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ABSTRACT

The reading/writing project described in this document examined the basic cognitive activities children engage in when reading and writing, involved 67 children from grades 3, 6, and 9, and addressed these questions: Since reading and writing both involve the development of meaning, is there a common language core, or routines, that children systematically use when they are reading and writing? How do these routines interrelate with one another? and, How do these routines grow in scope and complexity from grade 3 to grade 9? The chapters deal with the following topics: an introduction to language and reasoning; children's experience of reading and writing; parents', teachers', and students' views on literacy; children's sense of genre; the elaboration of ideas in story and report; making meaning while reading and writing; and students' awareness of what they do while reading and writing. The summary includes findings indicating that reading and writing tap similar processes and show strong correlations in the cognitive strategies called upon, and that across the school years children develop growing control of the linguistic and communicative forms, along with an enhanced awareness of the representational properties of their own interpretations and the meanings they symbolize. This document contains extensive tables and eight pages of references. Appendices include the following: (1) samples of reading materials used with the children; (2) aids for analyzing the structure of the readings and children's construction of meaning; (3) supplementary tables; and (4) the effect of childrens' mode differences (verbalized or retrospective). (EL)

Reading and Writing in School-Age Children:

A Developmental View

Final Report
National Institute of Education
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Acknowledgments

Many people contributed to the success of the project reported in this volume. Most important are the students who so willingly and gracefully participated in our study, their parents who took the time and interest to respond to our interviews, and their teachers who tolerated our frequent visits, questions, and interruptions. It is every bit as much their study as ours. I hope the findings reported here in some measure justify any inconveniences we may have caused.

The success of field-based studies such as these depend upon the keen professionalism and sensitivity of each research team member. Leann Parker carried the lion's share of the work through all aspects of the project, along with Pamela Downing and Richard McCallum. Our ordeal of data analyses and codings were lightened and enriched by the perseverance of Mary Sue Ammon, Fatima Badry, Margaret Boothroyd, Russel Durst, Brian Gong, James Marshall, Deborah Swanson-Owens, William Sweigart, and David White. Without their assistance we would still have tape recorders to our ears and myriad transcripts before us.

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"...books are like a picnic to which the author brings the words and the reader the meaning."

(Northrop Frye, Fearful Symmetry: A Study of William Blake Boston, 1967.)

Chapter One

Language and Reasoning: An Introduction

Reading and Writing

Reading and writing. Common enough words. Activities we use all the time. Skills even young children learn to master. Still, what do they mean? For me their richest interpretations center around three interrelated concepts: language, thought, and communication. Susanne Langer (1942) writes that

> ...language is, without a doubt, the most marvelous and at the same time the most mysterious product of the human mind....In language we have the free, accomplished use of symbolism, the record of articulate thinking; without language there seems to be nothing like explicit thought whatever. (p. 103)

She suggests it is inaccurate to view language as essentially communicative, and suggests rather that the

essence of language lies in the formulation of expressions and conceptions at a more highly symbolic and abstract level. Language is used to conceptualize experience, not to elaborate signals and symptoms; it is primarily symbolic, and only sometimes functions as a sign.

Although children's language develops under the influence of adult models, language is acquired not only for communicative purposes, but for an entire system of personal thought. The strength of language lies in its ability to transmit subtle intuitions and conceptions to others. Although these ideas are, in part, learned in specific contexts of communication, they also serve the more abstract symbolic functions that Susanne Langer describes.

I begin this volume with reference to Langer's work because it offers a somewhat broader basis for conceptualization of the intricacies of reading and writing than to simply accept any of the currently popular notions of the two as similar processes of communication, composing, or meaning construction.

How Meanings Develop

Iser (1978) helps to elaborate upon this sense of the intricacies of meaningful language use. In describing the process of reading a text, he considers it necessary to account not only for the text itself, but also for the thoughts and actions involved in the reader's response to that text:

The text offers different schematized views through

which the subject matter of the work can come to light, but the actuality of bringing it to light is an act of "realization" on the part of the reader.

The meaning is not completely identical with the text nor with the reader's realization of the text, and therefore must always remain "virtual." Interpretations and responses are properties neither of the text nor of the reader; the text represents the (idealized) potential that is realized during the process of reading.

The writer's plan begins with a communicative purpose and its path is marked by a range of specific guides which must be understood by the reader; the writer includes the instructions and the reader construes them. In this way, both reading and writing are perceived as meaning-building activities: the writer charts a course, the reader construes, constitutes, and builds. Both reading and writing need to be interpreted in light of the presuppositions underlying those acts. "To understand <u>is</u> to interpret" (Sontag, 1956).

In literature, the New Criticism moved attention away from representative meanings, toward the functions of the elements operating within each work. However, as Iser points out, a function is not in itself a meaning; it brings about an effect and needs to be studied and treated as such. Meaning, on the other hand, is experienced in its development--in its unfolding. Meanings change and build as the text unfolds, and as meanings are clarified and integrated they lead to interpretations and realizations. I

refer to these unfolding texts as "envisionments" (see Fillmore, 1981; Langer, in press-a, b) which represent the momentary text worlds that readers experience as they develop meanings through their reading or writing.

The project upon which this book is based began with this dynamically constructive view of reading and writing as meaning-making activities. A brief review of some of the more recent work that influenced the intellectual focus of the Reading/Writing Project follows.

Language Development

During the late 1950s and early 1960s some of the landmark American studies in the field of child development and child language (Bruner et al., 1956, 1976; Brown and Bellugi, 1964; Flavell, 1963; Menyuk, 1969) made us aware that along the way to reaching adult forms there are legitimate "child" forms of language and thought; natural and normal stages that eventually lead to the learning of adult forms, although they are different from them in many ways. Further, it became clear from the work of Piaget (Inhelder & Piaget, 1958), from the body of work accomplished at the Center for Cognitive Studies at Harvard under Bruner, and from the work by Piaget's American followers Elkind and Flavell, that it is unproductive to train children to reproduce adult forms. Although adult models are helpful components of the child's environment, training children to emulate these forms is not. Rather, an understanding of the child forms is necessary, as is the

opportunity for children to use and enlarge upon these forms.

There appear to be two distinct ways to look at child language. One sees the child as functioning with a faulty or primitive imitation of the adult system, in which case it is appropriate to judge a child's speech against an adult criterion. Yet, the radical shift in perspective brought about by the child language studies of 20 years ago requires us to analyze the child's system of language and thought as governed by its own rules which are qualitatively different from those of the adult. Although simpler and less powerful than the adult's, these child approaches are rule governed and systematic in their own right. To treat them as approximations of an adult system is to miss their essential character and to misjudge the significance of such major advances in child behavior as, for example, the overgeneralization of the regular formation of past tense endings for English verbs (producing runned instead of ran). Rather than backwardness, such errors signal major developments in children's learning of certain grammatical regularities, although they have not yet learned the exceptions to those grammatical rules.

While this research has been of critical importance in the educational and child development studies that have followed, it is surprising to find the developmental aspects of learning so completely absent in recent work regarding reading and writing.

The Expert/Novice Paradigm

During the past decade, a number of researchers have compared the differing strategies used by expert and novice readers and writers in order to provide a broad characterization of the nature of reading and writing skills. There have been several versions of such studies: some have focussed on adults with differing degress of experience and skill (the original and most clearly conceptualized version of the expert/ novice distinction), some have contrasted younger and older learners, and some have looked at higher and lower achievers at one or more ages (Markman, 1979; [illegible] 1977; Flower & Hayes, 1980; Perl, 1979). The results of these studies have been very useful. They have increased our understanding of the various processes at work in reading or writing, and have made it clear that any attempt to specify stages in a reading or writing experience will misrepresent the highly complex, recursive processes people actually engage in when they read or write (Bereiter & Scardamalia, in press; Flower & Hayes, 1980 a,b; Perl, 1979).

But in recent work, the expert/ novice distinction has lost focus. The helpful distinction among endpoints (of what constitutes knowing and not-knowing within a particular area of competence) has blurred, and the expert/novice contrast has become a model of the developmental course of reading or writing processes. This distinction is subtle but critical: the problem of what constitutes knowing does

not tell us how that knowledge is best-- or even usually-- acquired, and extrapolating from the endpoints to a model of development or acquisition is likely to seriously distort the learning process. Even in cases where the researchers have been aware of this distinction and interpreted their results appropriately, later readers-- those who cite the research-- often treat expert/novice differences as studies of the developmental process.

When our concerns switch from expert/novice distinctions to the developmental course of learning, what becomes critical is a thorough understanding of how children learn, and how children's approaches change and develop along the way to becoming mature readers and writers. This is not to say that we have exhausted the usefulness of the expert/novice distinctions in our studies; but the developmental issues have hardly been looked at, and these are critical for those of us who wish to make a difference in schooling.

A number of researchers have been studying the reading, writing, and language behaviors of young children. Harste, Burke, and Woodward (1983) have found that by the start of first grade children use organizational structures that clearly mark genre. Much before grade 1, children's written work clearly resembled the surface forms of stories, letters, maps, and lists. King and Rentel (1981, 1982), in their longitudinal study of coherence in children's writing, found that by the time children enter first grade, they have

a fundamental understanding of the various cohesive devices that hold a text together, and that such knowledge varies by genre. In addition, by the time they begin formal schooling children have learned the underlying structure of stories (Applebee, 1978, Stein & Glenn, 1979). Bissex (1980) describes how, in her son's early development, writing preceeded reading and how exposition had its place in the functional messages of his youthful communications. Dyson (1982) explores ways in which four to seven year olds make sense of reading and writing. She suggests that writing serves as a thought-generating activity that assists children in their understandings of language. Further, when children read their own writing, the conncetions between the two language domains become explicit. These explorations of what children do know, combined with the rich research on the invented spellings of young children (Henderson, 1981; Read, 1975), stimulated the present inquiry into children's knowledge of reading and writing, and how these function as the child gets older.

Reading and Writing Research

The early 1980s saw renewed interest in the interrelationships among language skills; a flock of studies and instructional articles began to deal with reading/writing relationships, as well as with oral/written differences. Because reading and writing can be conceptualized as language activities which emanate from a common conceptual core, a few researchers have begun to

investigate the relationships between reading and writing (Flower & Hayes, 1983; Graves & Hansen, 1983; Olson, Duffy & Mack, 1980; Olson, Mack & Duffy, 1981; Shuy, 1980; Tierney, LaZansky, Raphael, & Cohen, in press; Tierney & Pearson, 1983; Pearson & Tierney, 1984). All are attempting to better understand the roles of the writer and the reader. Olson is investigating the principles that writers and readers use in constructing story and essay meanings. Tierney et al. are examining readers' perspectives of authors' intentions and the effects of communicative modes on discourse structure. Tierney and Pearson are looking at both reading and writing as "composing" processes, and are attempting to develop a model of composing that is based on the meaning-generating relationship between the two domains. Flower and Hayes (1983) are investigating reading processes in light of their strategic model of writing, and Graves and Hansen (1983) are investigating relationships between reading and writing in the classroom context. Each of these investigators is, in some way, examining the cognitive processes which operate when readers and writers are engaged in somewhat similar tasks. Each investigator reflects the growing interest in understanding ways in which children and adults use language, how language use is similar or different in use across domains, and how the strategies used in one domain inform cognitive decision-making in the other domains.

Stotsky (1984), in a comprehensive review of research

on reading and writing relationships, shows that correlational studies have indicated "almost consistently" that better writers tend to be better readers, better writers tend to read more than poorer writers, and better readers tend to produce more syntactically mature writing than poorer writers. Experimental studies which have taught writing or used writing exercises primarily to improve writing have not found significant effects on reading. Yet almost all studies specifically aiming to improve reading comprehension or retention through writing activities have found significant gains on reading.

Unfortunately, much of the recent work has suffered from a lack of a firm conceptualization of the phenomena under study-- it has, for the most part, attempted to make comparisons and contrasts across the domains before understanding (or specifying) the ways in which those behaviors differ based on their real-life contextualization. The challenge for studies into the relationships among reading and writing is to embed the investigations within a broader view of the differentiation of a variety of language functions, and the use of strategies that are appropriate to the particular tasks. With this in mind, the research issue becomes one of understanding the personal histories, and with them, the linguistic and cognitive resources available to individuals and ways those resources are used in different contexts of language use -- whether reading, writing, speaking, or listening.

A review of the current literature indicates three

directions the research has taken. One body defines reading and writing as related processes (Chall & Jacobs, 1984; Page, 1974; Shanahan, 1980). A second body of work conceptualizes the two as composing processes (Calkins, 1983; Tierney & Pearson, 1984, 1984; Petrosky, 1982; Atwell, 1981; Graves & Hansen, 1983). The third body of research moves beyond the composing process to a socio-developmental view of reading and writing as processes of meaning-making and the communication of ideas (Harste, Burke, & Woodward, 1983; Bissex, 1980; de Ford, 1981; Teale, 1984). This third focus, still in its infant stages, requires that research issues be anchored in the multiple contexts in which reading and writing occur, and is surely the direction needed before instructional issues can be addressed in any meaningful way.

The Development of Systematic Strategies

Although many of the earlier studies of reading or writing may have been too narrow in their view of development itself, the studies undertaken for the Reading/Writing Project grew out of and depend upon the previous work; they simply push in different directions.

One of the most productive areas of recent research has focussed on metacognitive processes in reading or writing--in particular, on the development of cognitive strategies and the use of self-regulatory mechanisms to monitor comprehension and mastery (Bransford, 1979; Brown, 1978; Flavell & Wellman, 1977; Markman, 1978). Two consistent

findings emerge from this research. First, young children (or poor achievers) have fewer task-relevant strategies to organize and transform information. They are also less aware of aspects of the task and of the strategies that affect performances (Brown, 1978). These deficits in strategic awareness are highly correlated with poor performance on comprehension and problem-solving tasks. Novices seem not to know enough about their own abilities, the requirements of the task, or the effectiveness of the various strategies (Brown & Deloache, 1978; Flavell, 1978).

Flower and Hayes (1980a,b) have found that good writers formulate their own task goals and develop a structure of subgoals which shapes their work. Effective readers also have some awareness and control of their cognitive activities when they read. Baker and Brown (1980) describe the metacognitive problems encountered by immature or low achieving readers. These fall into two categories: 1) self-awareness or reflection on one's own cognitive processes and 2) self-control or the use of self-regulatory mechanisms.

In addition to the metacognitive skills described above, reading and writing tasks also require awareness and use of certain kinds of linguistic knowledge (Applebee, 1982). Stories, for example, have been described by formal grammars, and these grammars have been generated from or related to the manner in which people perceive or comprehend stories (Mandler, 1977; Rumelhart, 1975; Stein & Glenn,

1979; Thorndyke, 1977). Applebee (1978) described the growing sophistication of story structures created by and responded to by subjects from age two to seventeen. Discourse structures have also been characterized in terms of "scripts, plans, and goals," that is, as conceptual structures explaining sequences of actions (Schank & Abelson, 1977).

These various strands of research suggest that the ability to monitor what one is doing and the ability to select appropriate and meaningful behaviors are important aspects of every reading and writing experience. Through systematic organizing and monitoring processes, individuals recognize, avoid, and correct comprehension and composing problems. Writers can monitor whether they have said what they meant to say and can revise as they judge it necessary. Readers can monitor if the text says what they thought it was going to say and can examine the text (or their interpretation of it) more carefully if they judge it necessary. Successful systematic routines in any domain involve personal awareness, decision-making, and monitoring. In reading and writing, they also involve awareness of language structures relevant to the task at hand.

The strategies and approaches selected for scrutiny in the Reading/Writing Project include understanding of what one knows, awareness of what the options are, and knowledge of when and how to use those options. While the novice/expert studies provided a starting place for this work, the primary concern was not to itemize children's

deficits, but to identify the strategies they in fact use when they read and write.

Although I focussed on the systems underlying students' overall approaches to each task, the previous work suggested many of the mental processes that were important to study. These were divided into two distinct areas: repertorial and procedural (Figure 1.1). Awareness of what one knows or has done is considered to be repertorial, in that there is a repertoire of processes which are potentially helpful, of which the reader or writer may or may not be aware. The self-control or self-regulatory category is considered to be procedural in that there are procedures or self-checks which readers and writers perform in order to monitor whether things are going well. These, of course, focus on the knowledge and use of specific strategies, and how they are related to reading and writing performance and success.

Insert Figure 1.1 about here

In addition to the repertorial and procedural approaches described by the first two categories, reading and writing tasks also require awareness of certain kinds of linguistic information. These add clarity and structure to the content related aspects of the reading or writing task. The linguistic components (in both repertorial and procedural terms) include knowledge of discourse structure (text level), grammatical routines (sentence level), and lexical repertoire (word level).

The Project

The Reading/Writing Project upon which this book is based focussed on these issues through a series of descriptive studies which examined the approaches and strategies school age children used when they were engaged in a variety of reading and writing tasks.

The project team examined some of the basic cognitive activities children of differing ages (grades 3 through 9) engaged in when they were composing or comprehending text. The questions that were addressed focussed on the very roots of the development of reading and writing ability: 1) Since reading and writing both involve the development of meaning, is there a common language core of routines that children systematically use when they are reading and writing? 2) How do these routines interrelate with one another? and 3) How do these routines grow in scope and complexity from grade 3 to grade 9 ?

Reading and Writing: Structures and Strategies

Reading and writing are, above all else, means of creating meanings and communicating them to others. They are two of the many forms of interaction I have developed in our exchanges with one another. Characteristics of reading and writing need to be analyzed in terms of their roles in communication events -- the intentions of the participants, the topics addressed, the forms and conventions that mediate what is understood by both readers and writers. In the chapters that follow, I will describe the workings of the Project in more detail, and discuss the notions the children

had about reading and writing, the functional roles reading and writing played in their lives, the strategies they used to construe and constitute and build their meanings, and the structures they produced.

Figure 1.1

SYSTEMATIC APPROACHES TO READING AND WRITING

REFLECTING ON OWN COGNITIVE APPROACHES (repertorial)

1. awareness and formulation of task goal
2. awareness of what is known and needs to be known
3. awareness of helpful and unhelpful strategies

REGULATING ACTIONS (procedural)

1. changing approaches when stuck
2. checking problem solving attempts
3. anticipating what to do next

KNOWING LANGUAGE (repertorial)

1. awareness of discourse structure
2. awareness of flexible grammatical routines
3. awareness of available vocabulary

USING LANGUAGE (procedural)

1. planning and adjusting to structural demands
2. using grammatical routines flexibly
3. choosing appropriate language

Chapter 2

The Research Plan

The body of work reported in this volume grows out of the concerns discussed in the previous chapter. The Project's overriding goal was to examine the basic cognitive activities students engage in when they are writing or comprehending different kinds of text. By observing students during particular reading and writing activities, by examining tape recordings of their self-reported thoughts and behaviors when reading and writing, by probing the strategies they used and awarenesses they had while reading and writing, and by examining the pieces they had written as well as their retellings of what they had read, I hoped to learn more about the many complexities involved in the constructive, meaning-making aspects of reading and writing.

This chapter describes the general procedures used in gathering data -- the parent, student, and teacher interviews, the reading and writing tasks, the think-aloud and retrospective procedures, the cognitive probes, the

text-based questions -- and the ways in which I examined the data that resulted.

Sample Selection

The analyses in this book are based on intensive case studies of 67 students drawn from grades 3, 6, and 9 (approximate ages 8, 11, and 14). In selecting the students, I was fortunate to have had excellent cooperation from the students, parents, teachers, principals, and Superintendent of Schools of a well-to-do suburban school district in northern California. In this early phase of my work on meaning development, I wished to examine what students were capable of knowing and doing under the best of circumstances. Thus I deliberately chose to work with a student body whose general performance scores were above the national average in both reading and language. The Superintendent of Schools provided access to two elementary schools (kindergarten through grade 5), a middle school (grades 6 through 8), and a high school (grades 9 through 12). I selected grades 3, 6, and 9 as representating a workable developmental range across the school years. Because all classes were heterogeneously grouped, I did not differentiate among class-types within any one grade level. The principal of each school referred the project team to 11 teachers who had expressed interest in working with us, and whose classes were representative of those within each school. These teachers were asked to recommend 16 third and ninth graders and 36 sixth graders (an equal number of boys

and girls) as representative of their general student population in performance and achievement, to act as student participants. All 68 students were invited to join the project; all accepted, but last minute scheduling problems made it necessary for one ninth grader to be eliminated from the sample.

Research Instruments

A variety of research instruments and procedures were developed for the study. These included interview schedules, reading passages and writing prompts, recall tasks, think-aloud and retrospective reporting procedures, probe questions, and text-based questions tied to particular reading passages. Each of these is described briefly below.

Interview Schedules. Separate student, parent, and teacher interview schedules were prepared to explore each group's perceptions of reading and writing in general and their judgments of each student as a reader and writer in particular. The interview schedules were designed to permit comparisons between the adults' and the students' perceptions of the students' proficiency in reading and writing, the students' uses of reading and writing at school and at home, and their general notions of what it takes to read and write. The student schedule was quite extensive. Briefer but overlapping schedules were also completed by the parents or caretakers. The teachers completed one general schedule of questions about their notions of the

teaching and learning of reading and writing, and another brief set about the reading and writing behavior and achievement of each individual student. (Each of the interview schedules is available in full in Langer, 1984-c.)

Responses to the interview questions were examined both at the level of the individual question, and across questions by quantifying the extent of attention to four general characteristics of reading and writing: the meaning conveyed, the skill and effort required, the degree of liking, and the relationship between the literacy activity and the context in which it occurred. Results from the interviews are presented in Chapter 3.

