thoughts: the goals are hierarchical, and they are dynamic. To produce a line of thought writers will "set up top-level goals that they develop with plans and subgoals.... The writer's goals themselves form a complex structure" (Hayes and Flower

1109). In light of their hierarchical construction of goals,
authors select parts of the thought world to present to
others. As writers progress through their piece, often they
rearrange their goals to allow for new ideas, thus the
dynamic structure of their goals. While writers read their
compositions, the arrangement of their goals "is built and
developed and sometimes radically restructured at even the
top levels" (Hayes and Flower 1109). Therefore, when coupled
with organizing, the dynamic nature of these goals and their
hierarchical structure, assist the writer in establishing
congruity in their thinking.

However, establishing congruity involves not only
organizing and goal setting using strategic knowledge, it
also employs schemes that guide the meaning makers'
production of text. Procedural knowledge, used in developing
successive interwoven ideas, provides individuals with means
to reach their rhetorical ends. While not specifically
indicated in Hayes' and Flower's 1986 article, procedural
knowledge appears to be similar to procedural plans outlined
in their 1981 work "Plans That Guide the Composing Process."
Procedural knowledge is the "employed plans for transforming
the vast network of ideas into a written paper" (46).
The directions writers give themselves in order to transfer
their thoughts onto paper are guided by three types of plans
in writing: "forming for use, reader based, and product
based plans." When meaning makers ask themselves "what to

use (out of all the available language and ideas already generated) and how to use it," they are "forming for use their schema" (Flower and Hayes, "Plans" 47). In planning which information to include in their paper and in what order, writers form a line of thought from their collection of thoughts. Other "plans appeared to be based on an awareness of an imagined reader and involved a strategy for communicating with the reader," hence reader-based plans (Flower and Hayes,"Plans" 48). Using these types of plans, meaning makers pose questions to themselves that reflect an awareness of the audience: "Will they already know this?," or "Is this convincing?" Experienced writers tend to use both types of plans in developing congruous thought for their paper. Product-based plans, the final component of procedural plans under the category of goal setting, incorporate parts of the two previous plans to a lesser extent; product-based plans concern the final draft of the paper. Unfortunately, when these product-based plans are employed before the other two, the creative, dynamic process of composing is stymied: i.e., "I need an introduction before I can write the body" (Flower and Hayes, "Plans" 48-51). All of these plans facilitate the establishment of congruous thinking because they outline methods for reaching the goals.

In short, both readers and writers benefit from an understanding of procedural knowledge. If meaning makers

understood that they are required to discuss and assimilate the text in relation to an idea, then they have some purpose for reading. Moreover, they have a goal for their reading, a goal dictating what information to look for, and a goal that establishes how new information is connected to the old.

Overall, cognitive reading and writing research bolsters the notion that establishing congruity in ideas from a thought-world belongs to both reading and writing processes. Since individuals build a train of thought by organizing, setting goals, and making plans, then students will gain metacognitive awareness of this if they receive instruction.

POSSIBLE PEDAGOGICAL IMPLICATIONS OF FORMING CONGRUOUS

THINKING AS A TYPE OF METACOGNITION:

Self interrogation and models of its use.

While organizing and goal setting seem to be facile

tasks, readers and writers who are dealing with complex

thought-worlds may not be able to mentally step far enough

away from their thinking in order to organize and goal set.

They may be so involved with their thoughts and feelings

that they can't objectify their body of thought enough to

analyze it. Students tackling the task of formulating

successive, interwoven ideas--establishing congruity from

their body of thoughts--require instruction in the

metacognitive strategy of self interrogation. With self

interrogation as a metacognitive skill, students effectively

guide their meaning making process (Brown and Campione 1990,

Brown 1980, and Garner 1987). Still, very few students

question themselves and rely on the instructor to guide and

challenge their thinking through questioning. Students who

ask themselves questions about their thoughts organize and

set goals better; they direct their own thought processes.

In establishing congruity in thinking, students first

need to clarify the task by asking themselves "what is my

task; what do I need to do?". Clarifying the task and

awareness of task representation are valuable tools for

superior performance in writing as well as reading (Flower,

"Task" 4). In fact, clarifying the task as a part of

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metacognition bolsters students' meaning making process:

Brown and Campione find that "clarifying the purposes for

reading, i.e., understanding the task demands both explicit

and implicit" is one skill "intelligent novices possess [in]

a wide repertoire of strategies for gaining new knowledge

from texts" (5). When reading, students self interrogate to

clarify the information the teacher explicitly asks them to

examine: "What parts of this chapter do I need to pay

special attention to? How critically should I read this? Can

I read it quickly to get the gist?" Likewise, students ask

themselves questions to determine the implicit demands of

the assignment: "Will I be expected to point to specific

quotes to support my reading?, Will I need to know the exact

definitions, or can I put them into my own words?, Is this

additional reading for my benefit, or will I be tested on

this?" Clarifying the task of the reading assignment helps

students set goals which direct their reading and helps them

form congruous thinking about the text. In other words,

students will be able to form successive, interwoven

thoughts about the text because they know which information

to retrieve from the text. As soon as students ask

themselves questions to clarify their task, they grow in

metacognitive awareness. Students who self interrogate for a

writing assignment exert a metacognitive strategy that

facilitates their choice of information from their

thought-world.

Since clarifying the task of the literacy act is
important, teachers aid students in developing congruity in
thinking by asking the students to report their
understanding of the task. When students turn in their
papers, they write their understanding of the task in an
abstract on the front page. This forces the students to
reflect on their knowledge, and, in tandem, teachers glean
useful pedagogical assessment. If students represent the
task in a way the teacher hasn't intended the task to be
performed, the teachers could take corrective action and
restructure their instruction accordingly.