Passages and Prompts. Reading passages were chosen and writing prompts developed to reflect two different discourse functions. The function categories were chosen from among those described by Applebee (1981), and include imaginative writing (represented here by stories) and writing in order to convey information (represented here by reports). These discourse types were selected because I suspected they create very different cognitive as well as rhetorical tasks for both readers and writers, and because both are frequently encountered in school as well as out-of-school settings.

For the reading and writing tasks, I wished to identify reading passages and develop writing prompts that focussed on topics familiar to and read by students across our age span. To this end, the project team reviewed

reading materials in third, sixth, and ninth grade textbooks, anthologies, and magazines; examined library fiction and non-fiction books available to the children for their school and personal reading; and interviewed teachers, school librarians, and children's librarians in local public libraries to learn of the topics children aged 8, 11, and 14 tended to read and write about. The sources concurred that "first day," "friend," "family," and "school" were story themes that were readily found in child and adolescent books and magazines and about which most children could comfortably write. For the report tasks, animal reports were readily available across the ages and the people interviewed advised that students in these age groups also like to read and write about their hobbies, sports, or other special interests.

For the story reading task, two passages were selected, both about "first days." "Jackie" is a passage taken from Handstands, a third grade basal reader published by Allyn and Bacon (1978). It is about a nine or ten year old youngster who moves to a new neighborhood and is put to the test before being accepted by the local boys. After a summer of growing friendship and shared pranks, the first day of school arrives and the boys find, much to their surprise, that their new friend isn't a boy at all. "The New Kid" is a passage taken from Black Boy by Richard Wright and is included in the ninth grade anthology Insights published by the Webster Division of McGraw Hill (3rd Edition, 1979). This story is about a teen age boy who

moves to a new neighborhood and during his very first day at school must prove himself to the "tough guys" who dominate the social scene. Both story passages are included in Appendix I.

The writing prompt developed to parallel the "first day" stories was as follows:

> Make up a story about going somewhere, doing something, or meeting somebody for the first time. Write the make-believe story for other students your age to read.

For the report reading task, two informational passages about animals were selected, one about moles and one about prairie dogs. "The Mole" was found in Ideas and Images, a third grade basal reader published by Allyn and Bacon (1971). "The Crowd Pleasing Conservationist" (Prairie Dog), by John O'Rear, was found in Boy's Life magazine (December 1977). Both reports describe the life styles and behavior of the animals. The report passages are also presented in Appendix I.

The report writing prompt was as follows:

> Think of something you know a lot about. It can be something you studied in school, a hobby, or something you're just interested in. Write a report about that topic for someone your age to read.

The reading passages were grouped into two sets, one to be used with samples of third and sixth grade readers, the

other to be used with samples of sixth and ninth grade readers. The easier passages ("Jackie" and "Mole") were at approximately third grade and the more difficult passages ("New Kid" and "Crowd Pleasing Conservationist") at approximately eighth grade readability levels as measured by the Fry formula.

Retellings. For the reading tasks, students were told in advance that they would be asked to retell what they were about to read. After completing a reading passage, they were asked:

> Tell everything you remember about what you've just read.

Their responses were tape recorded for later analysis of what they remembered from the passage.

Think-Aloud and Retrospective Sources of Data. In gathering reading and writing strategy data during this project, a number of resources were used to provide a rich and multifaceted data-base. A think-aloud self-report procedure was used by half the students as they were reading and writing. During their first session, they were trained to verbalize all their thoughts when reading and writing. The other half of the students were trained in a retrospective procedure: to read or write without disturbance, but to report their thoughts as best they could as soon as they completed the task.

The prompts for the two conditions were similar:

> Tell everything you are/were thinking about: about the topic, about your reading or writing -- all the ideas that come/came into your mind while you are/were getting ready to read/write, while you are/were reading/writing, or any time you are/were thinking, even when you are/were done.

After reading each passage and telling their thoughts, the students in the retrospective condition were asked to retrace (line-by-line) their reading passages or writing samples as an aid in remembering what they had been thinking when they were reading or writing. This procedure, like the think-aloud, was taught during the first session. All sessions were tape recorded for later analysis of the strategies the students used, the knowledge sources they called upon, and the meanings and structures they created.

A detailed system, the Analysis of Meaning Construction, was specially developed to permit codification and analysis of the children's "on-line" attempts to construct meaning when they read and wrote. In this procedure each self-reported think aloud and retrospection was transcribed and segmented into individual communication units, or comments. Each comment was then categorized along two major dimensions: on the reasoning operations, and on the monitoring concerns that occur during a reading or writing activity. An additonal five analyses examined 1) the strategies used in meaning development, 2) the text unit focussed upon, 3) the data source used in making meaning, 4) the reader's or writer's focus on process

or product, and 5) the time in the reading/writing experience when that particular comment occurred. (See Appendix III for coding definitions. The complete scoring manual is presented in Langer, 1984-c.) Results from the Analysis of Meaning Construction are reported in Chapter 6.

Probing Questions. Probing questions were developed for use after the think-aloud or retrospection activity had been completed. These questions examined six aspects of the students' understanding: 1) genre (stories and reports), 2) author/audience communicaton, 3) organization of ideas, 4) language used in expressing meanings, 5) task-specific content, and 6) surface features of language. Some of the probing questions dealt with the students' notions of reading and writing strategies in general; others dealt with their awarenesses and behaviors when engaged in the particular reading or writing task they had just completed.

The probing questions were developed as a guide for the researcher. The children were not asked each question included in the form. Instead, they were asked only those questions not spontaneously addressed in the children's verbal reports or general conversation. They were asked to explain awarenesses they had, knowledge they used, decisions they made, behaviors they engaged in when reading and writing, and their reasons for doing so. Analyses of these data are reported in Chapter 7.

Text-based Questions. Specific text-based questions

were developed to focus on the ways in which the students' text-world or "envisionment" (see Langer, in press-a,b) changed and developed as the reading or writing activity moved towards completion. For the reading tasks, questions were keyed directly to the text of each passage; for writing, questions were prompted by what each student wrote. The students' developing meanings were examined to learn how they were influenced by the specific genre, by the content (and schemata evoked by the content), and by such linguistic material as syntax, punctuation, and cohesive ties. Results from these questions are interspersed throughout the present report.

The Research Design

A mixed design permitted examination of a variety of between- and within-subject effects. For the reading tasks, two passage sets were constructed from the passages described above: one set contained the easier passages ("Jackie" and "Mole") and the other set contained the more difficult passages ("New Kid" and "Crowd Pleasing Conservationist"). In each passage set, half of the students were randomly assigned to the think-aloud procedure and the other half to the retrospection procedure. All of the third and half of the sixth graders read and reported on the easier passage set while half of the sixth and all of the ninth graders read and reported on the more difficult passage set. In this design, reading/writing and story/report differences were within subject effects and

age, easy/hard passage set, and think-aloud/retrospection differences were between subject effects (see Table 2.1).

Insert Table 2.1 about here

The Students

The 67 students had an average percentile score of 84.9 in reading and 87.3 in general language skills as measured by the Comprehensive Test of Basic Skills. The percentile scores for each separate grade level are listed in Table 2.2.

Insert Table 2.2 about here

Procedures

Half the students were assigned at random to the think-aloud procedure. They were trained to provide information about their thoughts and behaviors as they were reading and writing. The other half of the students were assigned to the retrospective condition. They were trained to read (and retell) or write without disturbance, but to report their thoughts as best they could as soon as they completed the task. After completing their reading or writing task, the students in the retrospective condition were encouraged to retrace (line by line) the reading passage or written text as an aid in remembering what they had been thinking when they were reading or writing. All sessions were tape recorded for later analysis.

Data gathering began in October 1982 and continued through June 1983. During that time period, each student was seen individually by a member of the project team for five separate sessions, each approximately one hour in length. During the first session, background information was gathered orally and the students were trained to engage in the think-aloud or retrospection procedures they would use during the next four sessions.

The succeeding four sessions were devoted to a story writing, story reading, report writing, or report reading activity using either the retrospective or think-aloud self-report procedure. Thus, each student read and wrote both a story and a report, and shared his or her thoughts during, or directly after, each activity. In each case, the writing activity preceded the reading activity lest the student's writing be influenced by the characteristics of the reading passage; the order of the report and story tasks was randomized. Probing and text-based questions, administered after the retrospection or think-aloud procedure was completed, provided additional data not spontaneously reported by the students.

Analyses

The main sources of data for the analyses were the following: 1) the student, parent, and teacher interviews, 2) the think-aloud and retrospective self-reports, 3) the responses to probing questions, 4) the responses to text-based questions, 5) the student writing samples, and 6) the student retellings.

In all, the project gathered some 320 hours of process data from the students' think-aloud and retrospective self-reports and the follow-up probing questions. In addition, a great deal of product data was collected -- the 134 papers the children wrote, and the 134 retellings they reported immediately after they had read each passage. Combined, the process and product data provided a particularly rich data base for examining the strategies the students used and the meanings they developed when reading and writing; both how these change across the years and how they differ within and between genre.

Although all of the retellings were transcribed, much of the process data were analyzed directly from the tapes. Full transcripts were used primarily during the initial stages of category development. Although strongly grounded in my constructivist notions of meaning change and development, the categories in all analyses were developed directly from the data collected: the project team members analyzed the transcripts, listened to the tapes and referred to the field notes during the initial stages of category development, and then tested and modified the categories based on still other tapes and transcripts.

Tests of Significance

A study such as this generates a large amount of data, even when considering one or another relatively specific question within the study as a whole. Where appropriate, multivariate tests of significance have been used, or total

scores that provide an overall test before examining more specific differences in greater detail. For selected variables, the design allowed tests of the main effects of grade (3, 6, 9), mode (talk-aloud, retrospective), genre (story, report), domain (reading, writing), and task difficulty (easy, hard passage sets at grade 6). Analysis of variance was used where the distribution of scores was appropriate for it, and interaction terms were included in the tests of significance. For categorical variables, chi-square analyses were used with categories combined where necessary to raise expected frequencies to 5.

For the within-subject effects (genre and domain), tests of significance were based on within-subject contrasts in both the analyses of variance and the chi-square analyses. Tests of association (or correlation) were also calculated for these variables; these provide a test of the extent to which individual students approach their reading and writing (or their story and report) tasks in similar ways.

To simplify the presentation of findings, tabled results emphasize the factors which had the most influence (genre, grade, and domain). Mode effects, though rare, are pointed out when they occurred.

The chapters that follow have been planned to highlight the most interesting issues that emerged in studying the ways in which reading and writing processes are interwoven with the meanings being developed in the mind of the reader

or writer. The individual analyses, then, are sometimes divided across several chapters, and elaborative descriptive data are presented when helpful.

In Chapter 3, I will examine parents', teachers', and students' views of reading and writing-- that is, the general context within which their literacy learning takes place. Chapters 4 and 5 look at the structures that underlie the students' sense of story and report, including both global structures and their elaboration and linking of ideas. Chapters 6 and 7 turn to the strategies that govern their reading and writing processes, as revealed both in the protocol data and in their responses to follow up questions. Chapter 8 brings the two types of analysis together in the context of the reading and writing of two particular children. The final chapter summarizes what I have learned from the project as a whole, in the context of my initial concern to explore the nature of the relationships between reading and writing when they are viewed as active, interpretive, symbolic processes.

Table 2.1

Design

Within Subject

	Story	Report
Read	X	X
Write	X	X

Between Subject

	Easier Passages		More Difficult Passages		
	Think-Aloud	Retrospection	Think-Aloud	Retrospection	
Grade					N
3	8	8			16
6	8	8	8	8	32
9			8	8	16

Table 2.2

Mean Percentile Scores in Reading and Language

Grade	Reading	Language
3	78.3	84.9
6	87.1	86.4
9	87.0	93.7

Chapter 3

Views Toward Literacy: Parents, Teachers, and Students

The literacy environment that surrounded the young readers and writers I studied overarches, and in some ways affects, all the other analyses. Numerous researchers from a variety of fields have shown that children's perceptions of the world around them are very much entwined with the ways in which significant adults behave, communicate, and think (Bruner et.al., 1976; Cazden, 1980; Halliday, 1978; Heath, 1981, 1983; Labov, 1972; Leichter, 1974; Scollon & Scollon, 1981; Scribner & Cole, 1981; Wells, 1981). Further, reading and writing are language activities that involve overt oral and written communication, and teaching is a language activity that requires the ability to communicate <u>with words</u>. Teachers and parents who can <u>do</u> but are unable to talk about what they do, and why, are less likely to be effective in setting an instructional context for reading, writing, and language learning.

While reports of what people <u>say</u> they do are less reliable indicators of knowledge than what people <u>do</u> do,

caution in their use applies in a different way to the teaching and learning of language skills (i.e., reading and writing) and the teaching and learning of motor skills (i.e., button buttoning or zipper zippering). Language facility flourishes in instructional environments where language is talked with and talked about. From this vantage point, it is important to examine what people say. Thus, the project would be incomplete without an examination of the literacy context that influenced the children's notions of reading and writing. Among other questions, the parents/caretakers, teachers, and the students themselves were asked about reading and writing in general; about what they thought it takes to learn to read and write; about the reasons for learning to do them at all; and about whether the individual children liked to read and write, what they found hard and easy, and why.

The Interviews

For research purposes, some of the same questions were posed to each group, but parents, teachers, and children were also asked certain questions only they could answer.

Student Interviews. The student interviews consisted of 28 questions: 14 about reading and a comparable 14 about writing. The questions divided into four major categories: 1) how successful the students perceived themselves to be as readers and writers, and what they found hard or easy about the two tasks, 2) what the students thought it takes to be a good reader or writer and what it takes to learn to do it,

3) how the students felt about reading and writing and what they liked best or least about each, and 4) what the students tended to read and write--as well as where and why.

The student interview took place during the first meeting with each child. After describing the project and explaining the kinds of student participation hoped for, the researcher asked the prepared interview questions, tape recorded the conversation, and took field notes. Each interview took approximately 20 minutes. Sixty-six of the possible 67 interviews were completed.

Parent Interviews. The parent interviews were briefer, consisting of eight questions each for reading and writing. These questions fell into six question categories, four of which were comparable to the student questions: 1) how successful was the child as a reader/writer -- and what he/she finds hard or easy about it, 2) what it takes to be a good reader/writer, 3) how the child feels about reading and writing and what is best/least liked about each, and 4) what the child tends to read/write at home. The remaining two areas provided a parent view of literacy: 5) how the parent thought reading/writing ought to be taught at that child's grade level, and 6) how the parent helped the child to read and write.

The parent interviews took place at the end of the school year, beginning in late June and continuing through September. At first, letters were sent home appended to the list of questions to be answered. After a month had passed, 27 of the 67 responses had been received. Each

parent/caretaker who had failed to respond was then telephoned. The researcher who was responsible for the gathering of these data conducted the interviews at times convenient to each respondent, often calling first to make a phone appointment. These phone calls were well received, and the full 67 parent interviews were completed.

Teacher Interviews. Two brief but separate interview schedules were prepared for the teachers including: 1) eight questions (four reading-related and four writing-related questions) that focussed on general issues, and 2) eight questions that focussed on the teachers' perceptions of their individual students. (One of these was completed for each student.)

Questions on the general schedule divided into four areas: 1) what it took to be a good reader/writer, 2) how reading/writing was best taught at that grade level, 3) how that teacher helped students read/write better, and 4) what the teacher thought students, in general, found easiest or hardest about reading and writing.

Questions on the student-focussed schedule dealt with 1) the teacher's perceptions of whether or not each student liked to read or write (what and why), and 2) how the teacher rated each student as a reader and writer and how those judgments were made.

Both schedules of questions were distributed to teachers during the third week in June. Since schools were nearing summer recess, the completed forms were to be

returned by mail. After a month had elapsed, the teachers who had not responded were reached by telephone in the same manner as the parents. In all, 8 teachers responded by mail, and 3 by phone. By the end of September, the necessary data were collected from all 11 teachers; all were most cooperative in providing answers to the questions. Because only 11 teachers were involved in the project, results from the teacher interviews will be reported across, rather than within, grade level groups.

Categorizing the Responses

After the data had been collected, the research team read through the many responses collected for each separate question. While I was very much interested in the language used by the individual respondents, I also wished to permit a set of common categories to emerge around each question. The resulting coding sheets included up to 14 possible responses for each question (see Langer, 1984c for interview schedules). A series of exploratory factor analyses indicated that these specific responses in turn reflected four more general dimensions of response that seemed to underly the comments of all three groups (parents, teachers, and students):

1) ideas and imagination - responses that grow out of a focus on knowing or using meaningful chunks of language-- e.g., anticipating, developing, or organizing ideas, or comprehending text;

2) skill and effort - responses that grow out of a

focus on parts of the reading or writing process-- e.g., a focus on words, mechanics, or other surface features that are not in themselves meaning laden; or on the effort involved in reading and writing-- e.g., concentration and practice;

3) enjoyment - responses that grow out of a focus on personal reactions to, or judgments of, the topic or activity-- e.g., attitudes.

4) context - responses that grow out of a focus on the context for reading and writing-- e.g., grades and evaluation, role models and personal support, specific literacy activities (such as book reports) required by the school, and specific literacy materials available at home, school, or elsewhere in the child's life.

For each respondent, the percent of responses in each of these dimensions was calculated, across the questions that were common to the teacher, student, and parent interviews. Data were analyzed as a multivariate repeated measures design, with grade level (3rd, 6th, or 9th) as a between-subject factor and domain (reading vs. writing) and group (student, parent, or teacher) as within-subject factors. These across-question analyses provided a context for the examination of specific responses to individual questions.

Perceptions of Reading and Writing

Frequency of Responses. To provide an overview of students', parents', and teachers' views of reading and

writing, the mean number of responses to the questions asked across all three groups were first examined (see Table 3.1). In responding to these questions, all three groups spoke more (offered a greater number of comments) when talking about reading as opposed to writing ($F[1,63] = 25.79$, $p < .001$). However, none of the groups differed significantly from the other groupss in the total number of comments they made when focussing separately on reading or writing (neither the main effect for group nor the group by domain interaction was significant). The domain rather than the people made the difference.

Insert Table 3.1 about here

Significant grade differences were also found. The total number of comments increased with grade ($F[2,63] = 4.18$, $p < .02$); this trend was more marked for the students than for their parents or teachers (the grade x group interaction was nearly significant, $F[2,126] = 2.26$, $p < .07$). The fact that the number of comments increases with grade is not surprising; however, the indication that all groups generated more language in response to the reading as opposed to the writing questions suggests that all groups may have been more comfortable and therefore more fluent in talking about reading than writing.

To learn more about the ways in which each group focussed their responses, the data were also analyzed in terms of the extent of concern with the four dimensions

introduced earlier: ideas and imagination, skill and effort, enjoyment, and context (see Table 3.2).

Insert Table 3.2 about here

General Patterns. A review of the mean percents presented in Table 3.2 indicates that across all groups, the smallest proportion of responses focused on context or enjoyment while the largest proportion focused on ideas and skills. The teachers emphasized ideas more often than did the other two groups, while the parents and children focussed more of their comments on skill and effort. Parents, teachers, and children talked more about ideas in reference to writing as compared with reading, and talked less of enjoying (liking or disliking) writing as compared with reading.

Domain Differences. The analysis of mean frequency of responses (see Table 3.1) indicated that all 3 groups had more to say in discussing reading than they did in discussing writing. The results in Table 3.2 indicate that they also emphasized different topics in their discussions of the two domains (multivariate $F[6, 44] = 8.68$, $p < .001$). For all three groups, comments about writing were more likely to focus on the ideas being expressed than were comments about reading.

Group Differences. The multivariate analyses indicated significant effects for group (students, parents, or teachers) ($F[6,44] = 5.11$, $p < .001$) and for the group by domain interaction ($F[6,44] = 15.96$, $p < .001$). For both

reading and writing, the teachers talked significantly more about ideas than did the other two groups. For reading, the teachers focussed more of their comments on context (evaluation, grades, instruction, materials), while the students (and to a lesser extent their parents) talked significantly more about skill and effort (decoding, concentration, vocabulary, memory). For writing, students and parents were relatively more concerned with skill and effort than were the teachers, and also somewhat more concerned with context.

Grade Differences. The multivariate analyses also indicated significant grade, grade by group, and grade by group by domain differences. These effects were concentrated largely in the patterns of student comments, which are displayed by grade in Table 3.3.

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insert Table 3.3 about here

For reading, the students' emphasis on skill and effort remains constant across the grades, averaging about 50 percent. However, their comments about enjoyment while reading seem to diminish across the years while their comments about ideas increase somewhat. In comparison, the students' comments about writing show a similar increase in concern with ideas between grades 3 and 9, and a decrease in concern with skill and effort. Most of this shift seems to occur between grades 3 and 6, with a levelling off between 6 and 9.

models, literacy environments, help and support, I found this not necessarily to be the case. In the sections to follow, I will examine responses to specific questions in order to describe the patterns presented above more fully, and to identify other important aspects of students', parents', and teachers' understanding of reading and writing.

Because so many individual questions were included in the interviews, it would be tedious to trace the patterns of response to each. Instead, I have selected particular questions with which to further examine the issues of just how firmly each group had a clear and consistent notion of what reading and writing entail. The patterns of response to these questions parallel those in the larger set of questions from which they were selected.

Rating Students as Readers and Writers

One series of questions asked the students, "Do you think you are a good reader? How can you tell?" And later, "Do you think you are a good writer? How can you tell?" Parents and teachers were also asked to respond to similar questions about each student. Judgments about reading or writing ability were coded on a scale of 1 (high) to 5 (low), and either of the top two ratings was considered to be a "good" response.