Since students organize and set goals depending upon
their task representation, clarifying the task is key to
establishing successive, interrelated thinking from the
thought-world. Organizing and goal setting help students
select which information from their body of thought to
present, why to present it, and in what order to relay it.
Students who have difficulties deciding on a topic for their
paper or creating a line of thought when they have the topic
benefit from specific instruction in self interrogation.
Students need to ask themselves questions concerning their
purposes for reading and writing.

To teach self interrogation three possible teaching
strategies ranging from the least student-centered, to the
most student-centered suggest themselves. Teachers directly
assign three questions students are required to ask

themselves when they feel that their ideas are wandering, or that they have just too much to say: "Which information should I include?," "Why should it be presented?," and "In what order should it be presented?" Exercises should be assigned to students to give the students practice with these self interrogation skills. This teaching strategy works best in composition classrooms when students move from generating to creating a topic for their paper. With every paper given, students refer back to these questions until the self interrogation process becomes a skill unconsciously applied to their writings. Of course, this pedagogy assumes the students have achieved a level of self direction already. Further, students have to assess what they know in order to apply these questions.

If the students need more instruction in achieving a line of consistency through self interrogation, the second and third methods of teaching both consist of modeling self interrogation skills. Two styles of modeling self interrogation to form a consistent line of thought from a thought-world are particularly effective. The teacher first establishes the utility of the strategy by thinking aloud "about how the strategy is applied and how it is evaluated, and would finally discuss when and where the strategy is most useful" (Garner 132). A classroom situation where the teacher helps the students establish congruous thinking

begins with the teacher describing the usefulness of
interrogation:

> Asking yourself questions about what you're
> attempting to do in reading and writing will give
> you a way to organize the information and a way to
> make plans for achieving this organization.

The instructor then thinks aloud about the applications of
self interrogation in light of the current assignment:

> For example, we've been discussing and reading about
> causes and treatments for schizophrenia. Our essay
> question asks me "to argue for or against the
> 'medical model' of schizophrenia." Now, I know lots
> of information about this, so much that I feel
> uneasy about about where to start. So I'll ask
> myself: 'Given this assignment, what information
> should I include?' I decide to include Szasz'
> argument because I believe we shouldn't label
> mental illness as a disease. Then I ask myself: 'Why
> should I include these ideas?' I say because it
> supports my belief that mental illness is a
> metaphor. I continue on: 'what else should I include
> and then what?' Pretty soon I've decided on what I
> want to write about. Next I'll ask myself: 'What
> order should I place all these ideas?' I figure I
> want my strongest idea last so the reader will

remember it, then ideas 2, 1, and 4 will come

before this..."

The instructor just modeled one way self interrogation helps

her move from a thought-world to establishing congruity in

her thinking with primary and secondary ideas. Next the

instructor summarizes the strategy's application,

emphasizing when and where it's useful. She continues:

I've just shown you how I would ask myself

questions that help me hone the ideas I want to

present and why I want to present them. Asking

yourself questions like this will help you in

reading and writing, whenever you have to organize

your ideas. Next, take out a sheet of paper and put

these questions at the top: "what should I include?

Why should I include these ideas?, and in what order

should I place these ideas?" Answer them in any form

you want (outline, clustering, free writing).

Modeling the metacognitive skill of forming a train of

thought using self interrogation, and then asking students

to employ it offers students the opportunity to develop

their own metacognitive skills. With self interrogation, the

meaning maker decides which information to include and

exclude, and in what order this information should be

stated: thus meaning makers establish congruity in their

thinking.

However, this modeling technique still asks students to be primarily receivers of information, passive learners. Another form of modeling a metacognitive skill includes both this sophisticated method and the contrastive method of instruction to foster students' active learning.

In the third and final method of teaching self interrogation, the teacher presents both good and poor methods of self interrogation. The student learns the better strategies by comparing the two. In this third teaching method of self interrogation "both a sophisticated form and a very immature form of the strategy under consideration would be presented via think alouds, and their relative effectiveness would be assessed by the class. This type of modeling self interrogation benefits students who need remediation at a substantial level. Because the contrastive method asks students to think about and assess the strategy of both good and poor reader and writers, the interaction with the strategy is placed in the students' hands earlier. Of course, this type of modeling requires more class time than the other two. If the class has the luxury of time and needs deeper contact with self interrogation, the teacher might opt for the third, contrastive model of this metacognitive skill. If the teacher has enough time and the class enough need, the sophisticated model might be best. Or, if the class moves quickly and has strong learners,

perhaps the first, more directive model outlined will work best.

Establishing consistency in thought by employing self interrogation demands students objectify their cogitations that much more. Self interrogation asks students to create the voice of another and hold a mental conversation with their other (the questioner) and themselves (the answerer). When students develop an inquisitor voice, they consciously control their thought-world; they become metacognitively aware.

In sum, by comparing the cognitive processes of reading and writing, the overarching process of forming congruous thinking emerges as an impetus for metacognitive development. The pedagogy outlined necessitates that reading and writing fuse under the guidance of self interrogation: the questions readers and writers ask themselves are basically the same. The organizing, goal setting, and planning that result from self interrogation are additional processes which overlap both reading and writing. Of course, the process of reading and writing is much more detailed and intricate. In both literacy acts, other cognitive processes, namely anticipation and retrospection, and filling in the gaps of incoherent sentences, point out the minute cognitive workings of readers and writers.

CHAPTER THREE: PART ONE

AN OUTLINE AND EXAMPLE OF INTERSENTENCE COHESION; PART TWO:

THE OVERARCHING COGNITIVE PROCESSES OF EXPECTING, RECHECKING

AND FILLING IN THE GAPS OF TEXTS; PART THREE: CONSIDERATIONS

IN FORMULATING A PEDAGOGY.

INTERSENTENCE COHESION: Each sentence has a mutual

   relationship with preceding and subsequent sentences.