In response to the question about reading performance (Table 3.4), the students rated themselves more poorly (76.2 percent rating themselves as "good") than did their parents

(92.1 percent) or their teachers (87.2 percent). It can be conjectured that the students were more critical of their own reading achievement because of their own limited experience with the larger world of readers; the students in our study were well above average performers attending a school where their classmates were likely to be as high achieving as themselves. The students saw themselves in relation to these high achieving classmates, while the adults interviewed had the perspective to judge student performance in terms of the larger world of student readers.

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insert Table 3.4 about here

Judgments about writing performance follow a somewhat similar pattern (Table 3.4), with a revealing twist. For writing, the students were again most critical of their own performance; 62.4 percent rated themselves as good writers. This was followed by the teachers, who rated 77.8 percent as good writers, and the parents, who rated 70.3 percent as good writers. Although a goodly percent of each group rated the students well, performance in writing was rated somewhat lower than that in reading at each grade level by all three groups.

Our initial question focussed on whether writing performance was judged in substantively different ways than reading performance, and if so, were the criteria for making these judgments also different. This led us to compare the entire body of responses given for these two reading and

writing questions. Table 3.5 summarizes the results, presenting each of the criteria that was mentioned by at least 10 percent of the respondents in each group.

Insert Table 3.5 about here

Turning first to the judgments of reading ability (Table 3.5), students' comments were dominated by two concerns: their ability to read "smoothly without any mistakes" (error free, in Table 3.5), and the extent to which they understood what they read. Parents' comments ranged over a much wider variety of criteria, though both understanding and freedom from errors still ranked high. Unlike either of the other groups, parents felt that liking for reading was an important indicator of their children's success. Teachers' comments, like those of the parents, were dispersed over a variety of criteria, with "understanding" ranked highest, followed closely by "grades"-- reflecting test scores and class rankings.

All three groups were somewhat less sure of the bases of their judgments of writing ability (Table 3.5) -- fewer specific criteria were mentioned by even 10 percent of each group, and those that were mentioned were mentioned less consistently than were the criteria for reading. The children were the most vague: 24 percent based their judgment on whether or not they liked to write, and another 17 percent mentioned the grades they received as indicators of their success (or lack of it). The most important

criterion for parents was imagination, though it was mentioned by only a quarter of the group. Teachers were more impressed by the factual knowledge the students drew upon in their writing ("he knows so much about his topics"), though "imagination" and the extent to which the students enjoyed writing also figured high in their judgments.

Two points are worth highlighting in these responses: the difficulty all three groups had in enunciating criteria for writing as opposed to reading, and the failure of the students' to reflect the adults' concern with imagination and content knowledge.

Responses to this single question are interesting and informative only if they are part of a larger pattern of differences in the ways in which our informants viewed, and therefore spoke about, reading and writing. I looked next at a set of questions that asked more generally, "What do you think it takes to be a good reader?" "What do you think it takes to be a good writer?"

In responding to this question, all three groups had more to say than they had in commenting on the abilities of individual students in the previous question. All agreed that practice, vocabulary, and liking to read were the most important attributes of a good reader -- with parents and teachers agreeing that liking reading was considerably more important than the other two criteria (Table 3.6). Once again, there was less agreement, and less of a common pattern, in the responses to the writing question. The students and their parents considered imagination to be the

most important attribute of a good writer, while the teachers considered practice and liking to write as most important. The teachers included a number of comments about such instructional concerns as being self-critical, developing audience awareness, and learning proper organizational forms.

Insert Table 3.6 about here

Attitudes toward Reading and Writing

The questions examined so far dealt with reading and writing abilities; the next series focussed on attitudes toward reading and writing. Table 3.7 summarizes responses to the question, "Do you (your child/ student) like to read and write?" The results from this question are interesting in terms of the reading/ writing discrepancy that seems to be emerging in response to several of our questions. For all three grades, both the students and their parents indicated that the students liked to read more than they liked to write. Teachers, on the other hand, indicated they thought their students liked writing about as well as reading.

Insert Table 3.7 about here

In contrast with general attitudes toward reading and writing, the next set of questions focussed on the particular features of reading and writing that were liked best and least (Table 3.8). Here, responses reflected the awareness that writing places the writer in control of the

literacy event, while reading provides a specific content or experience (which in turn may be enjoyed or rejected). Comments about reading dealt most often with the specific content of what was being read, even if the reaction were negative (when it is "boring"). Comments about writing similarly were concerned with the ideas being expressed, but from a different perspective: the best part of writing had to do with the ability to "control" or "develop" the topics being written about. This difference may reflect the sense that writing is an activity that requires (or inherently assumes) more overt control over the activities and ideas than does reading. All groups had more trouble commenting on what they liked least about writing; the reactions that they did offer focussed on those aspects of the task where control was less sure: in particular, the problems of getting started and of adhering to the conventions of written language.

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insert Table 3.8 about here

The Easy and the Difficult

When students, parents, and teachers were asked about the easiest and hardest aspects of reading and writing, all three groups had difficulty responding, and all seemed to have more difficulty telling what they thought was hardest than easiest (Table 3.9).

Insert Table 3.9 about here

For the students, the easiest aspects of both reading and writing had to do with their control over the activities or ideas involved, often assimilating this control to their own pleasure in the task. It is "fun to create my own stories," commented one. Others liked reading because it involves "thinking of the ideas," or "it's whatever you want to do." Students' claimed that the hardest parts of reading stemmed from vocabulary problems ("words I don't know") or, in a more general form, parts they did not understand. As in the previous question, problems in writing reflected places where they were not fully in control-- getting started and choosing a topic headed the list.

Parents' responses to these questions were if anything more limited than their children's, though the emphases in the comments they did make were quite similar. "Understanding" in a very generalized way dominated their remarks about the hardest and easiest aspects of reading, and the concern with control over the task dominated their remarks about writing.

The teachers' responses differed considerably from those of students and parents. As seen in their remarks about what it takes to be a good reader or writer, the teachers embedded their remarks within their sense of the instructional context. Thus the hardest aspects of reading involved "content area texts," paralleled in writing by "exposition." They also tended to mention specific skills that students found easy or difficult, such as "understanding the gist of a passage" in reading, or

"getting the ending right" in writing. Such terms are part of their technical repertoire as teachers, and come much more quickly to mind than they do for parents or students.

In all, responses to this question reinforced a group difference that was not as evident in the earlier analyses: each group tended to make sense of reading and writing in terms of their own personal experiences and interactions -- students in terms of their own control of the activity and meaning, teachers in terms of instructionally-focussed school objectives, and parents in terms of the understandings their children shared with them when discussing what they had read or written. Each group described the hardest and easiest aspects of reading and writing in terms of what they, within the literacy context, perceived as the factors over which they had some control.

Reasons for Reading

In another series of questions, the students in the study were asked to tell us <u>why</u> they read and write at home and in school. Their responses to this question provide additional indication that reading and writing are regarded and used differently (Table 3.10). At both home and school, reading is used primarily as a pastime activity or to complete assignments. The students report some additional reading at home because others do it ("environment" in Table 3.10) or to obtain information, and some in school "to learn to read." Writing, on the other hand, is undertaken primarily because it is assigned, or to

perform some communicative or functional task (such as sending a thank you note to a relative). Compared with reading, school assignments figure more heavily in the decision to write, and writing as a pastime or for the pleasure of it figure much less prominently.

Insert Table 3.10 about here

A few grade level differences were also apparent in the students' reasons for reading and writing (Table 3.10). In school, reading as a pastime activity is reported by 69 percent of the third graders, but drops away to zero in the ninth grade sample. Since reading as a pastime activity remains constant (or even rises slightly) in reports on home reading, the decline at school may be due to the different organizational patterns of middle and high schools where a fully departmentalized day leaves little time for leisure reading.

For uses of writing, there is an increased emphasis on writing as a means of communication by ninth as opposed to third and sixth graders. This may be a direct result of the older students' greater skill, opening a broader range of contexts where writing can serve as a successful vehicle of communication. The influence of assignments on writing also increases with age, both at school and at home, while the use of writing to learn to write drops away. Both trends are direct reflections of instructional patterns: a good deal of third grade school time is spent in the formal

teaching of writing (apart from content), and the use of writing as part of the various academic subjects (science, social studies) increases in the upper grades.

What Students Read

Because students seem to have different ways of talking about reading and writing, and also report that their uses of reading and writing differ, I also analyzed student responses to the questions, "What do you tend to read/ write at home? In school?" Their responses, reflecting a mixture of genre and functional categories, are summarized in Table 3.11. Once again, there were differences between reading and writing as well as between home and school. Home reading was quite varied, with fiction being reported by the highest percentage of students, followed by magazines, newspapers, functional reference books, nonfiction, and school texts. Their school reading was more restricted, with most of it being fiction or school texts, followed by nonfiction, reference books, and magazines.

Insert Table 3.11 about here

The students reported that their home writing consisted largely of one or another type of functional writing (many responded "letters" or "cards"), followed by completion of school writing assignments, then fiction writing ("stories"). School writing was dominated by assignments, followed by fiction writing and functional writing.

Compared with reading, writing was used for more

utilitarian purposes both at home and at school, although it was also used (less frequently) for fiction writing. In addition, the home uses of reading and writing appear to have been more varied than school uses, and less focussed on instructional texts and activities.

Helping Students Learn to Read and Write

The last two interview questions I will discuss in this chapter focus on the parents' and teachers' views of their roles as helpers-in-learning. The first question, "How do you feel reading/writing is best taught?" received very different responses from parents and teachers (see Table 3.12). The items both groups elected to report clearly came from their own separate "worlds" -- the parents focussed on keeping the activities interesting, while the teachers focussed on developing appropriate skills, providing varied materials, and (particularly for writing) insisting on "drill and practice." Hence, parents commented that students "must learn to enjoy reading," and they must be given "things to write about that they know about." Some emphasized "taking the work out of writing and creating a fun activity." Teachers, on the other hand, cited "daily practice," and "regular practice combined with the study and discussion of the tools of writing."

Insert Table 3.12 about here

A similar pattern emerged when asked how they help

their youngsters/students to read or write better (Table 3.13). The parents focussed on providing the right environment and on offering encouragement: "The best thing in the world is to read to her"; "I take her to libraries"; "I encourage him when I see something that's good," while the teachers focussed on homework assignments, varied materials, and reading to the class or being a good audience for their writing. Both parents and teachers seemed to feel students needed more direct help with writing than with reading, and placed more emphasis on developing skills or providing assistance.

Insert Table 3.13 about here

Summary

Across the interview questions I have reviewed, students, teachers, and parents interpreted reading and writing from their own special vantage point in the child's literacy context; 1) teachers focussed on school objectives and used school language to state their views, 2) students focussed on controlling the reading and writing activities themselves in their attempt to master them, and when they could not, they used their teachers' language of school instruction, and 3) parents focussed on the environment they can influence and the interests they can stimulate, or described the effort (or lack of it) that their children seemed to put into their literacy tasks.

Overall, the teachers' focussed most on the meaning

inherent in any literacy activity: on understanding of what was being read, and on communicating what was intended in writing. They seem to have been only partially successful in communicating this overriding emphasis to their students, however. The students were more likely to talk about the skills they had or had not developed, in both reading and writing: such things as decoding ability, vocabulary, or spelling and mechanics. When they talked about ideas, it was usually in the context of their failure to understand them. This difference in teachers' and students' views can be explained in two ways. It may be a direct function of the nature of learning; as Leont'ev describes it, learning begins with conscious acts that then become internalized operations. Or it may be a function of the way instruction is organized, in which the purpose of a teaching activity, the ultimate concern with meaning, is often overridden by the immediate focus on developing new skills. Some of this appears even in the teachers' responses, in their concern with the instructional goals and evaluation criteria that are part of the texts and tests they use in school. Or it may be a function of both, in which case it would be interesting to study whether, and in which cases, the skills being taught coincide with the "acts" children are learning--and how these interact with meaning.

Writing was perceived differently than reading by all three groups. In general, students were rated less

competent as writers than as readers, and were felt to enjoy writing less. (Here there may be an early emergence of the image of writing as a difficult and unpleasant task.) In keeping with these general attitudes, students were less likely to write than they were to read for their own pleasure; even their writing at home was driven for the most part by school assignments.

Across a variety of questions, students, parents, and teachers had less to say about writing than they did about reading, having more difficulty in ennumerating criteria for success as well as in describing how it is best taught. What they did have to say about writing, however, emphasized the extent to which a writing event is under the writer's control and direction; this was a source of pleasure when things were going well, as well as a source of frustration when the control was uncertain. Comments on reading, in contrast, reflected a more passive image, one in which control was relinquished to the constraints of the text.

Recent studies of secondary school writing (Applebee 1982, 1984) have suggested that writing is seldom used as a tool for instruction; when used at all it becomes an instrument of evaluation. Further, even well-intentioned teachers who wish to focus on the intellectual learning activities and processes students engage in when writing, transmute the process activities into somewhat mindless mechanical exercises where the behaviors rather than the learnings are the focus. The findings reported here suggest similar processes may be at work even in the elementary

school. The students' comments about writing are certainly consistent with those of their older peers, and the teachers' comments may be as well: in the secondary school studies, the teachers also said they placed a high value on the content or ideas in student writing, but taught in ways that emphasized skills and mechanics.

In the following chapters, I will explore the processes students engage in when they read and write, and describe the structures they produce. The focus will shift from what the students and the adults around them say about reading and writing, to the knowledge students reveal when they actually read and write.

Table 3.1

Number of Comments in Response to Common Questions

	Mean Frequencies			
	Reading		Writing	
	M	SD	M	SD
Students	3.6	1.2	3.1	1.4
Parents	3.4	1.4	2.8	1.5
Teachers	3.1	2.9	2.5	2.6

Significant Effects

Grade: $F[2,63] = 4.18$, $p > .02$
Domain: $F[1,63] = 25.79$, $p > .001$
Grade x Group: $F[2,126] = 2.26$, $p > .067$

N= 66 students.

Table 3.2

Types of Comments by Students, Parents, and Teachers

		Reading			Writing		
		Student	Parent	Teachers	Students	Parents	Teachers
Ideas and Imagination	M	27.1	24.6	40.3	36.6	39.7	54.7
	SD	(16.2)	(17.7)	(33.9)	(22.2)	(21.7)	(36.1)
Skill and Effort	M	51.2	38.0	29.9	38.7	42.0	29.3
	SD	(18.5)	(19.6)	(33.2)	(24.4)	(24.3)	(29.0)
Enjoyment	M	20.1	26.8	7.0	12.1	9.3	14.5
	SD	(18.9)	(21.6)	(15.6)	(15.9)	(12.3)	(24.0)
Context	M	1.6	10.6	22.8	12.5	8.2	1.5
	SD	(4.5)	(13.8)	(29.7)	(11.9)	(11.9)	(5.8)

Significant Multivariate Effects

	df	F-Statistic	Probability
Grade	6,94	4.95	.001
Domain	3,47	8.68	.001
Grade x Domain	6,94	2.81	.015
Group	6,44	5.11	.001
Grade x Group	12,88	2.58	.006
Domain x Group	6,44	15.96	.001
Grade x Group x Domain	12,88	4.69	.001

Table 3.3

Students' Comments by Grade

		Mean Percents			
		Reading		Writing	
		Mean	SD	Mean	SD
Ideas and Imagination					
Grade	3	26.3	(17.4)	23.8	(26.1)
	6	25.7	(16.9)	42.5	(20.6)
	9	31.6	(13.3)	36.1	(15.7)
Skill and Effort					
Grade	3	50.0	(19.4)	57.7	(30.0)
	6	51.1	(20.0)	31.9	(19.1)
	9	14.8	(14.6)	16.8	(15.2)
Context					
Grade	3	0.1	(3.6)	7.8	(13.3)
	6	1.6	(4.3)	14.7	(9.9)
	9	2.3	(6.1)	12.6	(14.3)

Significant Multivariate Effects

	df	F-Statistic	Probability
Grade	6,122	2.59	.021
Domain	3,61	20.40	.001
Grade x Domain	6,122	2.60	.021

Table 3.4

Rating Students as Readers and Writers

	Percent of Students Rated "Good"						
	By Students			By Parents		By Teachers	
Grade:	3	6	9	3	6	9	All
As readers	75.1	75.0	78.6	93.8	91.7	93.3	87.2
As writers	56.3	66.7	64.3	65.5	72.2	73.3	77.8
n of reports	16	36	14	16	36	15	37

Table 3.5

Criteria in Judging Students' Reading and Writing Abilities

Percent of Respondents					
Students (n=66)		Parents (n=67)		Teachers (n=67)	
Criteria for Reading					
47%	Error free	38%	Error free	37%	Understanding
46%	Understanding	38%	Liking it	34%	Grades
26%	Grades	30%	Understanding	19%	Discuss ideas
		25%	Amount read	18%	Error free
		24%	Grades	13%	Liking it
		19%	Discuss ideas	13%	Amount read
		18%	Memory		
		12%	Effort		
Criteria for Writing					
24%	Liking it	25%	Imagination	36%	Content knowledge
17%	Grades	15%	Grades	31%	Liking it
		15%	Organization	30%	Imagination
		10%	Effort	27%	Effort
				13%	Vocabulary

All topics mentioned by 10% or more of the respondents are tabled.

Table 3.6

What It Takes To Be a Good Reader or Writer

Percent of Respondents

Students (n=66)		Parents (n=67)		Teachers (n=67)	
Good Reader					
33%	Practice	51%	Liking it	55%	Liking it
32%	Vocabulary	24%	Vocabulary	27%	Vocabulary
29%	Liking it	22%	Practice	27%	Practice
14%	Concentration	19%	Decoding	27%	Decoding
14%	Decoding	16%	Right environment	27%	Right environment
		13%	Role models	18%	Imagination
		12%	Imagination		
		10%	Concentration		
Good Writer					
39%	Imagination	27%	Imagination	45%	Practice
23%	Practice	24%	Concentration	36%	Liking it
21%	Concentration	19%	Liking it	36%	Vocabulary
18%	Liking it	18%	Reading a lot	18%	Reading a lot
17%	Vocabulary	16%	Intelligence	18%	Imagination
11%	Handwriting	15%	Practice	18%	Self critical
		15%	Vocabulary	18%	Role models
		13%	Role models	18%	Audience awareness
				18%	Organization

All topics mentioned by 10% or more of the respondents are tabled.

Table 3.7

Do Students Like to Read and Write?

	Percent of Students Rated as "Liking"						
	By Students			By Parents			By Teachers
Grade:	3	6	9	3	6	9	All
Like Reading	87.5	94.5	78.6	93.8	91.7	66.7	87.5
Like Writing	68.8	61.2	57.1	56.3	83.4	66.7	85.7
n of reports	16	36	14	16	36	15	67

Table 3.8

What Students Like Best and Least about Reading and Writing

Percent of Respondents					
Students (n=66)		Parents (n=67)		Teachers (n=67)	
Reading: Aspects Liked Best					
59%	Content	37%	Content	57%	Content
33%	Pastime	37%	Pastime	19%	Imagination
14%	Imagination	16%	Imagination	15%	Challenge
Reading: Aspects Liked Least					
36%	Boring material	15%	Boring material	17%	Assignments
21%	Difficult material			13%	Boring material
Writing: Aspects Liked Best					
21%	Controlling ideas	34%	Controlling ideas	25%	Controlling ideas
17%	Choice of topic	22%	Developing ideas	10%	Controlling activity
17%	The product	12%	Choice of topic	10%	Imagination
17%	Controlling activity				
15%	Developing ideas				
Writing: Aspects Liked Least					
28%	Getting started	30%	Spelling/mechanics	13%	Spelling/mechanics
		10%	Getting started		

All topics mentioned by 10% or more of the respondents are tabled.

Table 3.9

Views of Easiest and Hardest Aspects of Reading and Writing

	Percent of Respondents				
	Students (n=66)		Parents (n=66)	Teachers (n=66)	
Reading: Easiest Aspects					
	17%	Control activity	16% Understanding	33%	Interesting topic
	14%	Decoding	12% Interesting topics	17%	Gist
	12%	Control ideas	10% Control activity	17%	Decoding
	11%	Interesting topics			
Reading: Hardest Aspects					
	36%	Vocabulary	57% Understanding	61%	Content reading
	27%	Understanding	14% Vocabulary	14%	Understanding
Writing: Easiest Aspects					
	38%	Control ideas	42% Control ideas	44%	Descriptive writing
	14%	Spelling/mechanics	17% Spelling/mechanics	19%	Choosing topic
			11% Control activity		
Writing: Hardest Aspects					
	24%	Getting started	37% Spelling/mechanics	44%	Exposition
	20%	Choosing topic	18% Getting ideas down	17%	Revision
	17%	Getting ideas down		17%	Endings
	15%	Spelling/mechanics			

All topics mentioned by 10% or more of the respondents are tabled.