   Intersentence cohesion makes it possible for people to

connect sentences together to create meaning. Sentences must

contain a mutual relationship in meaning before people can

glean information from them. When sentences cohere, readers,

through a process of rereading and anticipating the text,

begin to build thought-worlds about the text. This section

delineates how sentences work together by examining Wolfgang

Iser's reader-response literary theory, cognitive education

research and cognitive composition theory. After exploring

the mechanics of intersentence cohesion, a discussion of

possible applications and obstacles in instruction follows.

   For readers, intersentence cohesion initiates the

creation of thought-worlds. Iser describes cohesion between

sentences as the impetus for readers' meaning making

process. He refers to "intentional correlatives" that

"disclose subtle connections which individually are less

concrete than the statements, claims, and

observations..."(Iser 54). Correlatives in sentences and phrases, when linked together by meaning makers, form a particular world in a literary work. Correlatives represent the mutual relation each sentence has with those sentences preceding and following it. Intentional correlatives "set in motion a process out of which emerges the actual content of the text itself" (Iser 53). As people read, they connect what they previously read to the sentence they're currently reading. Meaning broadens as readers continue through the sentences.

In the process of reading, people look for words, phrases and sentences that begin to represent the entire picture of the work. The individual sentences that readers encounter "not only work together to shade in what is to come; they also form an expectation in this regard"(Iser 53). As readers put sentences together and see their interdependence, they form expectations for upcoming text. Cohesion between sentences begins when each sentence connects to the previous. Readers expect information from the first sentence to logically connect to the information in the second sentence. That is, readers wouldn't expect to read, "she's riding a bike," followed by "rain rusts metal." Weather wasn't mentioned in the first sentence, so the reader wouldn't have expected to see weather described in the second sentence. These two sentences have some cohesion if we assume the female is riding her bike in the rain. Yet,

the sentences don't cohere together well and speak to separate ideas.

In short, in order for readers to create the meaning of text, the they compact and store information obtained from the text until another sentence is read. This new sentence will shed a different light on the stored sentence "with the result that the reader is enabled to develop hitherto unforeseeable connections" (Iser 54). The process repeats itself with every new sentence. The readers create meaning from the text making these connections. However, these connections are possible only insofar as the sentences relate to each other. Uncohesive sentences jar readers because these sentences violate the rules of written language.

Cohesion between sentences relies on a complexity of rules governing the making of meaning. Intersentence cohesion in "the written language system operates by feeding into a common data pool from which the language user draws when constructing the text world" (Kucer 34). When readers encounter words on the page they automatically employ the rules of the language system that dictate the organization of information. Readers and writers make sentences cohere because they "have knowledge of the uses or functions which written language serves, as well as the organizational patterns to which texts must conform" (Kucer 34). Rules for

the organization and function of language guide cohesion;
they govern the expectations of upcoming text.

Readers understand whether or not sentences cohere
based on these rules. Based on individuals' schema,--their
complicated structures of data created from previous
experiences with the world--readers expect certain
information to be presented after every sentence. Readers
form these expectations based on two types of schema:
"content" and "textual." Sentences trigger "readers'
existing knowledge of objects and events, what have been
called 'content schema'" (Garner 9). Because of readers'
content schema, they would not expect to read sentences such
as: "The day was clear," followed by: "He made himself a ham
and cheese melt." Since these sentences describe unrelated
events, readers don't anticipate the second sentence to
follow the first; these sentences lose their cohesion. The
events described in each sentence clash with the readers'
knowledge of the world.

Readers also have textual schema which dictate rules
governing the organization, format, and requirements of
certain types of writing: for example, because of readers'
textual schema, they understand that paragraphs are indented
five spaces in academic writing, but not in business writing
or poetry. Since readers "also have knowledge of discourse
conventions or 'textual schemata,'... they have expectations
about what they will encounter when they read stories,

personal letters, research reports, or telegrams" (Garner 9). Textual schemata prescribe where the required information should be placed in order to accomplish the rhetorical task. Likewise, a topic sentence of a paragraph, followed by another topic sentence, as opposed to development, would not create cohesion in the readers' mind. When this expectation is unmet, the uncohesive sentences fail to cue readers into comprehension. Cohesive sentences satisfy the readers' expectations stemming from readers' content and textual schema.

Intersentence cohesion evolves when sentences satisfy expectations created from previous sentences. As readers connect a progression of cohesive sentences, they continually hone their understanding of the text. In their article "Toward a Composing Model of Reading," Tierney and Pearson discuss drafting or "the refinement of meaning which occurs as readers and writers deal directly with the print on the page" (36). From cohesive sentences, "the current hypothesis [readers or writers] hold about what a text means creates strong expectations about what succeeding text aught to address" (36). The readers hold hypotheses, expectations for upcoming text, and with each successive sentence their drafts of meaning realign according to the information presented or withheld in the next sentence. When the text fails to satisfy the expectations created by the previous sentences, readers disregard the text.

The extent to which intersentence cohesion allows readers to connect sentences together and draft meaning depends upon the type of prose. The cohesion of the sentences found in fiction differs from cohesion found in academic writing. Imaginative prose leaves more expectations for readers unmet which readers fill in using their imaginations, while academic prose attempts to satisfy all of the expectations of the audience. "Expectations are scarcely ever fulfilled in truly literary texts.... Strangely enough, we feel that any confirmable effect--such as we implicitly demand of expository texts-- ...is a defect in a literary text" (Iser 53). Again, intersentence cohesion arising from the stringing of sentences together creates expectations in the readers. These expectations are purposely not met for the reader of fictional prose. If all sentences in fiction cohered, readers create very little meaning because their being told the text as opposed to shown the text. "Writers do not need to tell readers everything," Garner asserts, "for readers connect text events and fill slots with assumptions based on general knowledge of the objects and events discussed" (118). In reading, different types of prose fill various levels of readers expectations. The rules of academic prose mandate that the readers' expectations be filled to a greater extent than in fiction or poetry. And when academic prose frustrates expectations, the meaning is lost; the paper's

said to be unclear, incoherent. Consequently, the amount of intersentence cohesion varies from one type of prose to the next.