Table 3.10

Why Students Read and Write at Home and School

	Percent of Students			Chi-square for grade (df=2)
Grade:	3 (n=16)	6 (n=36)	9 (n=14)	
Reading				
Home				
Pastime	68.8	72.2	78.6	0.37
Assignments	25.0	8.3	7.1	3.30
Environment	6.3	22.2	14.3	2.11
Information	12.5	5.6	14.3	1.22
School				
Pastime	43.8	61.1	0.0	15.28***
Assignments	56.3	72.2	85.7	3.20
Learn to read	6.3	2.8	7.1	0.58
Writing				
Home				
Assignments	6.3	25.0	42.9	5.47
Communication	6.3	8.3	57.1	18.2***
Functional	31.3	13.9	14.3	2.43
Enjoyment	18.8	25.0	14.3	0.77
Environment	0.0	11.1	7.1	1.96
School				
Assignments	37.5	86.1	71.4	12.77***
Pastime	6.3	8.3	0.0	1.23
Learn to write	25.0	2.8	7.1	6.70*
Express ideas	6.3	2.8	0.0	1.01

*p <.05 **p <.01 *** p <.001

Table 3.11

What Students Read and Write at Home and at School

	Percent of Students		
Grade:	3 (n=16)	6 (n=35)	9 (n=14)
Read			
Home			
Fiction	87.5	94.4	92.9
Nonfiction	18.8	25.0	21.4
Magazines	50.0	69.4	92.9
Newspapers	18.8	38.9	64.3
Functional/Ref	43.8	19.4	7.1
Texts	6.3	16.7	21.4
School			
Fiction	68.7	63.9	92.9
Nonfiction	6.3	22.2	35.7
Magazines	6.3	11.1	0.0
Newspapers	6.3	0.0	0.0
Reference	0.0	16.7	21.4
Texts	43.8	80.6	71.4
Library Books	6.3	44.4	7.1
Write			
Home			
Fiction	50.1	38.9	21.4
Nonfiction	0.0	2.8	0.0
Journal/Diary	0.0	22.2	7.1
Functional	68.8	58.3	71.4
Assignments	25.0	44.5	57.1
School			
Fiction	81.3	44.5	42.8
Nonfiction	0.0	5.6	0.0
Journal/Diary	12.5	0.0	0.0
Functional	43.8	19.4	21.4
Assignments	75.1	97.5	92.9

Table 3.12

How Do You Think Reading and Writing Are Best Taught?

	Percent Responding	
	Parents (n=67)	Teachers (n=11)
Reading		
Interesting	30.3	13.9
Probing Questions	14.5	0.0
Self Selection	8.8	0.0
Read to Students	4.9	0.0
Help	4.2	13.9
Homework	4.0	0.0
Varied Materials	0.0	75.0
Develop Skills	0.0	30.6
Encourage	0.0	11.0
Assist	0.0	11.0
Writing		
Write Often	31.0	0.0
Creative Writing	22.3	0.0
Drill and Practice	16.5	80.6
Logic and Ideas	16.1	0.0
Structure and Mechanics	15.4	0.0
Develop Skills	0.0	22.2
Interesting Topics	13.0	11.1

Table 3.13

How Do You Help?

	Percent Responding	
	Parents (n=67)	Teachers (n=11)
Reading		
Encourage	54.0	0.0
Set environment	47.7	0.0
Read to child	28.4	61.0
Role model	20.9	44.3
Assist	18.2	0.0
Homework	0.0	47.2
Varied materials	0.0	41.7
Writing		
Assistance	67.3	0.0
Environment	22.5	0.0
Creative audience	0.0	61.1
Develop skills	0.0	41.7
Varied assignments	0.0	19.4
Interesting topics	0.0	16.7
Feedback	0.0	16.7
Subject writing	0.0	11.1

Chapter 4

Children's Sense of Genre

This chapter, and those that follow, describe what I learned from the children - what they said and what they did. Here, I will discuss the extent to which the children were able to differentiate between story and report, and whether these differences manifested themselves in the structures they produced when they read and wrote. Although much has been written about children's notions of stories (e.g., Applebee, 1978; Stein & Glenn, 1979), Bissex (1980) is one of the few researchers who has given systematic attention to young children's uses of expository forms. From a functional notion of discourse, it would seem that young children share information all the time. From early on they recount the events of the day, tell their imaginary playmates how to go about flying to the stars, and share with their real friends all they know. Previous studies (Applebee, 1978) have indicated that children as young as two and a half use story telling patterns in imaginative modes of discourse. However, children's uses of informational discourse has remained less well explored.

The limited recent research looking at the development of competence with different types of discourse seems to fall into two categories: those studies which look at the capabilities of very young children, and those which look at cognitive aspects of different discourse types. In the first category, Bissex (1980), in her case study of her son Paul between the ages of 5 and 9, found that across these years his writing was predominantly informational in function. Paul used writing as a way of showing evidence of his growing body of knowledge both of himself and of the world. He wrote "all-I-know" books and newspapers as well as stories, and through the years he explored new forms (e.g., different newspaper parts) and more complex presentations to develop and share his ideas. In a similar vein, Harste, Burke, and Woodward (1983) report in their study of 3 to 6 year olds' world of reading and writing, that even before they started first grade, the children they studied all had strong notions of genre differences. They could identify particular genres (e.g., birthday list, map, letter, and story) by responding to such organizational characteristics as letter grouping and page placement. Harste, Burke, and Woodward believe that organizational structures provide significant cues to functional understandings, and these understandings (which drive learning) are sociologically and contextually rooted.

Hidi and Hildyard (1983) examined fifth and seventh graders' differing cognitive behaviors as they wrote

narratives and opinion essays, and report distinctions across the two genres. Their data indicate that children's discourse production is genre-specific. The children's schema for arguments was less well developed than their schema for narratives, and their semantic and structural presentations in narration seemed to develop more steadily than their essay writing counterparts. Hidi and Hildyard did not find comparable distinctions in their comparisons of oral and written structures; the written structures were similar to those the children produced orally. They conclude that difficulties with writing seem to be based more upon the discourse form itself than on the mode of production (oral or written). Olson, Mack, and Duffy's (1981) work with college students similarly points to strong cognitive differences induced by varying genres. Their work, looking at how readers approach story and essay reading, describes the knowledge readers have about the underlying forms and surface conventions of the two genres, and how this structural knowledge is used to assist comprehension.

Although sparse, the relevant research strongly supports the notion that the strategies readers and writers employ differ with genre. Findings regarding children's control of expository forms are less clear; Harste et al. (1983) argue that children have mastery of a variety of expository forms, for example, while Hidi and Hildyard's (1983) work may suggest that expository skills develop later as well as more slowly than narrative competence.

The goal of the work reported in this chapter was to

explore this last issue by comparing the children's sensitivity to narrative and expository structures as reflected in their writing and reading activities. It describes the children's sensitivity to the structural characteristics of stories and reports in the passages they read and the pieces they wrote. The focus here was on the kinds of organizing features the children created and used; there was never an expectation of finding a "universal" structure since cultural experiences affect the earliest notions of structural form, and these differ within and across cultures. Instead, the analytic system used permitted examination of the varieties of structures used, without comparing or confining them to an expected form.

Analyses

The analyses reported here are based on comments during the general interview, and on the product data that were collected-- 134 writing samples and 134 retellings recorded immediately after the students had read each passage.

Writing. Analyses of writing samples focussed particularly upon issues of overall rhetorical structure - of ways in which the students organized and framed the totality of their written work - and also on issues of internal structure - of ways in which they segmented the content to organize and manage the complexity of their stories and reports.

Each of the texts the students wrote was analyzed using an adaptation of Meyer's (1975, 1980, 1981) prose analysis

system. Meyer's analysis of content structure describes the ways in which information within a piece of writing has been organized by the writer. This is done by developing hierarchical tree structures which represent the interrelationships between top and lower level content information. (See Appendix 1 for scoring manual.)

The analysis used in this study identified both top level and lower level content relationships. Analyses of reports and stories were based upon t-unit representations of each text and organized according to the operational definitions presented below:

Topmost Level

Rhetorical predicates functioned as the overall organizing frames below which all other levels of the content hierarchy were subsumed. Lexical predicates which acted as rhetorical predicates representing the gist (of a story) or the thesis (of a report) were chosen to represent the top level structure only when none of the other top level rhetorical predicates listed below could be perceived as dominating the rhetorical structure of the text.

Rhetorical Predicates

a. Causal - antecedent and consequent specified at equal levels in the content hierarchy - these were not attributed to the text without explicit causal markers (e.g. so, because)

b. Response - problem/solution; remark/reply; question/ answer specified at equal levels in the

hierarchy

c. Alternative - two or more equally weighted views or options compared or contrasted

d. Sequence - steps, episodes, or events ordered by time at equal evels in the hierarchy; other rhetorical predicates could serve as events

Lower Levels

Embedded under the top level predicates were any number of further structural levels. Nodes in these levels could be composed of any of the rhetorical predicates listed above, as well as 5 further types that occur only at lower levels:

e. Description - a variety of types of subordinate elaborations, including manner, attribution, specific, equivalent, setting, identification, epilogue

f. Evaluation - opinion or commentary about other ideas or events expressed elsewhere in the text

g. Evidence - supporting argument

h. Explanation - causal antecedents subordinate in staging to the main idea or event being explained (required explicit causal marker)

i. Adversative - comparison between alternatives, where one was less favored and subordinate - the dominant alternative was related to a higher node

Terminal Level

Each branch of the content structure terminated with a lexical predicate representing the content of the sentences (t-units) comprising the text.

All reports and stories were diagrammed and analyzed by one of the project team members. When all analyses were completed, they were checked, and revised if necessary, by a second analyst. Finally, the resulting content hierarchies were checked and remaining differences resolved by myself.

The tree diagrams were quantified by coding the nature of the topmost structure, as well as the specific rhetorical structures used at lower levels. In addition, the following scores were computed: deepest level (lowest level in the content hierarchy), broadest level (level having the largest number of individual content nodes), number of deeply linked items (those rhetorical predicates or content items branching downward to more than one rhetorical predicate or content item), and shallowly linked items (rhetorical predicates or content items branching to only one rhetorical predicate or to a single content item). (See pages 74-79 for examples of this procedure.)

Retellings. The four reading passages were also diagrammed in accordance with the procedures described above. After transcribing the retellings, the project team scored each transcript for the following characteristics: presentation of the top level structure, presentation of the overall gist, presentation of the title, recall of each

particular content item, and number of words in the retelling. Interrater agreement across two raters was 93.3 percent in identification of items retold. The content items each student remembered were marked as they appeared within the tree structure. This permitted analysis of the content recalled in terms of its place within the content hierarchy of the passage.

In examining results, I will first discuss the children's own comments about differences between stories and reports, then at the differences reflected in the writing they completed, and finally at the extent to which these features influenced their reading (as reflected in the retelling tasks).

What Children Say About Stories and Reports

During the sessions, the children often spoke quite directly about some of the differences they perceived between stories and reports. As early as third grade, the children had a firm notion of reports as being distinct from stories:

> A report tells something. A story just tells a story...it's made up.
>
> --Carol, grade 3

> Reports are real and stories aren't. In a story you can make animals talk but you can't in a report because real animals don't talk.
>
> --Sala, grade 3

> In a report you just write until you can't think of anything else. There is no 'the end' like in stories.
>
> --Ana, grade 3

> Reports are about something. It gives you

> information. It really doesn't matter the order. Because it's about things, the information can be in any order.
>
> --Tai, grade 3

From these examples, it can be seen that the children were quite aware that reports are information-giving while stories are make- believe. Some third graders, like Ana, had some notion of story markers and recognized differences such as "no the end" in reports, while others, like Tai, were able to talk about how information was likely to be structured within the piece.

By grade 6, the children had begun to develop a more sophisticated language to talk about the differences between story and report:

> In a report it has to be all facts. You stick to the truth. You cannot give opinions, except maybe in the conclusion.
>
> --Kali, grade 6

> When you're reading a report you're ready to pick up any facts. When you read a story you kinda might have to skip over some things that might not seem important and maybe aren't, and it won't matter. But in a report, it might really be drastic if you don't read a certain fact or you won't understand that it's a report.
>
> --Stan, grade 6

> When I write a report I look back into the facts in my mind about what I had remembered or thought of. When I'm writing a story, I'm just kind of remembering what other books had written and whatever I was thinking. In a story I try to think of what the actors are like.
>
> --Paul, grade 6

> Stories don't usually have a conclusion gathering everything in the story. They just have a conclusion saying what happened next. Usually it isn't as neatly organized and all put together in a special order. It just sort of happens, what happens to the characters.
>
> --Beth, grade 6

In their comments the sixth graders continued to focus on the dichotomy between facts and make believe, and also began to describe differences in organization (for example, Beth's and Kali's references to the conclusion and Stan's caution about unread bits).

Ninth graders used still more sophisticated language, and went beyond the fact-fantasy distinction in a couple of ways. First, they showed a more sophisticated awareness of the internal as well as macro-orginizational features of the genre. Also, they were more metacognitive; they discuss going outside themselves, such as using the medium of writing to help them learn and remember.

> You learn from reports. A report has to tell the reader something about what it is about. A story doesn't tell you something you have to know. A report is usually more organized. You write an outline and stuff. There's no plan for stories.
> --Jo, grade 9

> In report writing you can list and plan, but in a story you have to go along with what sounds right.
> --Jim, grade 9

> In a report you have to gather facts from an outside source, but in a story the ideas are your own. It's like collecting things together. You have to take all the facts and piece them together like a puzzle.
> --Peter, grade 9

> A good story has realistic characters that readers can relate with. A story is different from a report in that it must be entertaining and have adjectives to make it interesting and really hold the reader. Once you get rolling, I think a story is easier to write 'cause the events...
> --Lora, grade 9

Because students are likely to use their knowledge of

genre differences in their writing even if they cannot clearly verbalize what those differences might be, I looked next at the topics they chose to write about, and then at the structures embedded in the writing completed in response to story and report tasks.

The Topics the Students Chose to Write About

The topics chosen for the story tasks differed considerably from those for the reports, and also showed some shifts in emphasis as grade level increased. The third grade stories were predominantly about friends and relatives (33 percent) or a first day at school (25 percent). By sixth grade, both concerns had dwindled (to 17 percent for a first day at school and 14 percent for family and friends), being replaced by stories about new experiences, many involving a great deal of fantasy (39 percent). By ninth grade, stories about such "grown-up" first time activities as going on a date or to a concert were most popular (47 percent). First day of school stories also regained some lost popularity (33 percent), perhaps because the data were gathered during these students' first year in high school.

Report topics were more widely distributed, with sports or hobbies leading at all three grades (51 percent at grade 3, 22 percent at grade 6, and 34 percent at grade 9). Most of the remainder of the children's reports dealt with a wide variety of topics about which individual writers seemed to have particularly detailed information. A small but gradually increasing proportion of the children relied on

topics they had recently studied in school as the basis for what they wrote (13 percent at grade 3, 16 percent at grade 6, and 20 percent at grade 9).

How the Students Organized the Stories and Reports They Wrote

Findings from the analysis of the structure of the students' story and report writing, presented below, also make it apparent that as early as grade 3, the students made clear and significant distinctions between stories and reports. To illustrate the analytic procedures, I will begin by examining third grade Ana's story in response to the "first day" writing task.

Sarha and Her Adventure

(1) One day Sarha was walking down the street when she heard a horrible noise in the sky (2) all of a sidden a witch on her broom stick came fall right down, down right in front of me. (3) I said to her, "who are you", (4) she sigh and said, "I am Glinda" (5) I'm - well I'm supposed to be a witch (6) but I can't do any trick" (7) how come" she said. (8) I don't know" (9) I just never could (10) "I'll help you if I can", Sarha said. (11) All right, she said as she jumped up (12)my magic book is right inside. (13) so for the rest of the after noon they spent looking for a cure. (14) at about 8:P.M. they finally found the cure. (15) But! they had to go a long way to get it (16) ackshaly they had to go to the end of the world.

(17) "let's take my broom stick" (18) "ok," Sarha said. (19) they had to get 5 clover and rud them on the little witch. (20) BUT! the clovers where graded by a mean and fishes DRAGON! (21) they traveled night and day to the clover patch (22) the dragon was asleep (23) we kreeped in to the clover patec picked the clover and ran swiftly away. (24) when they got home they rubed the clover on the witch who became very powerful (25) she said thank you to sarha and flew away.

The end

I								Sequence								
II	Ev 1	Ev 2	Resp		Resp		Resp		Ev 13	Ev 14		Resp		Ev 21	Ev 23	Ev 24	Ev 25
III			Q 3	A Coll 4 5	Q 7	A Coll 8 9	Rem 10	Rep Coll 11 12		Desc Coll 15 19	Rem 17		Rep 18		Desc 22		
IV				Adver 6					Desc 16	Desc 20							

Ana's top level structure is a sequence, reflecting the time-ordering that provides the major rhetorical pattern of the piece. Her lower level structures are responses (the remark/reply of her dialogue) and descriptions that elaborate or amplify earlier items, as well as an adversative marking a less favored alternative. A number of her content nodes are made up of collections of related ideas; these appear as collections of items under particular rhetorical predicates. The deepest level of structure in

her story is 4; her broadest level (the level with the most rhetorical or lexical predicates) is 2. She has 9 deeply linked items (underlined in the tree diagram, directly superordinate to 2 or more lower-level nodes); 5 items are shallowly linked (with 1 directly subordinate node); the remainder are unlinked. The main episodes occur when Glinda shares her problem with Sarha, and later when they work out how to solve the problem.

Ana clearly knows a good deal about story writing. She has set a problem, and has embedded some dialogue as her characters go about solving the witch's power problem. She has created tension along the way to the story's resolution. And she has flagged "the end" -- a conventional way of marking completion in children's stories. The tree diagram presents a picture of a well-organized and fairly sophisticated third grade story.

Reports, on the other hand, took on a very different organizational pattern. Ninth grade Peter's report is a fairly typical example.

Musical Mayhem

> (I) In England in the early 70's there was uprising of a new kind of unusual music that was different than anything ever heard before. (2) The songs were longer than usual (20-30 minutes in some) and had odd lyrical content (not the normal "I want to get you into bed" lyrics). (3) To add to the strangeness, the musicians were incredibly

proficient, exceedingly superior to the average rock musicians of the day.

(4) This music has been loosely termed progressive rock, (5) and its name fits its characteristics perfectly. (6) A good example of this is a group called Yes. (7) They released an album in 1968 that bordered more on pop than anything else (8) but through a succession of albums they improved as musicians and songwriters and wrote more and more meaningful lyrics. (9) Longer and more complex music arose with each album as they progressed to incredible musicianship.

(10) Progressive rock was quite popular, but to a so called "cult audience" not to a mass audience. (11) It was quite different than anything heard of before (12) and that might be one reason for getting into it. (13) As with anything, though, this musical art form died a quick death in the public eye. (14) But progressive rock musicians and music still remain as some of the most innovative musical products around today.

I	Progressive Rock				
II			Descr (Coll)		
	1	4	6	10	14
III	Descr (Coll)	Eval 5	Seq	Causal	Adver 13
	2 3				
IV			Ev 7 Ev 8	Ant 11 Cons 12	
V			Descr 9		

Peter's top level structure is a lexical predicate. (We can treat this top level as simply the existential assertion that progressive rock exists.) His lower level structures include descriptions that elaborate on earlier items, a time-ordered sequence, a cause/effect relationship and an adversative presenting a less-favored alternative. His deepest level is level 5 and his broadest level is level 3. He has 4 deeply linked items, directly superordinate to at least 2 other nodes, and 7 shallowly linked items that directly subsume 1 lower level node. His main information cluster occurs in the second paragraph where Peter uses the group Yes as an example of how progressive rock music developed in musical excellence.

The piece itself follows a thesis-elaboration form in which the thesis is stated and then elaborated with a collection of facts, displaying Peter's knowledge of the subject. The description (collection) organizational pattern that results was frequently found in the students' report

writing, as a way of presenting loosely related items of topic-relevant information. In Peter's case, the thesis-elaboration works as a fairly simple informational form. No real argument is set up, and progressive rock is not compared with any other kind of music. Applebee (1984) found similar structures in the writing of the secondary school students he studied, often as a way to recite content knowledge to a teacher who would use the information as a basis upon which to grade the student's knowledge.

Peter obviously knew a good deal about progressive rock music, and the tree diagram exemplifies the simple concatenation of information he used to present what he knew.

Group Results for Student Writing

Top Level Structures. Table 4.1 summarizes the top level structures used in the students' writing. At all ages studied, students were more likely to organize their writing around lexical as opposed to rhetorical predicates. Since rhetorical predicates are highly organized structures which represent the formulation of logically or temporally presented arguments or relationships, it can be seen that even the high achieving students in this study tended to rely on simpler organizational forms.

Insert Table 4.1 about here

In contrast, the lone rhetorical form used at all consistently by the students was sequence; this was used

extensively by the story writers, especially at the sixth grade level. The temporal organization implicit in a sequence is less consistently appropriate in report writing tasks; instead, the students' reports tended to be organized around information clusters. The few sequences found in student reports occurred in "how to" reports which presented start-to-finish directions.

Most frequently, the students used the title of the piece as an organizing frame; this occurred almost twice as often in reports as in stories. Often the report title served as a conceptual organizer for tell-all-you-know-about-it reports, similar to Peter's "Musical Mayhem." The remainder of the stories and reports were organized around a main idea, stated or implicit, without a title.

Chi-square tests of significance indicate a clear overall genre difference ($p < .001$) in top level structure, although there were no comparable grade level differences. The major distinction between the story and report structures was the reliance on temporal sequence to organize stories and on titles to provide a superordinate content node for reports. Because there were no significant differences in mode (between the think-aloud and retrospective self report conditions), the two sets of data are combined in Table 4.1.