Each type of prose produces different expectations in readers regarding the amount of intersentence cohesion the sentences contain. To demonstrate, readers of poetry understand, before they even begin reading the text, that the lines will have a minimal amount of cohesion. Rules outlining the quantity of cohesion between the sentences control each type of prose. Kucer speaks of the readers' confusion when reading texts that fail to satisfy the "implicit allowability contract between the reader and writer.... When either the reader or writer violates this communicative contract, meaning will be lost" (34). The communicative contract refers to the information language users implicitly bring with them when they engage in the text. When sentences fail to satisfy the expectations of the reader, the writer breaches the cohesion contract and the meaning is lost. Tierney and Pearson also find that when readers' expectations are frustrated the meaning making process is forsaken. "So strong are these hypotheses,... these drafts of meaning a reader creates that incoming text failing to cohere with them may be ignored or rejected" (Tierney and Pearson 36). Again, in some types of prose, the expectations created by the intersentence cohesion purposely frustrate readers' anticipations as part of the genre.

Intersentence cohesion, communicative contracts, and drafts

of meanings all refer to sentences coming together to form

expectations of upcoming text.

Intersentence cohesion exists in the readers' minds;

readers must think about the sentences in order to

understand how these sentences relate to one another.

Readers need the ability to anticipate and retrospect in

order to create cohesion and meaning from the sentences.

While anticipation is the ability to predict upcoming

information, retrospection necessitates readers to look

back, or reflect, on previous text. Anticipation and

retrospection occur hand in hand: readers continually

retrospect and anticipate. Rapidly, perhaps even

unconsciously in experienced readers, readers use these two

processes to bring the sentences together. (The idea of

bringing meaning to a text, instead of meaning residing

solely in the text, is in keeping with a hallmark of

post-structural literary criticism: meaning does not exist

solely in the text, but rather is created by readers who

interacts with the text.)

Considering how the sentences of the following passage

relate to each other will exemplify these theories of

reading.

> 1. The eight of us bike riders always looked forward
>
> to the summers in Corning, New York. 2. Our gang,
>
> "The Riding Chones," had mostly seventh and eighth

graders in it, but we never excluded sixth or ninth

graders. 3. Our territory included all of Irish Hill

from Monkee Run creek, south to the Chemung river,

east to St. Mary's church, and as far west as

Mountainbrow Apartments where I lived. 4. Mika

Uchida worked in her mother's Japanese restaurant,

the Kifune.

Sentence 1 establishes expectations in the reader. Readers

might wonder why summers were looked forward hoped for, who

were in the group, what the name of the group was, and/or

how old the group members were. The reader probably wouldn't

be wondering if they ever road skateboards, ate ice cream,

or if they ever sang songs from The Sisters of Mercy because

the content of sentence 1 establishes other expectations.

Sentence 1 initiates an idea while at the same time limits

the shape of future information. Sentence 2 in part answers

who was in the group, the name of the group, and how old the

group members were. Sentence 2 further introduces

possibilities for following information: readers might see

in sentence 3 why they "never excluded sixth or ninth

graders," where they rode, and/or what they did when they

rode. Sentence 3 satisfies the expectation of where they

rode but creates even more expectations in the reader.

Most readers aren't aware of their expectations when

they're reading until they come upon a sentence like

sentence 4 that frustrates the anticipations established by

the previous sentences. From sentence 3, the reader might expect information concerning how often they rode, why they looked forward to riding, who exactly was in the group, and/or what they did when they road. But their expectations are frustrated when they instead receive totally new, almost completely unrelated information about Mika Uchida.

In sum, produced under social contracts, every succession of sentences demands cohesive links. Intersentence cohesion affords readers opportunities for creating and adjusting meanings as sentences unfold. Readers, unconscious of doing so, anticipate and recheck cohesive sentences. Yet, so often, our written texts lack cohesion, and readers falter through disjointed prose seeking connections. The dynamic nature of anticipation and retrospection comes to light when readers and writers fill in the gaps of their uncohesive texts. The crucial notion of filling in the gaps illuminates just how how readers and writers employ anticipation and retrospection to create meaning. The pedagogical implications of these notions emerge as the rest of this section builds on the notion of intersentence cohesion.

CHAPTER THREE: PART TWO

MAKING CONNECTIONS: When uncohesive sentences frustrate

    meaning makers' expectations, readers and writers use

    their own meaning making faculties to connect the

    sentences together.

As suggested earlier, the process of reading begins

when individuals progress through the text; they connect

previous sentences together with approaching text. Readers

mentally hold the information from prior sentences and refer

back to those sentences to understand how new information

relates to the old information. The content of the old

sentence in turn creates an expectation of what will follow

in the next sentence. When readers expect that certain data

will appear in subsequent sentences, they anticipate the

text. When two sentences don't cohere, these sentences have

a gap in meaning that readers or writers fill using

anticipation and retrospection. Iser's literary criticism,

education research and composition theory will be

triangulated to demonstrate how readers create cohesion

between sentences by filling in the gaps. Metacognitive

awareness of how sentences interact fuels a meaning makers'

abilities to incorporate new information with old and to

monitor their own meaning making progress.

When people read a sentence, they expect certain information to follow in the subsequent sentences; they anticipate the text. "The process of anticipation and retrospection itself does not by any means develop in a smooth flow... [because] literary texts are full of unexpected twists and turns and frustration of expectations" (Iser 54-5). Readers bring together meanings from two interrelated sentences by employing anticipation and retrospection. Whenever readers reflect on what they have read, whenever they utilize their knowledge of the previously stated text, they retrospect. From their retrospection they anticipate, or create expectations about the upcoming text. Because readers look ahead to new text, and because they recheck old text, they sense when sentences fail to cohere. Sentences have meaning only insofar as the reader is able to connect them and give them meaning, an idea also substantiated in reading and writing theory.

Readers connect sentences by employing anticipation and retrospection when sentences cohere. "The language user possesses a unified understanding of how written language operates," how sentences cohere (Kucer 34). "In the process of building such an understanding, the individual uses what is learned about written language in one literacy expression as available data for anticipating the form in which language will be cast" in the next selection of text (Kucer 34). When language users consider what has already been said

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or read, they automatically understand what to expect. Again, this process is automatic because readers have learned rules governing the cohesion of sentences. Readers fill in the gaps of sentences in literature, or demand clarification from the writer of academic prose, whenever their anticipations are unfulfilled. Meaning makers establish cohesion between uncohesive sentences by creating the information needed to fill in the gaps.

Any gaps in the text disappoints readers' expectations. Readers become more involved, sometimes even confused, by the text "whenever the flow is interrupted and [they] are led off in unexpected directions, [then] the opportunity is given to [them] to bring into play [their] own faculty for establishing connections--for filling in the gaps left by the text itself" (Iser 55). Readers fill the gap left by uncohesive text using their imagination. However, depending upon the type of prose of the piece, the author of the text is predisposed to fill in the gaps for readers in varying degrees. Being expected to fill in the gaps for their audience in academic discourse, writers must accurately represent a train of thought for their reader to follow.

Depending on the meaning maker and the genre of the text, gaps may be filled in various ways.

> Each individual reader will fill in the gaps in his
> own way, thereby excluding various other
> possibilities; as he reads, he will make his own

decision as to how the gap is to be filled

(Iser 55).

Each set of interrelated sentences limits the amount of information presentable to the readers. Therefore, readers, through their own anticipation and retrospection, create the meaning not explicitly stated in the text using their own background knowledge and world outlook. Thus, the dynamic process of filling in the gaps works to create a thought-world because every gap filled broadens the body of thought created for the text.

Active readers who are very good at filling in these gaps create the whole understanding of the text. Readers interact with the text using their own wits to create meaning from the uncohesive sentences. "What drives reading and writing is this desire to make sense of what is happening--to make things cohere.... The reader accomplishes that fit by filling in gaps (it must be early in the morning) or making uncued connections (he must be angry because they lost the game)" (Tierney and Pearson 37). Readers realign their understanding of the text as they fill in the gaps of uncohesive sentences. As they move through the piece, their interpretation of the text grows and shifts with every new gap filled. Readers delineate the message of the text for their "own purposes and... mobilize background knowledge which will support an interpretation of the text" (Kucer 34). By employing their own knowledge to support

their understanding of the text, their own meaning making faculties help fill the gaps of uncohesive sentences. Using anticipation and retrospection readers put themselves into the text by filling in these gaps.

Like readers, writers also fill in the gaps of their uncohesive sentences. Translating, the cognitive process that enables writers to encode thoughts onto the page, relates to the process of anticipation and retrospection. Text composed during the translating action has two features:

>1. Characteristically, it is in the form of complete sentences, and 2. It is often associated with the protocol segment that contains an interrogative reflecting search for the next sentence part, e.g., "Rousseau did what?" or, "How do I want to put this?" (Flower and Hayes "Identifying" 15-16).

During translating, the inquisitor voice prompts writers to fill the gaps of their sentences as they anticipate which information readers need. Writers shape the content of their self interrogations with an eye toward their goals and plans for establishing congruous thinking in the piece. Often times, writers reread their writing, rechecking where it has been, in order to locate unfilled gaps. Once writers identify gaps in their writing, they revise. Translating, then, requires the background knowledge of how the sentences work together to create meaning. Translating also requires

the ability to mentally step away from the writing in order to view the piece through the eyes of readers: translating requires metacognition. Once writers translate, using anticipation and retrospection, they fill in the gaps of their writing.

Remembering the purpose of their paper and their audience, writers recheck their writing to assess how their sentences relate to each other, making sure they've left no gaps in meaning. Writers fill gaps when they edit and revise. While they fill gaps, they retrospect "to detect and correct violations in writing conventions and inaccuracies of meaning and to evaluate materials with respect to their goals" (Flower and Hayes "Identifying" 16). Once writers translate thoughts into prose, they return to their writing to assess how cohesive their sentences are. "These evaluations may be reflected in such questions as, 'Will this argument be convincing?' and, 'Have I covered all parts of the plan?'" (Flower and Hayes, "Identifying" 16). When authors find that where their sentences fail to complete their tasks, they return to those sentences and rewrite accordingly.

Writers employ two methods for making their sentences cohere: one type of editing fills in gaps created by an inaccurate use of language; the second type of editing fills in gaps created by incorrect grammatical usages. Writers understand they're bound to a communicative contract with

readers when they produce prose. When something as small as failing to capitalize the first letter of a sentence, or as large as failing to give the reader enough background about a subject violates this contract, writers return to their text and make corrections. Flower and Hayes observed a writer filling the gaps of the piece: "the writer recognized that the reader would not have sufficient context to understand the relation between... two sentences. To correct this fault, the writer constructed a small explanatory essay to insert between the sentences" ("Identifying" 18). This writer saw, through retrospection, that the sentences left a blank that needed to be filled.

Creating cohesion between sentences by filling in the gaps is a cognitive process both readers and writers use. Further, looking ahead to future text and looking back at past text is necessary for creating cohesion between sentences. Readers and writers employ their knowledge of the world, and their knowledge of the rules of discourse genres in order to create cohesion between sentences. Readers know what to expect from each sentence they read, and writers know what their readers expect from each sentence composed. While readers generally have more material with which to create cohesion, writers create new words and phrases that the audience eventually brings together. Anticipation, retrospection, and making connections by filling in gaps have possible advantages and limitations in their

pedagogical applications, the primary limitation being the

amount of objectivity writers require when rechecking their

prose for gaps.

CHAPTER THREE:PART THREE

Advantages and limitations of teaching anticipation, retrospection, and filling in the gaps.