Internal Structure. Table 4.2 summarizes a variety of other aspects of the internal structure of the students' writing, including the deepest level and broadest level in

the content structure, and the number of deeply and shallowly linked content nodes. (Larger values for all of these indices reflect a greater degree of internal structure within the samples analyzed.) As did their use of top level structures, students' use of internal structure showed a significant genre difference ($p < .001$ for the multivariate effect). Genre by grade effects were also significant ($p < .027$), reflecting greater changes in the structure of reports as opposed to stories as grade level increased. Although the indices of internal structure are roughly equivalent for stories and reports at grade 3, by grade 9 the means for reports are considerably higher than those for stories across all four measures.

Insert Table 4.2 about here

Comparative Length. Table 4.3 presents changes across the grades in the total words, total sentences, total t-units, and number of words per t-unit. Not surprisingly, there are significant gains in all of these indices, for both stories and reports ($p < .001$ for the multivariate grade effect). These findings reinforce previous research (e.g., Loban, 1976) that has shown that children write longer papers, with greater syntactic complexity, as they get older.

Insert Table 4.3 about here

As with the measures of organization, genre effects were distinctly evident ($p < .001$). Overall, the ratio of words per t-unit was greater for reports, suggesting a

greater use of syntactically complex writing in the reports as compared with the stories. It is also interesting to note that in grades 3 and 6, the students' stories were longer than their reports, yet by grade 9, their reports were longer. This is reflected in the nearly significant genre x grade interaction ($p < .10$).

General Patterns. It is interesting to note that across analyses, stories showed less change than reports in their general organization. This may be because the students' notions of this particular type of story structure was firmly in place as early as grade 3. It may also be a function of schooling; perhaps the more complex story are not taught (nor are alternative story forms taught), while "academic" exposition receives instructional focus. Structurally, the students' stories did not change as dramatically as did their reports, which became considerably longer, more content laden, better elaborated, and more highly structured across the grades.

These differences suggest that although the children may have developed some forms by which to structure their early oral expository discourse, these were less helpful in their report writing than was their early knowledge of narrative for story writing. Clearly, the story form they already knew (typically mainstream American culture), was one they also used in school; this was not the case with exposition. Here, I will speculate that young children have more ubiquitous exposure to the more "adult" story

structures than to their expository counterparts. Although children make functional use of exposition in daily speech, the more formal written report structures are less familiar to them than story structures. For this reason, as the findings indicate, the learning of organizational structures for reports takes place at school, and thus exposition seems to progress rapidly across the school years while the story forms showed a relatively slower rate of change.

How Students Structured their Retellings

The students' retellings of the passages they read provide a way to examine the extent to which the structures they use in their writing also influence their performance while reading. Figures 4.1 through 4.4 present the tree diagrams for the four reading passages. They illustrate the differences across the genres as well as the uniqueness of each individual passage. First, each differed in length: Jackie contained 71 content items (557 words), New Kid 72 content items (680 words), Mole 48 content items (573 words), and Prairie Dog 35 content items (409 words). The stories contained more separate content items than the reports, regardless of passage difficulty, and overall averaged more words per passage. The top level rhetorical structure of each story was a sequence while the top structure of each report was a lexical predicate (represented by the title). The New Kid was written in the first person; the others were in the third person. Both stories used sequences made up of events and rhetorical

predicates (primarily response rhetorical predicates reflecting remark/reply dialogue structures) to [illegible] them along, while the reports were developed primarily through descriptions and description/collections.

Insert Figures 4.1 through 4.4 about here

Average Length of Retellings. Number of words in a retelling is one simple measure of how much has been remembered; Table 4.4 summarizes the relevant data for the four passages. Overall, the total words in the [illegible]tellings tended to increase across passages across age. However, the ninth graders' retelling of Prairie Dog did not increase in length as did the others, suggesting this was the most difficult text for even the oldest students to read and remember. For the more difficult passage set, there was a significant effect for mode (talk aloud vs. retrospective) ($p < .05$), and mode by genre ($p < .01$), with the retellings associated with the talk-alouds in general being longer than those associated with the retrospective condition, though more so for the reports than for the stories. This may be because in the think aloud condition the extra activity occurred before the recall was requested, while in the retrospective condition the extra manipulation of content (which might be expected to improve recall of difficult material) occurred after the recall request.

In general, stories led to longer retellings than did reports, significantly so for the easier passages ($p < .001$). Across ages, the students' average story retelling

length was 211.8 words (the average story passage length was 618 words) as compared with 125.2 for reports (the average report length was 491 words). If these averages are expressed as a percentage of the original number of words, however, the pattern looks somewhat different (see Table 4.4, "percent retold"). For the easier passages, the story retellings are clearly closer in length to the originals than are the report retellings; but for the harder passages, the report retellings are some 12.5 percentage points more complete than the story retellings.

Insert Table 4.4 about here

Recall of Higher Level Structures. Table 4.5 summarizes three other aspects of overall recall: the use of the original top-level rhetorical structure as part of the retelling; inclusion of the original title; and the extent to which the retelling reflected the gist of the original.

Patterns for the two genre were quite different. The students tended to organize their retelling of stories around the original top level structures, but used this structure significantly less often in their retelling of reports ($p < .001$). Titles, on the other hand, were much more likely to be included in the retellings of reports. Across passages, students were more likely to recall the original gist of the stories than they were of the reports. Between grades 3 and 6, the children tended to increase

their use of top level structures as well as their recall of the gist, for both stories and reports. Between grades 6 and 9, however, attention shifted more toward recall of the gist, and use of the top level structures declined for stories and increased only slightly for reports.

Insert Table 4.5 about here

Content Units Recalled. Table 4.6 summarizes recall of content units, overall as well as at each level within the hierarchical content structure of the original passage. The percentage of content units recalled increased with age, for both stories and reports when compared within a particular passage set ($p < .004$ for the easier passages, $p < .066$ for the more difficult set). Recall was also significantly greater for the easier passages than for the harder passages at grade 6, where each set was completed by half of the children ($p < .032$). Genre effects on overall recall of content units were also significant for both passage sets, though the pattern differed. For the easier passages, children recalled a higher proportion of the content units for the stories than for the reports ($p < .007$); for the harder passages, recall was better for the reports ($p < .002$). These findings parallel the results reported earlier, for the number of words retold expressed as a percentage of the number of words in the original.

Insert Table 4.6 about here

Patterns of recall at the various hierarchical levels are of particular interest, and are displayed in Table 4.6 along with the results for overall recall. As with total recall, there are reasonably consistent increases across levels as grade increases, and significant genre differences. In particular, story recall seems to be more reliant upon the content structure: the percent recalled decreased steadily with diminishing content level, from nearly 70 percent recalled at level 2 to less than 10 percent at level 6. This pattern was less dramatic in the students' retelling of reports, which included no more than 32 percent of the content from any of the levels. This suggests either that the students of all ages have a better representation of story structures and therefore use these representations to organize their retellings, or that the stories were better formed than the reports, making the structures more memorable. However, the fact that overall recall was better for reports than for stories in the more difficult passage set suggests that students' sensitivity to structure, rather than the memorability of the passages, was responsible for the patterning in the recalls.

Some examples will illustrate how the retellings varied. First, third-grade Ana's retelling of the Jackie story:

> Well, there is this new kid Jackie who came to town - and these three boys want - and she comes out and plays with these three boys. An then they eh - and then they ask him if he wants

to be in the club and they say he has - and he says alright, what would I have to do. And so they say you have to do a task. And so em they told him to meet him at the corner, em empty corner. And well, at the corner at mid - at midnight - when it gets dark. Anyways, he went there and he said all right now what would I have to do? And then they took him a few blocks-houses down and they told him they have to go and ring - pull the string in the old house. And so he - she he did. I can --- I don't know what to call him or her or it. And so she climbed up on the porch and the bear , what they called it, bit him and he goes back and it's a joke You just barely made it. And so then she says - and then they roamed the streets for a while or something and they did all those things. And when school started they were waiting outside for her, for him, or it. And so he came out- and this little girl came out with a green dress with a green ribbon in her head and they said, "Who are you?" or "Get Jackie." "I'm," she said, "I'm Jackie". "Well, what are you doing in that dress?" "Mama wouldn't let me wear pants to school." And they didn't know it.

Ana's retelling includes all the major parts of the story. Her presentation reflects the top level rhetorical structure (sequence) used to structure the original passage.

Her account captures the gist of the original, and includes a high proportion of the content items and lower level rhetorical structures. She included 30 content items in her retelling, 42.2 percent of the content units in the original text.

Sixth grade Jim's retelling of Prairie Dog is an example of a retelling of a less well understood passage, in this case a report.

> It's a story about how the prairie dogs um play around and what their basic day is like, and how they saved - how they lived through uhm when the many guys came over and dumped gallons and gallons of water on them to wipe them out. And they were amazed that the water had disappeared all of a sudden. Not all that quickly, I guess. A few days. And uhm it tells how they help save water when droughts occur and things like that.

Jim did not use the top level structure to guide his presentation, nor did he relate the gist or title. Instead, he retold the few isolated bits he had remembered. The information he presented was primarily clustered within the last description/collection episode (items 27 - 32) presented in the passage. He included four content items in his retelling, representing 12.5 percent of those in the original.

In general, those who remembered less from the passages were less verbose, and in lieu of a more comprehensive retelling, gave the title or presented some very generalized

statement about the piece. While they always included some content units in their retellings, the percentage of content items retold was low and they did not present them either in rhetorical structures like those presented in the text, or in newly created structures of their own that might have provided evidence of integration of the given information.

Conclusion

The findings clearly suggest that the children had a very firm sense of stories and reports. From third grade on they responded in clearly different ways to story and report tasks. The two were organized differently, the content differed, the highest level organizing structures were different, and the kinds and amounts of elaborations were also different. While the younger students had less control of the general organization of adult forms of reports as opposed to stories, this gap narrowed considerably sometime between grades 6 and 9. Much growth seems to have occurred in organizational and syntactic skills between these grades -- more embeddings were used, the structures became more highly organized, more elaborations were presented.

These changes occurred even more dramatically in the children's reports than in their stories. Clearly, from grade 3 on, the students had a well formed notion of story organization. They used this knowledge well in their writing as well as their retelling. However, while the third, and even sixth, graders demonstrated less control of the adult forms of report organization, they tended

nonetheless to be consistent in the report forms they did use. The more youthful version of report relied upon a series of description/collections to move the piece along, and tended to be organizationally dominated by the title. While dramatic changes occurred in the student use of report form between grades 6 and 9, the findings suggest that it is too simplistic to assume that before that time they did not have control of <u>any</u> report form.

How can these developments be explained? It can be conjectured that from an early age children are exposed to stories that use the same general forms as the stories that they are later expected to read and write in school. For reports, on the other hand, children may rarely encounter spoken versions that correspond to the types of reports typically required in school. (How this differs across different cultural groups would be yet another study.) The functional forms they hear and use in their daily lives serve as their models, and these may be the source of the simple forms they use to structure their reading and writing in the early grades. It will take more data than is available in the present study, of course, to bear this out.

Table 4.1

Use of Top Level Structures

	Frequencies							
Genre:	Story				Report			
Grade:	3	6	9	All	3	6	9	All
Rhetorical Predicates								
Response	0	0	0	0	1	0	0	1
Sequence	4	16	3	23	1	4	0	5
Lexical Predicates								
Title	6	7	6	19	10	20	5	35
Main Idea	6	13	6	25	4	12	9	25
Totals	16	36	15	67	16	36	14	66

Significant effects[1]

Genre: Chi-square = 12.04, df = 1, $p < .001$

[1]Comparing use of sequence, title, or main idea; omits response. On tests of significance, see Chapter 2.

Table 4.2

Internal Structure in Student Writing

	Means					
Genre:	Story			Report		
Grade:	3	6	9	3	6	9
Deepest level	3.25	3.36	3.40	3.31	4.28	5.21
Broadest level	2.31	2.08	2.20	2.25	2.78	3.29
Deeply linked nodes	4.00	4.56	4.27	2.19	3.69	6.00
Shallowly linked nodes	2.56	3.39	4.47	2.31	4.36	5.71
n	16	36	14	16	36	14

Significant Multivariate Effects

Grade:	$F[8,114]$ =	1.92,	$p < .063$
Genre:	$F[4,57]$ =	10.73,	$p < .001$
Genre x Grade:	$F[8,114]$ =	2.27,	$p < .027$
Genre x Mode:	$F[4,57]$ =	2.47,	$p < .055$

Table 4.3

Length of Student Writing

	Means					
Genre:	Story			Report		
Grade:	3	6	9	3	6	9
No. of words	108.56	202.19	225.27	72.31	175.61	243.86
No. of sentences	11.31	17.89	16.13	7.25	12.89	16.00
No. of T units	12.81	21.50	19.33	8.06	14.39	18.43
Words per T unit	8.43	9.38	12.26	9.03	12.46	13.33
n	16	36	14	16	36	14

Significant Multivariate Effects

Grade:	F[8,114] =	6.93,	p <.001
Mode:	F[4,57] =	1.71,	p <.159
Genre:	F[4,57] =	11.98,	p <.001
Genre x Grade:	F[8,114] =	1.74,	p <.096
Genre x Mode:	F[4,57] =	1.70,	p <.163

Table 4.4

Length of Retellings

	Means							
	Easier				More Difficult			
	Grade 3		Grade 6		Grade 6		Grade 9	
	Jackie	Mole	Jackie	Mole	New Kid	Prairie Dog	New Kid	Prairie Dog
Words retold	129.3	56.4	203.7	144.67	145.4	150.2	183.1	149.5
SD	93.6	33.5	60.6	57.3	77.6	195.5	63.1	92.4
% Retold	23.2	9.8	36.6	25.2	21.4	36.7	26.9	36.6
n	15	14	11	10	15	17	14	13

Significant Effects

Easier Passage Set (Grades 3 & 6)
Grade: $F[1,17] = 17.11, p < .001$
Genre: $F[1,17] = 18.54, p < .001$

More Difficult Passage Set (Grades 6 & 9)
Mode: $F[1,20] = 4.12, p < .056$
Genre x Mode: $F[1,20] = 7.11, p < .015$

Easy vs. Difficult Passage Sets (Grade 6)
Genre x Passage Difficulty x Mode: $F[1,17] = 5.57, p < .030$

Table 4.5

Recall of Higher Level Structures

	Percent of Protocols							
	Story				Report			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Structure								
Top	60.0	81.8	55.3	28.6	0.0	40.0	5.9	15.4
Gist	40.0	81.8	60.0	78.6	35.7	60.0	29.4	61.5
Title	0.0	0.0	20.0	21.4	78.6	70.0	52.9	23.1
n	15	11	15	14	14	10	17	13

Significant Effects

Top
  Genre: Chi-square = 14.81, df = 1, p <.001

Gist
  Grade
    Stories: Chi-square = 4.92, df = 2, p <.086
    Reports: Chi-square = 2.12, df = 2, ns

  Genre: Chi-square = 4.05, df = 1, p <.044

Title
  Grade
    Stories: Chi-square = 3.76, df = 2, ns
    Reports: Chi-square = 8.70, df = 2, p <.013

  Genre: Chi-square = 16.00, df = 1, p <.001

Table 4.6

Percent of Content Units Recalled

	Means							
	Story				Report			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
TOTAL	19.8	28.4	15.7	20.7	11.8	25.2	20.8	30.7
Level 2	53.3	59.1	93.3	71.4	26.5	38.6	27.9	37.5
Level 3	29.0	43.3	22.4	32.1	8.9	25.0	23.0	29.5
Level 4	20.6	27.9	12.6	14.3	12.1	28.0	21.0	35.2
Level 5	7.1	15.2	3.7	6.3	6.3	20.0	10.3	23.1
Level 6	10.0	12.1	3.3	12.5	14.3	17.5	8.8	30.8
Level 7	Passage stops at level 6				0.0	5.0	23.5	23.1

<u>Significant Effects, Total Recall</u>

Easier Passage Set (Grades 3 & 6)

Grade:	$F[1,17] = 11.21$, $p < .004$
Mode:	$F[1,17] = 3.75$, $p < .070$
Genre:	$F[1,17] = 9.24$, $p < .007$

More Difficult Passage Set (Grades 6 & 9)

Grade:	$F[1,24] = 3.70$, $p < .066$
Genre:	$F[1,24] = 12.75$, $p < .002$

Easy vs. Difficult Passage Sets (Grade 6)

Passage Set:	$F[1,20] = 5.29$, $p < .032$
Mode:	$F[1,20] = 4.06$, $p < .057$
Genre x Grade:	$F[1,20] = 4.49$, $p < .047$

<u>Significant Multivariate Effects, Recal at Levels II-VI</u>

Easier Passage Set (Grades 3 & 6)

Grade:	$F(5,13) = 4.15$, $p < .018$
Genre:	$F[5,13) = 8.25$, $p < .001$

More Difficult Passage Set (Grades 6 & 9)

Grade:	$F[5,20] = 2.26$, $p < .089$
Genre:	$F[5,20] = 20.15$, $p < .001$
Grade x Genre:	$F[5,20] = 2.51$, $p < .064$
Genre x Mode:	$F[5,20] = 2.84$, $p < .043$

Easy vs. Difficult Passage Sets (Grade 6)

Genre:	$F[5,16] = 18.75$, $p < .001$
Passage:	$F[5,16] = 2.41$, $p < .083$
Genre x Passage:	$F[5,16] = 4.53$, $p < .009$

Chapter 5

The Elaboration of Ideas in Story and Report

The previous chapter described the organizational structures the children used in their writing as well as in their recollections of stories and reports. However, the conceptual sophistication of a piece is often evident in features which are embedded at levels much below the top structure. Ideas that are loosely linked around a top level sequence or lexical predicate can be interwoven and elaborated upon through a variety of unifying lower level structures. These structures can help organize complex information in simpler presentational forms. S. Langer (1972) suggests that writing involves the simplification of reality through use of organizing structures that unify the complexities of the ideas the author wishes to convey:

> The appearances of events in our actual lives are fragmentary, transient, and often indefinite....the (writer's) business is to create the appearances of "experiences," the semblance of events lived and felt,

> and to organize them....But its distinguishing mark, which makes it quite different from any actual segment of life, is that the events in it are simplified. (p. 212)

As demonstrated in chapter 4, complexities can be organized around unifying higher level rhetorical structures, though the students I studied rarely used any but the simplest of such structures. This chapter will delve beyond top structure, breadth, depth, and length as indices of students' growing control of discourse forms, in order to examine those lower level structures the students used to elaborate and link their ideas. Genre-related language, syntax, and tense structures will also be examined as they relate to the particular genres studied.

Lower Level Structures in Student Writing

In addition to enumerating the top level structure in each writing sample, the rhetorical structures introduced in the previous chapter were used to examine ways in which the students elaborated upon the overall structures they presented in their stories and reports. The rhetorical predicates identified and defined in chapter 4, and used in these analyses as well, were causal, response, sequence, description, evaluation, evidence, explanation, and adversative. Use of these rhetorical structures at the top level was discussed in the previous chapter (Table 4.1); their use at lower levels will be discussed here. Table 5.1 summarizes the percent of students who made any use of each

of the lower level elaborating structures in their stories and reports; top level structures, already presented in Table 4.1, are excluded from these data.

Insert Table 5.1 about here

Narrative Structures. Sequence and response structures are used primarily to impose a sequential ordering on the information being presented. In the analyses of lower level elaborating structures (Table 5.1), the students tended to use sequences more than responses to move their stories and reports forward; sequential markers designating actions ordered in time ("and then...") tended to dominate this type of rhetorical structure. Across the grades, the students relied on sequences more in their stories than in their reports. Although more students used sequences in grade 9 as opposed to grade 3, the increase was not significant since even in grade 3, 56 percent of the students used sequences to organize the lower levels of their stories.

Response structures, primarily in the form of remark/reply and question/answer dialogue, were used in the stories written by half of the third graders and 38 percent of the sixth graders. The students at these grades tended to use dialogue as a way to sequence their stories and move the action along. Their use of responses decreased from 50 percent in grade 3 to 13 percent in grade 9. In general, this shift reflected the third graders' use of response

structures in their experiments with their newly developing control of dialogue-- before they acquired a broader array of structures from which to select. May's story is such an example:

> (1) One day a little girl went to school. (2) When she got ther she was scared. (3) She did not know what to do. (4) Then she went to her desk. (5) She was in first grade. (6) Then she felt like crying. (7) But then she did not. (8) At reacse there were lots of kids. (9) A littl girl came up to her. (10) The littl girl sead wath is your name? (11) "My name is Carrie. (12) What is your name. (13) Marry. (14) Marry will you play with me? (15) Yes. (16) Thank you. (17) So they start playing. (18) Carrie had lots of fun. The End.

I									Sequence								
II	Ev 1	Ev 2	Ev 4	Ev 6	Ev 7	Ev 8	Ev 9			Resp		Resp		Resp		Ev 17	
III		Desc 3	Desc 5							Q 10	A 11	Q 12	A 13	Q 14	A 15	Desc 18	
IV															Resp		
V														Rem		Rep 16	

In May's story, as with most third grade pieces, the reader is greeted with a thin and rapid series of events leading toward a predictable end. This is reflected in the tree diagram of the rhetorical structure, which is dominated by the top level sequence rhetorical predicate. Lower level

elaboration is sparse, with the occasional descriptions and response structures adding little depth to her work.

Simple Elaborations. Two types of rhetorical predicate, descriptions and evaluations, provide simple elaborative information-- information that tells more about a topic without setting it firmly in relation to other ideas or events. Descriptions function in a variety of ways, elaborating by specifying identity, attribution, equivalency, manner, setting, and epilogue. Evaluations provide subordinate evaluation (usually personal opinions) or commentary. Neither type of simple elaborative structure imposes firm structural relationships (such as those imposed by time sequence, causality or comparison among alternatives).