Since both readers and writers retrospect, anticipate, and fill in the gaps, specific instruction about these processes might help meaning makers gain control of their information intake and output. The metacognitive strategy of text reinspection in reading includes "the intentional reassessing of portions of the text that provide information" (Garner 52). Readers recheck previous text when they're aware that they've missed information. Text reinspection to gain information rectifies "either an initial failure to comprehend information in text or forgetting this information" (Garner 53). College freshmen who were questioned about the reading they had been given and were told they needed to retrospect, answered more questions correctly than those students who weren't directed to retrospect. Conversely, college freshmen unaware of the usefulness of retrospection comprehend less (Garner 113). Students receiving instruction in retrospection consciously control their reading. Students who need at hand information from a text and students who need to demonstrate their comprehension of the text benefit from rechecking the text. Writers retrospect to revise by looking back at their texts to assess how well the sentences relate to one another to

form a train of thought for the paper. Writers, unaware of how other people read the text, compose writer-based prose. The sentences make perfect sense to the writers but actually contain numerous uncohesive sentences which leave many gaps to be filled by the audience.

Meaning makers who look back over their sentences to see how well they fit together should understand if their text fails to connect, assuming that readers and writers assess their texts when they recheck it. Unfortunately, writers sense that something isn't quite flush with their thinking but fail to identify the problem in the prose, and often times students will look back over their text, see that it makes sense to them, and stop their assessment. Students who experience these problems often say that they're "just to close to the text to see what's wrong." Indeed, meaning makers close attachment to their text hinders their ability to distance themselves enough to analyze the texts' flaws. Therefore, while rereading the text has many advantages, it has one major limitation: even when students know the utility of retrospection, their mental and emotional ties to the text obstruct their objectivity.

Text anticipation has similar advantages and limitations. This important strategy marks students' ability to read actively and critically. Anticipating upcoming text provides a valuable assessment of comprehension and "reveals

any inconsistency between a reader's expectations and information subsequently obtained from the text" (Nickerson et al 296). Students who anticipate the text actively read the text; they understand how each sentence builds upon the last to form the content of their comprehension. They see how new information relates to previous information. When the sentences don't relate, students who have formed expectations will either change their thinking, fill in the gap of the text, or ask for verification. Using anticipation, students understand how new information presented will add to the last.

However, students need to see the text as an object, as separate from themselves, to be able to anticipate where the text leads. This is no easy feat, though. People lose the division between themselves and the text rapidly because the reading and writing process is so automatic. Yet, as a metacognitive strategy, anticipation requires students to approach the text much more slowly than usual by predicting the content of each successive sentence.

In addition to the advantages and limitations of retrospection and anticipation, filling in the gaps, an important metacognitive technique for reading and writing, is difficult to apply because of the amount of objectivity it necessitates. Whenever students fill in the gaps, they "spontaneously [make] use of relevant background knowledge... [by] drawing and testing inferences of many

kinds, including interpretations, predictions, and

conclusions" which enable them to read critically (5).

Students consciously control how they fill in the gaps of

uncohesive sentences by asking questions of the text: how

does this idea connect to the last? and shouldn't this idea

lead to this conclusion? Students who self interrogate to

fill gaps read a text critically and increase their

comprehension. Readers can make sentences cohere using two

types of inferences:

> Trabasso (1980) distinguishes between "text
>
> connecting" inferences, in which readers find
>
> semantic or logical relations between propositions
>
> expressed in the text, and "slot filling"
>
> inferences, in which readers fill in
>
> missing information to make connections between
>
> events discussed in the text (Garner 118).

Because the students bring thoughts together by seeing the

relation between these thoughts, they create cohesion.

Students also fill in gaps of the text by connecting one

event with another. They understand texts better when they

use their own knowledge to make sentences cohere and

actively read and question the text when they're aware of

the meaning making process. While, "the meaning of both

sorts of inferences is considered to be mostly unconscious

process," some studies suggest that "explicit inference

strategy training and substantial practice in drawing

inferences" benefits poor readers; whereas, good readers "may figure out 'inference game' rules on their own" (Garner 118-19). Retrospection, anticipation, and filing in the gaps significantly affect the success of readers and writers. Unfortunately, these metacognitive skills seem to require a large degree of objectivity and mental distance from the literacy act, a distance not only difficult to achieve, but also difficult to teach.

CHAPTER FOUR

MEANING MAKERS USE ANTICIPATION, RETROSPECTION AND FILLING

IN THE GAPS INSOFAR AS THEY'RE ABLE TO OBJECTIFY THEIR

THINKING BY MENTALLY DISTANCING THEMSELVES FROM THEIR

THOUGHTS.

Anticipating, retrospecting and making connections, as previously demonstrated, are useful metacognitive strategies. These cognitive tools help meaning makers gain conscious control over their reading and writing process. Yet, students who are so entwined in their thinking and writing have difficulty mentally stepping away from their literacy acts in order to critique their thoughts and texts. Metacognition, the ability to think about thinking, differs from the ability to mentally step away from the thinking and see it from the point of view of another. The pedagogical applications of building a thought-world and establishing congruous thinking discussed in chapters two and three build a degree of metacognition: here, students direct their thought processes using organization and goal setting, among other strategies. While these require a degree of distance from the thought process, the distance necessary to metacognitively control anticipation, retrospection and filling in the gaps is greater. For students to gain conscious control over these strategies, they must see their texts and thoughts through the eyes of another. However, the

strong bond between meaning makers and their texts prohibits
the attainment of this distance. Because the text is part of
the thought-world, it's no longer an object. Consequently,
the pedagogical application of these skills is limited by
the extent to which students are able to distance themselves
from their texts.