Description rhetorical predicates were the primary device used to elaborate upon both stories and reports. Use of description increased from grades 3 to 9, but that increase was rather small since 94 percent of the students used lower level descriptions in their stories and 88 percent in their reports as early as grade 3. Description appeared to be the primary way in which the students across the grades elaborated their ideas. As ninth grade Arleen said, "I want the person who reads my story to see what I see. I want them to know my imagination." For these older students, the elaboration of stories tended to be accomplished through description more than any other form. One hundred percent of the students included description

rhetorical predicates in the stories they wrote. Arleen's descriptions as well as sequences helped elaborate the following story:

Getting Accepted at a New School

(1) It was my third day at Forest High School. (2) Although there was a substitute teacher, they still would have the History test. (3) While handing out the tests, Miss Johnson, the substitute, gave directions. (4) The test looked hard, (5) and, I could see one boy eying my paper. (6) I looked him in the eye (7) and he gave me a look I had never seen before. (8) It made me uncomfortable.

(9) The silence in the classroom was broken suddenly when three boys behind me were whispering. (10) Soon questions were being thrown around the room. (11) I felt someone tap my shoulder. (12) Hoping they would just need to borrow an eraser, I turned around. (13) "What's number seven," the boy asked.

(14) There was a lump in my throat. (15) I was stumbling for something to say, and blurted out, I don't know, (16) ask someone else. (17) My hands were dripping with sweat as he tapped me again. (18) I ignored him and tried to think of another excuse. His bothersome tapping was consistent (20) and I turned around. (21) All

around me people were talking. (22) Two girls had their book open. (23) Other kids were reading whatever was written on their arms and legs. (24) I thought if I didn't give him the answer, he would think I was a sissy. (25) I knew that I was a new kid and that I needed friends, and (26) now was a good time to start. (27) I whispered that I would tell him the number if he would tell me the number. (28) We exchanged answers like everyone else.

(29) At lunch, on the playground, they wanted me to pitch in the softball game. (30) I seemed to get along with just about everybody.

I																															
II		Descr (Coll) 1 2																													
III																															
IV																															
V																															

I Getting Accepted at a New School

II Descr (Coll) 1 2 — Sequence — Descr (Coll) 21 24 25 26 — Sequence

III Ev Ev Ev Ev Ev Ev Ev Resp Ev Ev Ev — Ev Ev Ev
3 5 7 9 10 11 12 17 18 20 — 27 28 29

IV Desc 4 — Desc 8 — Q A (Coll) 13 15 16 — Desc 19 — Desc (Coll) 22 23 — Desc 30

V Desc 14

Arleen uses her sequences to move her story on, and her descriptions to enlarge her message. The response structure she uses not only moves the story forward (as Amy's does), but it also highlights her fear and frustration ("There was a lump in my throat," "...stumbling for something to say").

Arleen used carefully selected language and structure to "let the reader know her imagination."

Although the proportion of students using at least one description was high even at grade 3, their tendency to use multiple descriptive structures increased across the grade levels studied. For stories, the third graders used an average of 2.3 descriptive structures at lower levels in their stories. This increased to 3.4 in the sixth grade stories, and 4.8 by grade 9. For reports, the increase was even more dramatic, rising from a mean of 1.7 at grade 3 to 5.3 at grade 6, and finally to 5.6 descriptions per report at grade 9.

Evaluations, on the other hand, played a relatively minor role in story writing, and were used more in the lower than the upper grades in the students' reports. In general, these evaluations were offered as commentary rather than as a summation, often serving to get the writing started or to bring it to a close before they had learned more sophisticated routines and structures. "I like hummingbirds," "Swimming is a fun sport," and "Jaimie is a creep" are typical of the evaluations that occurred in the children's early stories and reports. By ninth grade, evaluations were used more selectively-- and were more likely to reflect an integrated evaluation instead of a place holder.

Causal Structures. Causal relationships provide a stronger organizational framework than do the simple

elaborative structures discussed so far. Three types of causal relationships were identified in the analysis: causal rhetorical predicates (used to relate antecedent and consequent at equal levels in the content hierarchy); explanations (used to introduce a subordinately staged antecedent); and evidence (used to support an argument). In general, the students used the three types of causal structures more in their reports than in their stories. This was particularly true by grade 9, when 43 percent of the reports (but only 13 percent of the stories) included lower level causal rhetorical predicates. Use of evidence and causal rhetorical predicates both increased significantly in report writing between grades 3 and 9. Use of explanation rhetorical predicates occurred less frequently, and showed an erratic pattern of changes with grade level.

Comparisons. Alternative and adversative rhetorical predicates provide frameworks for the comparison and contrast of ideas, objects, or events. Alternative structures call for two or more equally weighted options to be presented, while the adversative structure permits a comparison between alternatives where one is favored and the other subordinate. Like the causality structures, comparisons played a bigger role in report as opposed to story writing. In report writing, alternatives and adversatives showed significant gain in use across the grades. By grade 9, some form of comparison occurred in all

of the reports the students wrote.

General Patterns

For story writing, the structural pattern was well established by grade 3: time orderings governed the overall structure, which was then elaborated through description rhetorical predicates. Growth in story writing took place primarily within these two categories. The pattern for report writing, on the other hand, showed considerable change across the grades studied here. At grade 3, the reports were structured primarily using description and evaluation rhetorical predicates. Third grade Mark's paper is an example of a particularly simple piece elaborated exclusively through description rhetorical predicates.

How to be a Good Goaly

(1) To be a good goaly is to move quickand keep an eye on the ball (2) and you have to be a good kicker. (3) Also you have to be smart to tell the kids to guard who (4) and you hold on to the ball tight because kids can kick it out of your hand. (5) and that's how to be a good goaly.

I How to be a Good Goaly
5

II Description
(Coll)

1 2 3 4

Mark's report is an example of the simplest thesis/elaboration form (described in the previous chapter),

listing all the information he seems to know (or has chosen to write) about soccer.

Although Mark's piece is very simple, description rhetorical predicates can also be used to develop a richer structure. Third grade Carl, for example, also relied almost exclusively on description rhetorical predicates in his report about chipmunks:

> (1) A chipmink lives in a farm and meadows, gardens. (2) They eat all kinds of nuts, (3) you can feed them from your hand (4) They have pouches in there mouths that carry food in. (5) Chipmunks make there homes in burrows. (6) In the winter they sleep (7) and sometines they wake up to eat something. (8) In the spring they look for a mate. (9) A chipmunks baby has no fur when it is born. (10) but you can see five black stripes and for white ones. (11) A chipmunk is considered full grown when it is about two months old.

I	Chipmunks						
II	Description (Coll)						
	1	2	5	6	8	9	11
III	Descr (Coll)		Descr		Adver		
	3	4		7		10	

In this case, while Carl too has attempted to tell all he knows (or wishes to say) about chipmunks, he has moved beyond the simple description form (at level 2) and added

additional descriptive structures (in level 3) that elaborate upon the ideas he has already presented. Carl has also included one adversative, a form that will become much more prevalent in the reports written by older children.

By grade 9, although description rhetorical predicates continued to play an important role, a variety of more sophisticated structures were being used at the lower levels. There was a significant increase between grades 3 and 9 in the percent of students who used causals, alternatives, evidence, and adversatives, suggesting a growing control of the structures which permit linking and elaboration of information, leading towards a more complex as well as more coherent piece.

Ninth grade Terrence used a greater variety of lower level structures in his report about driving.

> (1) Driving is harder than people think. (2) People think of driving as steering a wheel in the direction they want the car to go and pushing a pedal to go faster or slower. (3) Well,this is the least of it. (4) Driving is not going from one place to another in a car, (5) it's how the driver gets there. (6) The driver has to be aware of all the things that <u>could</u> happen while he is driving. (7) For instance, if someone is driving along a busy street, he has to watch the parked cars to see if one will pull out in front of him or if a person opens the door toward the street.

(8) While doing this, he also has to be aware of cars being (not parallel) operated and pedestrians. (9) A driver has to think that the worst possible situation will come up. (10) One problem that makes driving hard is that most people don't take it as seriously as they should. (11) This makes it harder for all other drivers. (12) One has to have his full attention on the road in order to be a safe driver. (13) If everyone who drives a car would take it more seriously and concentrated on the road, maybe driving could become a little easier for everyone.

I	Driving is harder than you think 1						
II	Adver 2		Evid 5				
III	Descr 3	Adver 4		Descr (Coll)			
			6	9	12		
IV			Desc (Coll)	Adver	Descr 13		
			7	8	Causal		
V				Ant 10	Cons 11		

Terrence's report contains about the same number of content units as third grade Carl's. However, his information is presented in structures that suggest interesting interrelationships among the issues he raises; more links are made across his ideas.

The story and report structures presented above suggest that beyond the top level structure, the growing complexity of student writing can be examined in the lower level structures that are used. It is not surprising that the story forms show less evidence of change and growth than do the report forms. As was discussed in the previous chapter, mastery of simple story forms is evident from early on, and sequences and descriptions are often used to elaborate upon these forms. The growth in lower level report structures may reflect school experience--both with structures in the models the students read and with those they are directly taught to incorporate in their writing.

It is important to remember, however, that these more complex forms, while apparent in the lower levels of student reports, do not work their way into the top level rhetorical structures (see Chapter 4). It may be that it is more manageable for students to use these forms to elaborate their ideas at lower structural levels, and that structuring an entire piece around any one of the argumentative forms is a much more difficult matter. Further data are needed to explore this issue, and to see whether in fact structures that emerge first at the lower levels eventually work their way into the top level structures in students' writing.

Children's Use of Genre-Related Language and Syntax

In addition to examining the hierarchical content structures the students wrote, I examined aspects of language use that I expected to be influenced by the

children's sense of genre. This included analysis of the tenses they used, the different kinds of language they used to begin and end their work, and the presentational stance (first, second, or third person) they used to express themselves. Five aspects of each piece of student writing and each retelling were analyzed: the primary tense used, use and control of tense shifts, type of beginning, type of ending, and the narrator's stance with respect to the action (e.g., first, second, or third person). The papers were scored by four raters who worked as a group first to refine the scoring procedure, and later to negotiate differences. Initial interrater agreement was .89 across this set of measures.

This set of analyses revealed marked age differences in the students' use of language in their stories and reports. Further, there were clear genre distinctions in language use evident at all grade levels.

Primary Tense. The primary tense used in the students' retellings and writings was scored as past, present, future, or no clear primary tense. Results are summarized in Table 5.2.

In general, the students in this study treated the past tense as most appropriate for stories, and the present tense as most appropriate for their reports. These patterns of expectations were well established in the students' own writing by grade 3, and the differences between genres were significant for both the writing and the retelling tasks.

Patterns in the retellings were similar to those for the students' own writing, though they were complicated somewhat by the interaction between the students' genre expectations and the actual patterns of tense use encountered in the passages. These complications were greatest for retellings of the report about prairie dogs, which was itself a mixture of past and present information. Future and mixed tenses were rarely evident at any grade level.

Insert Table 5.2 about here

Ana's story and Peter's report, discussed in Chapter 4 in the section on recall of content, are examples of past tense presentations. In contrast, third grade Robin's story shows a less clear primary tense.

The First Day at School

> This gril went to school for her first time and she was schaered. Her name was Luara she had no fraeind. That day everbody would like to paly with her. But at the end of the day some one does want to now where she lives. And Luara said no I will not tell you where I live because I do not like you.

Because presentations like Robin's reflected an inability to control appropriate shifts in tense, passages were examined for the extent to which tense shifts did and did not take place, as well as the degree to which the shifts that did occur were well controlled.

Tense Shifts. In both writing and retelling, the students' use of tense shifts increased with age, along with the ability to control those shifts (see Table 5.3). Across tasks, 21 percent of the students' presentations showed controlled use of tense shifts at grade 3, rising to 42 percent at grade 6, and then rising somewhat more sharply to 71 percent by grade 9. Management of tense shifts was similar in stories and reports, and in the students' original writing compared with their retellings. Uncontrolled and mixed-shifts (with some controlled and some not within the same story or report) at all grade levels tended to occur in cases like Robin's where the confusion grew out of relating the time of the event to the moment of speech or writing.

Insert Table 5.3 about here

Lora, a ninth grader, had a similar problem in her attempt to insert her own point of view into a piece that she began as a story.

> Lisa looked out of the car window practicing what she would do when she met her new teacher as she always did when we meet new people. She's a person who despises meeting new people. Every time she has to meet a stranger she becomes terribly pale and shakey. I've never had that problem, but my sister seems to be born with a shy personality.

Lora uses an action-in-progress beginning to her story, and

it works to immediately carry the reader into story genre expectations. However, her difficulty in making the transition from her presentation of the past tense opening to her first-hand narrative commentary on her sister's shyness leads to her uncontrolled shifts in tense.

It is interesting to note that the control of shifts in tense grows evenly across the ages and is not influenced by the genre. This suggests that such control reflects a natural development in general language skill across the ages studied, rather than increasing familiarity with the conventions of one or another genre.

Beginnings. Susanne Langer (1972) indicates the important role "beginnings" play as introductions to the genre of a piece:

> (illusion)...is at least tentatively established by the very first sentence, which has to switch the reader's or hearer's attitude from conversational interest to literary interest, i.e., from actuality to fiction....Children listen with the same readiness to stories and verses, just as they are always prepared to look at pictures. (p. 213)

Because many students, like Lora, marked the genre of their work within their first few words, ways in which the students began and ended their stories and reports were also examined; it was anticipated that these analyses would provide another view of the students' notions of the genres and their ability to control them.

The analyses of ways in which the students began their stories and reports in writing as well as retelling pointed, as with the tense analyses, to a developmental break between grades 6 and 9. Table 5.4 presents a detailed breakdown of the kinds of beginnings used by the students, grouped into 3 more general categories (formulaic, structural, and weak). Weak beginnings were considered to be those that provide no clear introduction and require the reader to read further before being able to determine the genre. Formulaic beginnings used conventional phrasings that clearly marked the genre, without being integrated into the overall rhetorical structure of the work (e.g., "Once upon a time"). Structual beginnings both provided a clear indication of the genre of the piece, and were integrated into the overall structure (as with a thesis statement in a report or provision of a setting information in a story). Tests of significance were based on these three more general categories, and reflect the degree of control that the students had over the beginnings of their stories and reports (rather than the particular types that were appropriate within each genre).

Insert Table 5.4 about here

In general, there was a decreasing use of formulaic beginnings as age increased, with a movement in story writing toward the presentation of setting information, and in report writing toward a thesis statement. These patterns were similar for the students' writing and retellings,

except that retellings were more likely to begin with the formulaic topic-starter, "This is a report/story about...." (Beginnings classified as topic starters in this analysis had something of the form of a thesis statement, but simply announced the general subject matter rather than the specific thesis that would be discussed.) Although age changes are apparent in moving from grade 3 to grade 6, development is more dramatic between grades 6 and 9. Slight mode effects (retrospective discussion versus talk-alouds) appeared for retellings of stories, with parallel but not significant effects for retellings of reports. In general, the retellings were more likely to use a formulaic beginning after the retrospective condition than after the talk-alouds, which were more likely to lead to weak or poorly defined beginnings.

If we look at specific openings, by far the greatest number of third and sixth graders began their reports with a topic starter such as "I know a lot about horses" or "Horses are animals." They began their stories with such traditional formulas as "Once upon a time." In contrast, the ninth graders began either with a setting (story) or thesis statement (report). Topic starters occurred much more often in the students' retellings than in their writing. These seem to have been used as a way into the presentation when students were uncertain about how to structure their presentations. The frequency with which this opening occurred, particularly in the retelling of

reports, suggests either that many of the students were unclear about how to begin their report retellings, or that they were less confident relating the factual information they had just read.

Among the stories and reports I have examined already, Lora's (see above) begins with an action-in-progress ("Lisa looked out of the car window"), and Peter's (chapter 4) with a thesis statement ("In England in the early 70's there was uprising of a new kind of music that was different than anything ever heard before"). Third grade Ana's beginning (chapter 4) is an early form of setting ("One day Sahra was walking down the street"), reflecting the transition from the formulaic "once upon a time" toward the more specific, situational settings provided by older students, such as ninth grade Wes's "It was a rainy day."

Endings. The endings students' provided for their reports and stories were similarly categorized as formulaic, structural (with a clear resolution), or weak. Table 5.5 presents the results.

Insert Table 5.5 about here

As Table 5.5 indicates, about half of the students at each grade level ended their story retellings by recounting the thematic resolution of the plot from the passages they had read ("So he finally came to the conclusion that he was accepted"). Students who could not resolve the action used a scattering of other strategies, though third graders were somewhat more likely to simply stop after reciting the last

action they could remember, and the ninth graders were more likely to provide an ending based on a natural closing down of the action (e.g, " By the end of the day he had made many friends").

Students' endings to their own stories showed more development across this grade span. In the third grade sample, about half the students used a formulaic ending ("the end" or "they lived happily ever after"); only 14 percent managed a strong resolution based on the theme of the story. In the ninth grade sample, on the other hand, none used a formulaic ending, 42 percent stopped at a natural break in the action, and 25 percent provided a thematically-driven resolution.

Endings to reports showed similar development, in the retellings as well as the students' own writing. In both, the third graders were most likely to end their reports with a final fact about their topic; otherwise they made use of the formulaic "the end" or let the report run down with no clear ending at all. By ninth grade, students' own reports usually had a clear resolution (usually a summary or an evaluation), though this was less likely in their retellings where they were less familiar with the material they were reporting about.

A comparison across genres suggests that because students had a better understanding of story structure, they were more likely to end these with a resolution of the conflict or problem. On the other hand, the report forms

with which they were less familiar showed less closure -- they relied more on use of personal evaluations ("I really like swimming") or last facts ("Swimming makes you get out of breath") to end these. Genre differences were significant for retellings ($p < .001$), as well as for original writing ($p < .04$).

The design of the study also allowed us to examine the extent to which students' control over endings was similar for the story and report tasks, as well as for writing and retelling. For the students' writing, performance in one genre was significantly associated with their performance in the other (Cramer's $V = .36$, $p < .002$). In other words, those students who were able to provide strong endings in their stories were also likely to do so on the report writing task. There were similar, though less strong, associations between the writing and retelling tasks: students who were able to provide strong conclusions for their own stories and reports were more likely to remember (and retell) similar strong endings in the stories and reports they read (Cramer's $V = .24$ and $.25$, $p < .09$ and $p < .08$, respectively).

Stance. Our last analysis of structure focussed on presentational stance, that is, whether the author adopted a first, second, or third person point of view (see Table 5.6).

Insert Table 5.6 about here

Students of all ages were most likely to write and

retell in the third person; this held true for stories as well as reports. However, the third and sixth graders were more likely than the ninth graders to mix their stance, contributing to a significant grade level effect for both retelling tasks. As with their use of tense shifts, the younger students had not yet gained complete control over the perspective they adopted. Strong genre differences occurred for writing ($p > .008$) and reading ($p > .001$). These resulted primarily from the work of the younger students, for whom the third person perspective was well-established in their stories, but whose reports were just as likely to adopt a first-person or mixed point of view. Although some development was evident between grades 3 and 6, the biggest shift toward a consistent third person perspective occurred between grades 6 and 9.

Before leaving this set of analyses, let us look back at Ana's (grade 3) and Peter's (grade 9) papers. Ana's primary tense (excluding dialogue) was past, and she used a controlled tense shift as she moved from past to present for the dialogue she presented. She began her story with a setting introduced by an echo of earlier formulaic beginnings ("One day") and closed with "the end." Her stance was mixed, changing from third person narrator to first person speaker.

Peter, like Ana, wrote his report in the past tense and used a controlled tense shift to the present progressive in the last sentence. He began his piece with a thesis

statement and ended it with an evaluation. It was written in the third person throughout.

Both are strong pieces of writing. However, the age and genre differences are clearly evident in the structure as well as the content. Ana appears to be experimenting with her new found ability to create dialogue. She does it quite successfully although she has still not mastered the rules of mechanics that accompany the presentation of written dialogue. Peter has written a well structured thesis/support report, has used quite a sophisticated tense shift, and has generally kept control over the syntax of his piece. However, he too must still master some of the mechanical conventions needed in his more mature writing.

Both samples of student work remind us that across the grades, the students stretched first to present the meanings they wished to convey within the appropriate genre structures. Next, they stretched to include new forms and features appropriate to those genres (dialogue, syntax, tense, stance), and last seemed to refine their control of mechanical features that are generally associated with the "finished" presentation.

Summary

From the analyses presented in Chapters 4 and 5, it can be seen that from third grade on the students approach stories and reports in clearly different ways. They organize them differently, include different content, choose different superordinate structures, and rely on differing

kinds and amounts of elaborations. While the younger students have less control of the more sophisticated forms of reports as opposed to stories, this gap narrows considerably sometime between grades 6 and 9. Much growth seems to occur both in overall organizational and in surface linguistic features between these grades-- more embeddings are used, the structures become more highly organized, more elaborations are presented.

These changes occur even more dramatically in children's reports than they do in their stories. Clearly, from grade 3 on, the students have a well formed notion of story organization. They use this knowledge well in their writing as well as their retelling. Similarly, even the third graders are consistent in forms they use to structure their report writing and retelling. The more youthful version of report relies on a series of description/collections to move the piece along, and tends to be organizationally dominated by the title. While dramatic changes occur in the student use of report form between grades 6 and 9, it is clearly too simplistic to assume that before that time they do not have control of <u>any</u> report form.