As discussed in chapter one, texts and readers unite at
a significant level to create the world of thought. Readers
bring meaning to their text, and the text gives readers
information to help create the meaning; this mutual give and
take relationship bonds readers and their texts. Poulet, a
reading theorist, posits the same: "whatever I think is part
of my mental world. And yet here I am thinking a thought
which manifestly belongs to another mental world, which is
being thought in me just as though I did not exist....
Whenever I read, I mentally pronounce an I, and yet the 'I'
which I pronounce is not myself" (Iser 66). While reading,
readers enter the consciousness of the narrator, character
or author because they're reading the thoughts of another.
When they begin to do so, their own thoughts fade because
they're temporarily replaced by the thoughts of the author.
When people initially engage in a literacy act, the subject
(the person) and the object (the book, or the text) are
separate, but as people engage the text by anticipating,
retrospecting and filing in the gaps, the subject-object
division decreases. The feeling of being absorbed in a book,

or that there is no distance between oneself and the events described represents the phenomenon of losing the division between oneself and their text.

When the division between texts and students no longer remains, students experience difficulty trying to see their thoughts/text from any other point of view. But, to employ the metacognitive strategies of looking ahead in the text, reinspecting the text, and filling the gaps, the students must be able to perceive their text from the eyes of another. Researchers in education have developed teaching methods that move students away from their strong connections with the text, which enables students to read the texts from the perspectives of others. Since distance from the self precurses the employment of these metacognitive techniques, we need to address how distancing can be taught.

Indeed, distancing from the self has been taught with some success. "Newkirk (1982) and Boutwell (1983) have ... examined how young children learn to distance themselves from their writing and the effect of this ability on children's ability to distance themselves from what they read" (Kucer 36). Mentally stepping away from texts teaches children the ability to critique their own texts as though these texts belonged to someone else. When Newkirk's and Boutwell's research began, "experience and text were fused" (Kucer 36). Only "through writing conferences" were the

students able to "distance themselves from what they wrote, and the bonds between text and experience loosened" (Kucer 36). Children, with instruction, objectified their texts and took a mental step away from their experience: "rereading to evaluate the sense of what they had written, and rewording, deleting, and adding new information to clarify their meanings" slackened the ties between students and their texts (Kucer 36). The metacognitive skills of retrospection, anticipation and filling in the gaps can be applied only when meaning makers step away from the their interaction with the text by viewing their texts from other perspectives.

When writers and readers read their texts from different perspectives, they align themselves with the thinking of other people. In other words, they see their texts as other people would. Alignment in a literacy act includes "stances readers or writers assume in collaboration with the author or audience, and roles within which the readers or writers immerse themselves as they proceed with the topic" (Tierney and Pearson 37). Stances refer to the ways in which meaning makers interact with the author or the audience, either intimately, defensively, or objectively, and many shades in between. Referring to Hemingway's short story again, a reader could be sympathetic to Margot Macomber and could write a paper that antagonizes the audience-- depending on how the meaning maker chooses to

position herself. These stances include, among others, the role of analyzer or observer in a reading act, or the role of informer or persuader in a writing act (Tierney and Pearson 37-41). Both stances and roles depend on how meaning makers distance themselves from the literacy act; their stances and roles reflect choices made regarding how they present the thought-world and line of thought of their literacy act.

When meaning makers choose their stances on a subject, they create another way of seeing their thought-world. Donald Murray's article "Teaching the Other Self: the Writer's First Reader," describes the functions of the other self created by metacognizant students. This other self monitors the writing done so far, allows for the distance needed to assess the progress, and provides support in composing times of trouble (Murray 142). Murray's "other self" describes metacognition well, but fails to recognize the objectivity writers and readers need in order to view their texts from various perspectives. In asserting this, the distinction between metacognition and distancing from one's self must be clarified.

Metacognition differs from alienation from the self. Metacognition is the ability to monitor and direct one's own composing process; distancing from the self is the ability to mentally step away from the written text and view it from other perspectives. Knowledge of thought-world building and

establishing congruity offer students control over their meaning making process but don't require the ability to see the text from different perspectives; anticipation, retrospection, and filling in the gaps, however, require distance from the self, the ability to read the text from a different frame of reference. Meaning makers read the text from a different perspective, and rewrite the text after viewing it as their audience would.

Adopting different stances when analyzing a text calls for significant background knowledge. Students need a sketch of how others think before they understand how others fill gaps. A case in point: a student writes a paper on women's power in the work place hoping to convince legislators to pass an equal pay for equal work initiative. In order to predict how part of the audience will understand and contend with her proposal, she adopts the perspective of a biological determinist and reads her paper filling the gaps as this person would. As she reads, she locates problems in her argument and revamps her work accordingly. She then reads her paper from the perspective of a less progressive republican who believes women belong in the home, trying again to fill the gaps of her sentences as this "other" person would. This student needs to first understand how these other people think about the issue at hand in order to adjust her writing. She then objectifies her writing and

distances herself from her own thinking by aligning herself with the new frame of reference.

With these ideas in established, the pedagogical applications of anticipation, retrospection and filling in the gaps can be explored. In classes where reading is the primary source of information, students who adopt different stances fill gaps differently each time they read the text from a different point of view. If students presented with the theories behind deconstruction, reader-response, intertextual, historical, and/or formalism were asked to view the piece using each perspective, every student would read the same text differently every time. Each time students would read the primary text e.g. OTHELLO, they would have to distance themselves from it by selecting a perspective before they can fill in the gaps differently.

Perhaps the most obvious pedagogical application for anticipation, retrospection and filling in the gaps pertains to revision work in composing. Once writers have developed a line of thought from their thought-world, often they fail to assess how well they've filled the assignment because, among other reasons, they're too close to their prose. The first step to move composers into objectifying their own texts is to have them read other students' drafts, looking for uncohesive sentences. This gives students practice seeing where gaps are left, and also gives them a chance to see the topic from another's point of view. The teacher should model

anticipating and retrospecting for them by using one
paragraph as an example writing it on the board one sentence
at a time. With the writing of each sentence, the teacher
should ask "What do you expect to see coming next?"
Students answer based on both their content and textual
schema (Garner 53).