The story forms the students used in the early grades were very similar to those forms they used in ninth grade-- the stories grew more elaborate, but the basic story structure remained the same. As with their knowledge of stories, third graders had a good deal of knowledge of one type of expository form, based on a simple thesis followed

by descriptive elaborations. Although this was only one of a rumber of forms the sixth and ninth grade teachers said they taught their students to use, it continued to dominate report writing even among the ninth grade students. The other forms that were taught, based around more complex structures such as problem/ solution, causality, and comparison of alternatives, did not emerge consistently as top level structures in any of the tasks studied here.

In the analyses that looked beyond the top level global patterns, however, the higher level structures that were being taught in school (but that did not affect their global organization of text) gradually appeared in the lower level structures the children used. And these lower level rhetorical structures gained in frequency and variety across the grades.

Clearly learning was taking place, but not necessarily where instruction was being focussed. This suggests the possibility that children begin to use new and more complex structures in limited and probably more manageable contexts, before they use them to structure entire texts. This is particularly interesting since instruction rarely focusses directly on teaching students how to use those structures at the lower levels; cause/effect, problem/solution, and compare/ contrast are usually taught as major organizing structures-- in reading as well as in writing.

Table 5.1

Lower-Level Structures Used in Student Writing

	Percent of Students							
	Story				Report			
	Grade			Chi-square (df=2)	Grade			Chi-square (df=2)
	3	6	9		3	6	9	
Narrative Structures								
Sequence	56.3	58.3	73.3	1.22	18.8	22.2	50.0	4.69
Response	50.0	38.9	13.3	4.85	0.0	8.3	7.1	1.39
Descriptive Elaborations								
Description	93.8	88.9	100.0	1.94	87.5	97.2	92.9	1.88
Evaluation	12.5	25.0	13.3	1.56	43.8	25.0	21.4	2.37
Causalities								
Causal	18.8	11.1	13.3	0.56	12.5	8.3	42.8	8.91**
Explanation	0.0	38.9	13.3	10.40**	6.3	13.9	7.1	0.91
Evidence	0.0	0.0	0.0	0.00	12.5	2.8	28.6	7.15**
Comparisons								
Alternative	0.0	0.0	0.0	0.00	12.5	30.6	57.1	6.92*
Adversative	37.5	47.2	46.7	0.45	18.8	52.8	92.9	16.47***
n of students	16	36	15		16	36	14	

*p < .05 **p < .01 *** p < .001

Table 5.2

Tense Used in Students' Writings and Retellings

Percent of Students

Task:	Story Retelling				Report Retelling			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Primary tense								
None	40.0	16.7	0.0	8.3	13.3	10.0	38.5	25.0
Past	60.0	75.0	91.7	83.3	13.3	20.0	23.1	58.3
Present	0.0	8.3	8.3	8.3	66.7	70.0	38.5	16.7
Future	0.0	0.0	0.0	0.0	6.7	0.0	7.7	0.0
n of students	15	12	12	12	15	10	13	12

Task:	Story Writing			Report Writing		
Grade:	3	6	9	3	6	9
Primary tense						
None	14.3	20.0	8.3	0.0	13.6	0.0
Past	71.4	76.0	83.3	14.3	18.2	27.3
Present	7.1	4.0	8.3	85.7	59.1	72.7
Future	7.1	0.0	0.0	0.0	9.1	0.0
n of students	14	25	12	14	22	11

Significant Effects

Grade
Reading: Stories Chi-square = 7.74, df = 4, $p < .102$
Reports Chi-square = 8.81, df = 4, $p < .066$
Genre
Writing: Chi-square = 27.27, df = 1, $p < .001$
Reading: Chi-square = 18.38, df = 1, $p < .001$

Table 5.3

Tense Shifts

Percent of Students

Task:	Story Retelling				Report Retelling			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Tense Shifts								
None	40.0	27.3	42.9	0.0	63.6	30.0	0.0	25.0
Controlled	20.0	36.4	57.1	66.7	27.3	20.0	22.2	50.0
Uncontrolled	0.0	9.1	0.0	0.0	9.1	10.0	33.3	0.0
Mixed	40.0	27.3	0.0	33.3	0.0	40.0	44.4	25.0
n of students	10	11	7	3	11	10	9	4

Task:	Story Writing			Report Writing		
Grade:	3	6	9	3	6	9
Tense Shifts						
None	60.0	30.8	0.0	45.5	36.4	11.1
Controlled	20.0	46.2	85.7	18.2	54.5	77.8
Uncontrolled	20.0	11.5	0.0	18.2	4.5	0.0
Mixed	0.0	11.5	14.3	18.2	4.5	11.1
n of students	9	26	7	11	22	9

Table 5.3 (continued)

Tense Shifts

Significant Effects

Grade		
Writing:	Stories	Chi-square = 8.65, df = 4, p <.070
	Reports	Chi-square = 8.41, df = 4, p <.078
Reading:	Stories	Chi-square = 4.33, df = 4, ns
	Reports	Chi-square = 12.34, df = 4, p <.015
Domain		
Stories:		Chi-square = 0.00, df = 1, ns
Reports:		Chi-square = 3.48, df = 1, p <.071
Task Difficulty (Grade 6 Reading)		
Stories:		Chi-square = 3.27, df = 2, p <.195
Reports:		Chi-square = 3.29, df = 2, p <.193

Table 5.4

Control over Beginnings

	Percent of Students							
Task:	Story Retelling				Report Retelling			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Formulaic								
Formulaic	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0
This is a story/ report about	21.4	8.3	50.0	30.8	78.6	60.0	92.3	53.8
Topic starters	0.0	0.0	8.3	7.7	7.1	0.0	0.0	30.8
Structural Beginning								
Setting	64.3	58.3	33.3	53.8	7.1	0.0	0.0	0.0
Action/dialogue in progress	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Thesis statement	0.0	0.0	0.0	0.0	0.0	10.0	0.0	7.7
Beginning of action	0.0	33.3	8.3	0.0	0.0	0.0	0.0	0.0
Weak Beginning								
Dialogue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaluation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hello	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Generalized opening	7.1	0.0	0.0	0.0	7.1	30.0	7.7	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7
n of students	14	12	12	13	14	10	13	13

Task:	Story Writing			Report Writing		
Grade:	3	6	9	3	6	9
Formulaic						
Formulaic	57.1	32.0	0.0	0.0	0.0	0.0
This is a story/ report about	0.0	0.0	8.3	14.3	8.0	0.0
Topic starter	0.0	0.0	0.0	35.7	36.0	9.1

Table 5.4 (continued)

Structural Beginning						
Setting	35.7	24.0	66.7	0.0	16.0	9.1
Action/dialogue in progress	0.0	16.0	8.3	0.0	0.0	0.0
Thesis statement	0.0	4.0	0.0	21.4	32.0	72.7
Beginning of action	7.1	0.0	8.3	0.0	8.0	0.0
Weak Beginning						
Dialogue	0.0	12.0	0.0	0.0	0.0	0.0
Evaluation	0.0	4.0	0.0	14.3	0.0	9.1
Hello	0.0	8.0	0.0	0.0	0.0	0.0
Generalized opening	0.0	0.0	8.3	14.3	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0
n of students	14	25	12	14	25	11

Significant Effects

Grade		
Writing:	Stories	Chi-square = 8.57, df = 4, p <.073
	Reports	Chi-square = 10.67. df = 4, p <.031
Mode		
Reading:	Stories	Chi-square = 5.75, df = 2, P <.057
	Reports	Chi-square = 3.55, df = 2, p <.170
Genre		
Writing:		Chi-square = 0.32, df = 1, ns
Reading:		Chi-square = 26.28, df = 1, p <.001
Domain		
Stories:		Chi-square = 0.00, df = 1, ns
Reports:		Chi-square = 21.81, df = 1, p <.001
Task Difficulty (Grade 6 Reading)		
Stories		Chi-square = 7.72, df = 2, p <.021
Reports		Chi-square = 5.64, df = 2, p <.060

Table 5.5

Control over Endings

	Percent of Students							
Task:	Story Retelling				Report Retelling			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Formulaic								
Formulaic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
The end	7.1	0.0	8.3	0.0	21.4	0.0	0.0	0.0
That's how you do it	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Structural								
Solution/ resolution	50.0	50.0	50.0	53.8	0.0	0.0	0.0	15.4
Natural end	7.1	8.3	8.0	30.8	0.0	0.0	0.0	7.7
Evaluation	7.1	8.3	16.7	0.0	7.1	11.1	0.0	23.1
Moral	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Summary	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Weak								
Last fact	28.6	8.3	8.3	7.7	42.9	33.3	53.8	15.4
No clear ending	0.0	0.0	8.3	0.0	21.4	11.1	23.1	30.8
End to begin again	0.0	0.0	0.0	7.7	0.0	0.0	7.7	7.7
That's all I know about	0.0	25.0	0.0	0.0	7.1	44.4	15.4	0.0
n of students	14	12	12	13	14	9	13	13

Task:	Story Writing			Report Writing		
Grade:	3	6	9	3	6	9
Formulaic						
Formulaic	7.1	0.0	0.0	0.0	0.0	0.0
The end	42.9	8.7	0.0	42.9	0.0	0.0
That's how you do it	0.0	0.0	0.0	7.1	0.0	0.0

Table 5.6

Stance

Percent of Students

Task:	Story Retelling				Report Retelling			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
1st Person	0.0	0.0	25.0	9.1	25.0	70.0	46.2	16.7
3rd Person	93.3	83.3	58.3	90.9	33.3	10.0	46.2	83.3
2nd Person	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0
Mixed Person	6.7	16.7	16.7	0.0	33.3	20.0	7.7	0.0
n of students	15	12	12	11	12	10	13	12

Task:	Story Writing			Report Writing		
Grade:	3	6	9	3	6	9
1st Person	0.0	20.0	25.0	35.7	4.0	18.2
3rd Person	71.4	72.0	66.7	35.7	56.0	72.7
2nd Person	0.0	0.0	0.0	7.1	4.0	0.0
Mixed Person	28.6	8.0	8.3	21.4	36.0	9.1
n of students	14	25	12	14	25	11

Significant Effects

Grade

Writing:	Stories	Chi-square = 0.04, df = 2, ns
	Reports	Chi-square = 3.90, df = 2, p <.140
Reading:	Stories	Chi-square = 7.48, df = 2, p <.024
	Reports	Chi-square = 11.83, df = 2, p <.003

Genre

Writing:	Chi-square = 7.03, df = 1, p <.008
Reading:	Chi-square = 14.09, df = 1, p <.001

Task Difficulty (Grade 6 Reading)

Stories	Chi-square = 1.32, df = 1, ns
Reports	Chi-square = 2.75, df = 1, p <.097

Table 5.6 (continued)

Structural						
Solution/ resolution	14.3	26.1	25.0	0.0	4.2	9.1
Natural end	0.0	21.7	41.7	0.0	12.5	9.1
Evaluation	0.0	34.8	8.3	7.1	37.5	27.3
Moral	0.0	0.0	0.0	0.0	0.0	9.1
Summary	0.0	0.0	8.3	0.0	8.3	36.4
Weak						
Last fact	14.3	0.0	0.0	42.9	29.2	9.1
No clear ending	14.3	8.7	8.3	0.0	8.3	0.0
End to begin again	7.1	0.0	0.0	0.0	0.0	0.0
That's all I know about	0.0	0.0	8.3	0.0	0.0	0.0
n of students	14	23	12	14	24	11

Significant Effects

Grade		
Writing:	Stories	Chi-square = 24.39, df = 4, p <.001
	Reports	Chi-square = 31.72, df = 4, p <.001
Reading:	Stories	Chi-square = 3.64, df = 4, ns
	Reports	Chi-square = 18.89, df = 4, p <.001
Genre		
Writing:		Chi-square = 4.05, df = 1, p <.044
Reading:		Chi-square = 20.48, df = 1, p <.001
Domain		
Stories:		Chi-square = 0.13, df = 1, ns
Reports:		Chi-square = 11.28, df = 1, p <.001

Chapter 6

Making Meaning: A Study Of Behavior While Reading and Writing

Chapters 4 and 5 described differences in the end products of children's reading and writing. A variety of differences appeared in the structures the children produced when they wrote as well as in the structures they used to present their ideas when they retold what they had read. From third grade on, the children responded to story and report tasks in very different ways -- the content differed, the highest level organizing structures were different, the syntactic features were different, and the kinds and amounts of lower level elaborating and linking devices they used also differed. In general, these analyses indicated that genre differences were more responsible for variations in the ways in which the children structured their work than were domain differences between reading and writing. While this consistent evidence might lead one to conclude that in some generalized way genre is more powerful than domain in affecting children's approaches to meaning development, such

a conclusion would be premature without careful analysis of the strategies the children used in the act of making meaning. This chapter, then, will present a discussion of the on-line strategies the readers and writers employed when developing and presenting their ideas in each genre.

The Construction of Meaning

When readers and writers develop their ideas, they rely on various kinds of knowledge: knowledge about the content, genre, and structure and how these work together in the evolution of the conceptualization of an entire unit of discourse. Iser (1975) says:

> ...there is an active interweaving of anticipation and retrospection....The impressions that arise as a result of the process will vary from individual to individual, but only within the limits imposed by the written as opposed to the unwritten text. ... While expectations may continually be modified, and images continually expanded, the reader (and author) will strive, even if unconsciously, to fit everything together in a consistent pattern. (pp. 287-288)

I was interested in learning more about the kinds of knowledge the children used when contemplating such "written and unwritten texts" to build their own consistent patterns of meaning and experience: how their knowledge grew, where their ideas originated, and when and how their ideas were used.

This constructivist approach to the use of knowledge grows out of the view that language comprehension and production involve active participation on the part of readers and writers (Bartlett, 1932; Bransford & Johnson, 1972; Britton, 1970; Iser, 1978; Kuhn, 1962; Rosenblatt, 1938, 1978; Rumelhart, 1975; Spiro, 1980) and that the meaning that develops is the consequence of a wide range of textual, contextual, and attitudinal forces continually at play in the human mind. This view of language comprehension has been adopted by many contemporary linguists (Chafe, 1972; Fillmore, 1981; Halliday, 1977; van Dijk, 1975) and psychologists (Minsky, 1975; Shank & Abelson, 1977; Anderson, 1977; Rumelhart & Ortony, 1977; Spiro, 1977).

This work reminds us that the construction of meaning, be it in reading or writing, is a function of the interrelationships among a variety of complex sources, and suggests that the act of meaning construction cannot be described by a linear, or even by a simply recursive, model-- interpretation and change are deeply interwoven every step of the way.

The Analysis of Meaning Construction

For this study, I developed an extensive system to categorize the kinds of strategies and types of knowledge revealed in the children's reading and writing protocols. The analysis is the outgrowth of earlier work (Langer, 1984-c; in press-a, b) in which various components of the final analysis were developed, although all portions underwent

extensive revision based upon the protocols gathered for this study.

The overarching framework grows out of a body of work done with Fillmore and Kay (note 1) and is tied to the envisionment or text world that a reader or writer has developed at any point in reading or writing a particular text. The envisionment is the reader's or writer's experience of the "message" --the total understanding a reader or writer has developed at any particular point in time (Langer, in press-a, b). The envisionment is fluid; it is shaped by how earlier segments were interpreted and continues to develop and change in light of later information and ideas.

The analysis of meaning construction I developed for this study describes the knowledge sources, specific strategies, and general approaches the children used to develop their envisionments as they progressed through their reading and writing tasks. The focus throughout is on the knowledge and skills the children are bringing into play, rather than on the specific envisionments that they may be developing; the analyses are concerned with <u>how</u> children make meaning.

Scoring the Protocols

Each think-aloud and retrospective report was transcribed and segmented into communication units, where each unit was a separately identifiable remark about a thought or behavior. Due to the frequent pauses typical of

the self-report activities, segmentations required coder judgment but were generally associated with t-unit boundaries (Hunt, 1965).

The analysis consisted of two major categorizations and five supplementary analyses. The first analysis focussed on the reasoning operations used, describing the reading and writing process in terms of a concern with such operations as hypothesis-generation, stating of meaning, questioning, and validation of previous interpretations. The second analysis characterized the protocol behavior in terms of the specific kinds of concerns being monitored by the children: were they concerned with goal-setting, lexical choices, specific content, the conventions or mechanics of written language? Since all protocol comments reflect some degree of conscious monitoring, this analysis also distinguished between those comments that simply reported what was or had been done, and those that reflected a more conscious awareness of the choices available.

The remaining analyses examined a variety of aspects of the reading or writing process that have been important in previous studies. Analysis of <u>strategies</u> addresses the concern in writing process studies with separate phases of idea generation, revising, and the like, here generalized to reading as well as writing. Analysis of <u>text unit</u> describes the extent of concern with the global text world in contrast to more local aspects of meaning development. <u>Data source</u> describes the particular type of information acted upon in the various reasoning operations; hypotheses, for example,

can be generated about aspects of the genre, the specific content or set of ideas being developed, or the linguistic material of the text itself. Analysis of focus describes the extent to which protocol comments reflect an awareness of the reader's or writer's own behavior while dealing with the text (the "process"), or focus instead only on the emerging envisionment or text world itself (the "product"). Finally, each communication unit was also coded to indicate where it occurred in time-- before, during, or after the reading or writing experience.

Each of these dimensions was more specifically operationalized through a variety of sub-categories, listed in Figure 6.1. These will be explained in more detail as the results from each analysis are presented; coding definitions are included as Appendix III.

Insert Figure 6.1 about here

The project team members transcribed each think aloud and retrospective into communication units, and then analyzed each communication unit seven times, once for each of the seven dimensions. A scoring guide provided definitions of the sub-categories, and several examples of the children's remarks. The project team members worked together to refine the categories, definitions, and examples. Interrater reliabilities for total protocol scores averaged .97 across the various analyses, ranging from a high of .99 for text unit to a low of .89 for

monitoring behaviors. Agreement on the categorization of single protocol comments (as opposed to correlations between protocol total scores) averaged .84, ranging from a high of .91 for the categorization of text unit to a low of .68 for categorization of the 14 individual monitoring behaviors.

The Sample

As noted in earlier chapters, each of the 67 children in the study was asked to complete 2 reading and 2 writing tasks, with approximately half of the children assigned to a think-aloud procedure and the other half to a retrospective condition. Those who completed think-aloud tasks were asked to tell about "everything they were doing" throughout the task, thus yielding on-line protocols of reading and writing behavior. Those assigned to the retrospective condition completed the initial reading or writing task uninterrupted, and then were led through what they had done, line by line, and asked to explain what they had been doing, and why.

The design included between-subject contrasts for grade and mode of reporting (talk aloud vs. retrospective); there was also a between-subject contrast for passage difficulty for sixth grade reading tasks. Within-subject contrasts included domain (reading vs. writing) and genre (story vs. report). The final sample of protocols was reduced by several factors: loss of some tape recordings through mechanical failures or background noise that made accurate transcription impossible; missing data for some tasks which were not completed due to absence or scheduling problems;

and difficulty experienced by some students (particularly at grade 3) in commenting on their own behavior in either the think-aloud or retrospective procedures. Sixty-one of the children were included in the final sample of protocols; the protocols were distributed as follows:

Between subject:	Talk aloud	Retrospective
Grade 3	13	14
Grade 6	61	50
Grade 9	22	20
Within subject:	**Reading**	**Writing**
Story	48	44
Report	45	43

In all, a total of 180 protocols containing 4821 communication units were included in the analysis. The protocols averaged 26.2 communication units in length, but there were significant differences for mode ($F[1,51] = 4.52$, $p < .04$), genre ($F[1,105] = 3.17$, $p < .001$), and grade (F linear $[1,51] = 4.24$, $p < .04$). In general, the think aloud protocols were longer than the retrospectives (33 communication units versus 18); story protocols were longer than report (25.8 versus 21.6); and ninth grade protocols were longer than third grade (28.4 versus 15.8).

Treatment of Data

Because the protocols differed in length, total scores were calculated for each category in each protocol, and prorated by the length of the protocol. The raw data, then, consisted of the percent of comments categorized in each of the categories, for each of the protocols. After initial

examination of the data, a square root transformation was applied to all scores, to normalize the data and stabilize the variances (Winer, 1971). These transformed scores were used for all statistical analyses. To simplify interpretation, untransformed mean percents (and their accompanying standard deviations) are presented in the tables.

Four-factor multivariate analyses of variance were carried out for each of the major dimensions within the analysis; univariate effects were examined only when the multivariate tests were significant at the .10 level or better. Grade and mode (talk aloud vs. retrospective) were analyzed as between subject effects, and genre and domain (reading vs. writing) as within subject effects. With the specific pattern of missing data, the within subject effects could be tested precisely, but between subject effects are slightly underestimated and should be regarded as conservative approximations. Interactions were in general not significant, but will be discussed when they occurred. Mode differences (talk aloud versus retrospective procedures for gathering protocols) turned out to be of methodological rather than substantive interest, and are discussed in Appendix V.

Reasoning Operations

Readers and writers use a number of different reasoning operations as they develop envisionments of a text. They ask questions, generate hypotheses, make assumptions about

what they and others know, use information or ideas drawn from their general schematic knowledge, give evidence for and seek validation of their ideas. These are all part of the thoughtful reasoning behaviors that take place when readers and writers make sense-- make ideas that grow and change and become integrated and refined. In previous studies (Langer, in press-a, b), I have traced these reasoning operations in detail as they relate to individual readers and particular texts. For the present study, the categories were generalized to writing as well as reading, and used to provide profiles of the approaches taken across the protocols collected. The coding manual used for all analyses presented in this chapter is provided in Appendix III; it includes definitions and examples for each category.