The teacher then writes the next sentence on the board.
This sentence could cohere to the first or not. For example
the first sentence could be "Thoreau lived near Walden
Pond." The students expect to see why he lived there, or
what he did. The next sentence could say "He worked in his
bean field, and discoursed with his neighbors." The teacher
should ask what expectations were filled, which requires the
students to retrospect. Upon retrospection, the students see
that the second sentence satisfies their expectation
regarding what he did there. One of the next few sentences
should frustrate their expectations such as, "Thoreau was an
American romantic author." This sentence, while related to
Thoreau, is different from their expectations because it
doesn't relay information about Walden Pond. The teacher
could then fill in the gap created by these uncohesive
sentences. Although there are many ways to fill in this gap,
one way might be to add that Thoreau wrote as well as worked
and discoursed to sentence two, then ask if this fills the
gap well. Students might add more to sentence three:
"Thoreau wrote "Civil Disobedience" and Walden, among other

works, and was considered one of America's greatest romantic authors."

After sufficient exercises in consciously controlling anticipation, retrospection and filling in the gaps, the teacher should reflect on the process, telling the students how this will make their writing clearer and more coherent. Then the students need to practice this with their own writing. They should examine their paragraphs sentence by sentence, always asking themselves what they expect to see. Students should, with practice, be able to move through this process as though they were reading their paper through the eyes of someone else. As they go through their paper anticipating and filling in the gaps, their intuition cues them as to where their reader will get lost in their ideas.

While anticipating, retrospecting and filling in the gaps are extremely useful for revision processes, they should not be employed until students feel that they have finished writing the paper. This distance from the self, when coming too early could severely hinder the writing process. The students may be so interested in getting their sentences to work together, in making their writing reader-based, they fail to generate and develop their ideas and become stymied.

CONCLUSION

The cognitive processes of creating a thought-world, establishing congruous thinking, and insuring intersentence cohesion have been extrapolated from substantial bodies of work in education, cognitive psychology, literary criticism and composition. Forging these connections necessarily compresses the theories of these fields into a theory of cognitive meaning making. The reduction of these theories is far from facile. Indeed, the theorists from each field, and even within the same field, often employ differing terminology to describe the same processes. While many more overlaps in the cognitive processes of reading and writing are left to be discovered, these commonalities are buried deeply within the discussions of each field. Thus, reducing and mutating these theories has been necessary to produce a conversation, a set of connections that may lead teachers to a pedagogy rich in meaning making, a pedagogy that unifies reading and writing. Even though the positing of these common cognitive processes may appear to slight the depth and breadth of research done in these fields, the formation of these connections produces possibilities in research and pedagogy.

To begin with, fashioning these common processes has produced a theory that takes the first steps towards explaining how metacognition develops. When students examine their use of language through the eyes of another, they

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begin to understand how their meaning making appears to their peers and their teacher. With practice, their circle of metacognitive awareness could widen to include the perspectives of other cultures and genders. They then may be able to consciously control and modify their thinking by appropriating various ways of knowing. To broaden their metacognition to such degrees would understandably require an extensive knowledge base. Yet, the potential for the employment of metacognition is waiting to be tapped. English language studies are just at the threshold of comprehending the development and function of metacognition as a literacy tool.

As the relationships between reading and writing point out the evolution of metacognition, the need for a pedagogy also suggests itself. Methods for teaching self interrogation, self monitoring, clarification of the tasks, as well as methods leading students to a self assessment of background knowledge were developed to aid instructors in the teaching and nurturing of their students' metacognitive skills. Moreover, criteria for modeling metacognition emerged: when modeling any complex mental strategy instructors need to introduce the strategy, telling what it is and how it is useful; they can then model how, when and where to use the tool. These teaching schemes were offered in a conscious effort to address the need for practical theories. Practical theories need not be an oxymoron. The

theories of reading and writing cited throughout this study have excluded to a substantial degree the very people needing these theories: the teachers. When scholars lose sight of the applicability of the theories they create, their research becomes exclusive and self indulgent.

As theorists begin to understand how metacognition is teachable, a whole new set of expectations for our students emerges, expectations that force them to take control of their language. In effect, we've broadened the definition of literacy. Literacy can no longer be limited to an acquisition of the most minimal amount of reading and writing ability. Instead, literacy comes to define a meaning making process that occurs on many different cognitive and social levels as people engage language. Literacy is being skilled at reflecting on how others form meaning. Simultaneously, literacy is the ability to assess and modify our own employment of language by viewing our meaning making through a number of filters.

Metacognition broadens our students' literacy by asking them to see their meaning making from social, cultural, textual, and disciplinary standpoints.1 To be as literate as possible, students should be able to understand their use of language in relation to their social motives, contexts and roles; culturally, students should not only understand how their own culture is affecting their perspective, but also understand how the culture of others affects their

interpretation of language; furthermore, students should be able to reflect on their own text production to insure they're completing the task; and finally, students must be aware of the conventions and topics discussed in a variety of disciplines. Metacognizant students are literate to the fullest degree, abundant in skills and knowledge. The exploration of connections between reading and writing has dealt language researchers the hand that includes metacognition, and with this ace we can up the literacy ante.

Upping the ante by broadening our definition of literacy will necessarily broaden our approaches to literacy studies. Literacy studies can take place wherever meaning is being made. Up until recently, researchers examining reading and writing because they're "working exclusively within a particular field," have researched "in a vacuum, content to ignore advances and accomplishments made by others in related areas" (Kucer 29). If we accept a broader definition of literacy, creating useful theories of meaning making will require us to incorporate the knowledge made in fields also interested in meaning making.

In the end, this study attempted to open doors: to connections between reading and writing, to metacognitive studies, to a broader definition of literacy and literacy studies, and most importantly, to open the door to students and teachers who engage in meaning making everyday.

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