The reasoning operations summarized in Figure 6.1 capture the variety of operations the children engaged in as they were reading and writing their story and reports. If reading and writing are, in fact, both active composing processes, one would expect to find similar patterns of reasoning operations appearing in the protocols. If domain differences occur at all, the prediction would be that reading operations would be more text-based, focussing more heavily on such operations as schemata, evidence, assumptions, and validations, while writing operations would include a higher proportion of hypotheses and metacomments, reflecting a more conscious attention to the process of creating a text. Since the children had more restricted use of report forms, one might expect to find some resulting

differences across story and report remarks. Any differences between story and report might be expected to diminish with age, since, as reported in Chapter 5, the older children have begun to use more elaborated and more fluently linked forms to organize and express their ideas in reports as well as in stories.

General Patterns.

As might be expected, the largest proportion of the comments in all of the protocols dealt directly with the meaning of the text being written or read; an average of 43 percent of the children's remarks focussed on schemata (representing various aspects of the content), more than twice as much as any of the other operations. The remaining comments were split primarily among hypotheses (16 percent), metacomments (13 percent), validations (12 percent), and questions (9 percent). Comments reflecting assumptions about what the reader or writer knew were rare, averaging less than 2 percent per protocol. (Supplementary Table 1, Appendix IV, summarizes significant effects from the analysis of reasoning operations, and presents means and standard deviations separately for reading and writing in grades 3, 6, and 9.)

Reading/writing differences were highly significant ($p < .001$), with differences appearing in almost all of the individual operations. Schemata (operations reflecting direct statements of meaning) represented 49 percent of the reading operations compared with only 36 percent of those

for writing. The reading protocols also showed more concern with citing evidence in support of interpretations being formulated, and with validations of previous interpretations. The writing protocols, in contrast, reflected more attention to hypotheses and metacomments. The emphasis on met comments and hypotheses suggests that children are more aware of the strategies they use to get at meaning when they are writing than when they are reading.

The multivariate analysis showed a marginally significant effect for grade level differences ($p < .065$; see Supplementary Table 1). The major change that occurred involved comments reflecting hypotheses about the evolving meaning. For the reading protocols, these increased from an average of 9 percent at grade 3 to 20 percent by grade 9; for the writing tasks, hypothesis-making increased from 13 percent at grade 3 to 25 percent by grade 9.

The children's comments were also quite consistent across genres, showing no significant multivariate effects for story/ report differences. However, univariate analyses show significant genre differences in the use of questions ($p < .02$) and hypotheses ($p < .02$), with questions occurring more frequently in reports (averaging 8 percent versus 10 percent in stories) and hypotheses more frequently in stories (19 percent versus 12 percent). Both of these are consistent with the findings reported earlier that suggest students have a firmer grasp of story than of report; they use hypotheses when they have a notion of how the meaning

will evolve and ask more open-ended questions when they are less certain.

Associations between Reading and Writing

So far I have been considering differences in the patterns of operations across differing conditions. The repeated measures design also makes it possible to examine similarities in performance across different tasks: to what extent do individuals have consistent patterns of reasoning operations across tasks that vary in genre or domain? Table 6.1 presents the relevant correlations, between the reasoning operations used in reading and writing, and also between those used in story and report tasks.

Insert Table 6.1 about here

The results in Table 6.1 indicate considerable variation in consistency from operation to operation. Comments about validations and schemata are relatively consistent, both within and between reading and writing tasks. The other operations show less of a pattern, with assumptions showing between domain consistency, while hypotheses and questions show some degree of within domain consistency. It is of particular interest to find that the reading/writing associations are only slightly less strong than the associations between story and report tasks-- in spite of the stronger reading/writing effects in the analyses of group differences.

Changes in Reading and Writing Behavior Over Time

Thus far, we have looked at a series of composite portraits of children's behaviors while reading and writing. This has allowed examination of some of the broad differences between reading and writing in differing tasks, but I have also argued that reading and writing, far from being static activities, are both dynamic and changing processes with their own history over time. If this is so, one would expect to find that patterns of behavior are different at different points in the process. The analysis of meaning construction, since it is based on sequential coding of every communication unit in a protocol, allows a very fine-grained look at how these processes change in the course of a single reading or writing experience. In chapter 8, I will trace these shifts in a sampling of individual protocols; here, I will take an intermediate step, looking at patterns before, during, and after reading and writing, cumulated across the full sample of children.

Although a number of researchers have shown that reading and writing are not linear activities with inviolate sequences or stages of processing behaviors (Flower & Hayes, 1980; Perl, 1980; Sommers, 1980; Spiro, 1979, 1980), none of these researchers has investigated patterns of cognitive behaviors in parallel reading and writing tasks, over time. For this analysis-over-time, I assigned each communication unit to one of three categories:

Before - before the first word has been written or read

During - during the period when text is consiously

being read or words written

After - thoughts reported after the text has been read or the pen laid down at end of the draft

To permit an even finer examination of the effects of time on approaches towards meaning, the time during which the overt reading and writing behaviors took place was divided into thirds. Thus, each protocol was divided into five segments: comments before the task began, comments during the three segments during which the reading or writing activity took place, and comments after the last word was read or the pencil put down to rest.

To simplify the presentation and reduce repetition, the discussion below will emphasize comparisons between grades 3 and 9. For these analyses, results were pooled across protocols for each grade and task; the tabled values are percents of all of the communication units sampled, rather than mean percents across children.

Table 6.2 summarizes the distribution of reasoning operations over time, for reading and writing tasks at grades 3 and 9. The table is constructed so that each column will sum to 100 percent, thus emphasizing the pattern of operations within each of the time periods displayed. In general, the pattern of operations in preparation for reading or writing differed from the pattern of operations following the task, and both patterns differed from that during the reading or writing experience.

Insert Table 6.2 about here

Before. In this analysis, the third graders' reading protocols seemed most restricted, with the least variation in operations reported from one time period to another. The third graders began their reading tasks by simply plunging in, without any preparatory musings about what the passages might involve; hence there is no pattern of operations before reading at grade 3. Before writing, however, these same children made a variety of comments. Some 42 percent were questions, usually focussed on how to get started--what to write about and how to present it. Another 23 percent were metacomments about the options facing them, and 19 percent were comments about content they would include in their writing. Only 10 percent of their comments made predictions about how the piece would develop.

Kevin's comments reflect the generalized questions typical of third graders' initial thoughts about the task:

> 1) I don't know how to write what I'm going to write about. 2) I don't even know what I'm going to write about.

Protestations aside, he then found a topic and began to write.

The ninth graders were more reflective, even before the reading tasks (Table 6.2). Before reading, some 40 percent of their comments involved hypotheses about what the text would be about; 33 percent drew on related schemata, and another 20 percent were questions that lack the clear sense

of direction implicit in hypotheses. Comments before writing at grade 9 showed similar concern with hypotheses (46 percent) and questions (17 percent), together with some metacomments (14 percent) and seeking of validation (10 percent), and less attention to schematic knowledge (9 percent). The shift in emphasis from question-asking to hypothesis-making probably reflects the ninth graders' greater familiarity with all aspects of reading and writing, a familiarity which provides them with firmer hunches about directions their emerging ideas or the text itself will take.

Ninth grade Lora's protocol, before she began to write about her shy sister preparing to meet a new teacher (see p. xxx), looked like this:

> 1)I'll just write about someone meeting someone. 2) A specific person at a specific time. 3) I have to find a name for this person. 4) I'm thinking of who she should meet. 5) I don't know if I should write about what happens, or about the meeting. 6) I usually don't write stories. 7) Are they supposed to be specific? 8) Like she meets a teacher for the first time. 9) I really don't know where to start off, like if I should start out "One morning she woke up blah blah" or like (writes notes -- no comments). 10) I think I'll start it like she's in her car riding to school. 11) In between here and here (referring to her notes) I'm going to put what happened. 12) Three main

things like riding in a car to school, walking into the room, meets the teacher, and that's the last one if she likes the teacher. 13) I'll give impressions of the teacher. 14) Or maybe I'll just want to conclude it after she meets the teacher (then begins writing).

Lora's comments are dominated by her many hypotheses about what might go into the piece. While the majority of her comments focus on the content she will write about, we can also see her concern for organization.

After. After they had completed reading a passage, the third graders shifted their attention to specific ideas they had drawn from the text or their own experience (schemata, representing 51 percent of the comments), or to reaffirming the accuracy of information just read and understood (validations, representing 36 percent). After finishing their writing, these same children emphasized schema operations (71 percent), or metacomments (18 percent) about what they had done. Put another way, for both reading and writing, more than half of the ideas that came to mind concerned specific content, even after the tasks had "ended." Lonny, commenting after reading the Mole passage, was typically concerned with specific content: "That mole must do a lot of work. He sure works hard."

Ninth graders' concerns after reading or writing were rather different from those of the third graders. Concern with specific content played a lesser role (19 and 23 percent for reading and writing respectively), though

validation of previous interpretations was important in both domains (32 percent for reading, 23 percent for writing). Much more than at grade 3, by grade 9 the children's comments following reading involved hypotheses and extensions of the meaning of the text (23 percent), while their comments following writing included metacomments about what they had done (35 percent) as well as further hypotheses extending the text they had developed (15 percent).

Lora's comments after reading Prairie Dog typify the ninth graders' reflections. She thought about the organization as well as the content:

> That last sentence summed up everything. It's a good concluding sentence. I guess I learned things too. I wonder if other animals, like mice or rats, live like prairie dogs.

During. When we examine the patterns across the 3 during-writing and during-reading segments, there is considerable consistency from one segment to the next (Table 6.2), with comments about content (schemata) dominating. Questions and hypotheses, reflecting to a large extent expectations about what will follow, do show a general decrease from the first to the final third, for reading and writing tasks at both grade levels. These operations shift from 36 percent of the comments during the first third of the comments while writing at grade 3, to 15 percent during

the final third. There are corresponding increases in the proportion of comments focussing on specific content.

Robin's comments are typical of those from third graders. After hearing the request to write a "first day" story, she immediately wrote her title and said, "First Day at School is the title." Then she commented, "I was thinking of when I first went to school." She then went on writing her piece.

Summary: Patterns of Reasoning during Reading and Writing

Throughout their reading and writing experiences, the children of all three ages were concerned with the ideas they were creating; their protocols contained more than twice as many comments about meaning as about any other reasoning operation examined. However, the patterns of behavior were somewhat different at different points in the process -- with more questions and hypotheses being reported at the beginning and more comments about the content being reported at later points in time.

This focus on ideas was even more predominant in the children's reading than writing comments. In reading they focussed on gaining support for their interpretations, while in writing they focussed on the strategies they used to create their meanings. In each case, they relied upon operations that helped them make sense -- either of their own or someone else's ideas.

The analysis of operations-over-time indicated that the third graders were less reflective than the ninth graders

throughout each reading and writing experience. More than their younger schoolmates, the ninth graders were more likely to reflect forward or back on their ideas, in both reading and writing.

Monitoring Behaviors

The second major aspect of the analysis of meaning construction focusssd on monitoring behaviors. Reading and writing are cognitive activities that involve a variety of self-regulatory mechanisms which monitor envisionment-making as meaning develops. Monitoring behaviors serve as a "third eye" to see that meanings make sense and to flag problems when messages become confused. They support meaning construction in two ways. When necessary, they 1) help readers and writers become aware of their own cognitive activities, and 2) help them to use particular strategies to develop, organize, and transform their ideas. The ability to monitor what one is doing, and the ability to engage in appropriate meaning production or fix-up strategies, are important aspects of every reading and writing experience.

By the very nature of the protocol data gathered, all of the comments recorded represent some degree of self-awareness or monitoring of what one is doing while reading or writing. Within those comments, however, some reflect <u>use</u> of one or another idea or strategy, while others reflect a more conscious awareness of what one is doing. (Compare "I'll call it 'My First Day at Camp'" with "It is a story,

so I need to find an interesting title." In the first comment, the writer is simply monitoring what she is doing, her own use of a writing strategy; in the other, she is more consciously aware of the choices available, and her need to choose among these alternatives in a strategic way.)

For the analysis of meaning construction, comments reflecting awareness of cognitive operations were coded separately from those reflecting use. This permitted analysis of the balance between awareness and use, as well as analyses of the kinds of behaviors that were being monitored, across awareness and use combined. The monitoring categories used for this set of analyses were: task goals, task subgoals, genre structure, mechanics, lexicon, refinements of meaning, and statements of meaning. These categories, with examples of their use, are included in Appendix III as part of the Analysis of Meaning Construction Coding Manual.

Based on the view of reading and writing as constructive, meaning-making activities, one would expect monitoring to focus most frequently on statements or refinements of meaning, since these involve development and manipulation of the ideas themselves. Also, because findings from the analysis of reasoning operations suggest that students are more aware of their strategies when writing than when reading, we would expect the proportion of comments reflecting awareness to be greater in the writing than the reading activities. Finally, one would expect that, overall, the proportion of comments about use would

exceed the proportion of those reflecting awareness.

General Patterns.

Combining awareness and use, 33 percent of the comments focussed on refinements of meaning, and 50 percent involved statements of meaning. None of the other categories of monitoring occurred with great frequency: some 10 percent of the comments dealt with goals or subgoals, 3 percent with genre features, 3 percent with lexical choices, and less than 2 percent with one or another aspect of mechanics. Overall, comments reflecting use of one or another idea or strategy exceeded those reflecting awareness by about fourfold. Supplementary Tables 2 and 3 (Appendix IV) present these data and summarize significant effects from the analyses of variance.

For both awareness and use, reading tasks promoted proportionately more direct concern with the meaning itself (reflected in comments coded as statements or refinements of meaning), while writing led to more concern with all of the other categories (goals, subgoals, genre, mechanics, and lexical choices). Differences in concern with goals and subgoals were particularly dramatic: these averaged under 2 percent for reading, compared with some 19 percent for writing.

Neither grade nor genre showed significant multivariate main effects. Grade did interact significantly with domain (reading versus writing), however, for the awareness categories. Behavior while reading was relatively constant

across the grades. However, behavior while writing showed some significant grade-related changes: awareness of goals while writing dropped from 14 percent at grade 3 to 4 percent in grade 9, while awareness of statements of meaning dropped from 11 percent at grade 3 to 3 percent at grade 9. (These drops in awareness while writing were matched by corresponding increases in use, for both statements and refinements of meaning.) Together, these changes suggest that as writing routines become more familiar, the proportion of comments reflecting awareness as opposed to use declines (see Leont'ev, 1973 for a distinction between conscious activities that later become unconscious habits or skills).

Associations between Reading and Writing.

I also examined the extent to which monitoring behaviors were consistent across reading/writing and story/report tasks; the relevant correlations are presented in Table 6.3 for awareness and use combined. Again, the pattern is somewhat erratic, with high correlations both within and between domains for refinements and statements of meaning, and inconsistent patterns for the other, lower-frequency categories. As with the correlations for reasoning operations, the most interesting result is that the correlations between reading and writing tasks are of the same general magnitude as those between story and report tasks within the same domain.

Insert Table 6.3 about here

Patterns over Time

Table 6.4 provides a summary of monitoring operations at different points in the reading and writing task, combining the parallel categories for awareness and use. There are again marked differences in the comments made before, during, and after the reading or writing task.

Insert Table 6.4 about here

Before. As we saw in the previous analysis, the third graders plunged directly into their reading; thus there were no monitoring operations before reading. Before writing, they gave considerable emphasis to setting goals and subgoals (representing 42 percent of their comments), and paid some attention to the nature of the genre with which they would be dealing (10 percent). The remainder of their comments dealt with statements of meaning (45 percent). In comparison, the ninth graders also set goals and subgoals (47 percent) and made statements of meaning (53 percent) in reading. Writing showed a similar concern with goal setting (42 percent for goals and subgoals combined), and split the concern for specific meaning between stating (29 percent) and refining (24 percent). Lora's extensive comments before writing (see above) typify the ninth graders' goal setting behaviors, and their awareness of genre constraints.

After. Comments after reading were dominated by statements and refinements of meaning (89 percent at grade 3, 100 percent at grade 9), with the older children giving

more attention to further refinement of their ideas. Writing tasks are followed with a similar concern about specific meaning (87 percent at grade 3, 54 percent at grade 9), though the older children continue to give attention to other features of their writing, including their network of goals and subgoals, and particular lexical choices. Together, these comments may represent a concern with what they had actually written, as well as what they had meant to write.

Kevin and Lora's comments (cited above) illustrate the third graders' statement and the ninth graders' extension of the ideas they had when they read. Lora's comments after writing typify the older students' attention to mechanics and lexical choices as well as their refinements of the piece as a whole:

> So, now the reader will know what is going on. Oh, I always get the verb tenses mixed up. That doesn't sound right, but.... But I did it so the reader would know I was her sister and knew her well, so I could explain her problems.

During. During reading, across both age groups, the children's attention focussed primarily on statements and refinements of meaning during all three phases of the reading or writing experience; other concerns dropped almost completely out of the protocols. Concerns during writing were more varied. Both age groups gave at least some attention to each of the seven monitoring categories while

they were writing, though statements and refinements of meaning continued to dominate. In general, concerns during the three during-writing segments were similar, with no systematic variations between them.

Lora's during-writing comments reflect her concern with the way the piece is developing, as well as her awareness of the need to refine what she is saying in light of her goals and subgoals, and her expectations about her audience:

> 20) That's not too good a start. 21) I was thinking of making her like she always has to meet new teachers and stuff. 22) So, like she moves from town to town. 23) But I want to let the reader think she's been practicing what she would do when she met the teacher. 24) So the reader will know she's in a car and like it's a new teacher. 25) I'm trying to think if I should pretens like I'm looking at Lisa ot if Lisa's the one explaining. 26) Right now I'm telling more about Lisa than Lisa's telling about herself. 27) So, I guess I'll just go on that way....

Summary: Patterns in Monitoring Operations

As predicted, statements and refinements of meaning occurred more frequently than any of the other categories, indicating a focus on the development and manipulation of the ideas themselves. However, these changed somewhat over time, and with domain. While the third graders plunged in, the ninth graders were more reflective; they were more

likely to set goals and subgoals, and were more concerned with refining the ideas they were developing. The children's during - reading comments showed a more generalized concern with meaning, while their during - writing comments showed a broader array of concerns.

Strategies Used in Reading and Writing

When people read and write, they use a variety of strategies to get at, develop, and refine meaning. These strategies are frequently discussed as stages or phases of the reading or writing process, though most researchers now argue that these strategies or phases are interrelated and recursive, rather than representing a linear sequence (Flower & Hayes, 1980; Perl, 1979; Sommers, 1980; Spiro 1980). The coding system developed for the analysis of meaning construction identified four strategies readers and writers use: generating ideas, formulating meaning, evaluating, and revising. Definitions follow:

Generating ideas - getting started, becoming aware of relevant ideas and experiences, and beginning to plan and organize the material in an appropriate fashion.

Formulating meaning - developing the message, considering audience, drawing on personal experience, choosing language, linking concepts, summarizing, and paraphrasing

Evaluating - reviewing, reacting, and monitoring the development of the message and the piece itself

Revising - reconsidering and restructuring the message; knowing meaning has broken down, and taking appropriate action

General Pattern.

Remarks focussing on formulating meaning occurred most frequently (53 percent), followed by evaluating (22 percent), revising (15 percent), and generating ideas (10 percent). The formulating category is a rather large one including all aspects of stating and developing meaning beyond simply getting started-- it is the category that represents the process of getting the message out. Generating, by definition, is a rather small category, one that is used only at certain times throughout the process, and relates mostly to aspects of brainstorming meaning. Both generating and revising can occur anywhere in the process of reading or writing, but they occur only when needed. Results for the four reading and writing strategies are summarized in detail in Supplementary Table 4, Appendix IV.

The multivariate analyses indicated significant differences between the strategies used in reading and writing. These primarily involved generating ideas ($p < .001$) and formulating meaning ($p < .054$), with generating occurring less often in the reading protocols (6 percent versus 15 percent for writing) and formulating occurring less often in the writing protocols (50 percent, versus 55

percent for reading). It is not surprising that stepping back to develop new ideas occurs proportionately more frequently in writing than in reading, since the writer must constantly provide new material to carry the piece forward The reader, on the other hand, is always somewhat constrained by the author's attempts to convey meaning, and thus focusses more on adapting the developing envisionment to fit the author's message.

The multivariate analyses also indicated significant grade effects, but these were complicated by significant differences between the patterns for reading and writing. For reading, the proportion of comments concerned with generating ideas rose between grades 3 and 9, from 1 percent to 8 percent; during the same period, the proportion of generating comments in writing fell from 22 to 9 percent. The grade x domain interaction for evaluating was also significant, though the pattern was more erratic. For reading tasks, evaluating rose somewhat between grades 3 and 6 (from 16 to 23 percent), after which it remained constant. For writing tasks, a similar rise occurred between grades 6 and 9 (from 20 to 29 percent).

Associations between Reading and Writing

Table 6.5 presents correlations within and between the domains of reading and writing, for use of the four reading/writing strategies. Consistent with the preceding analyses of meaning construction, the between-domain correlations between reading and writing are only slightly

less strong than the within-domain correlations between story and report tasks. Revising and formulating strategies are used most consistently, with somewhat erratic patterns for evaluating and generating.

Insert Table 6.5 about here

Patterns over Time

Table 6.6 summarizes variation over time in use of the four reading and writing strategies.

Insert Table 6.6 about here

Before. Comments before reading and writing indicated a general focus on generating ideas (44-65 percent of the time). The ninth graders gave considerable attention to formulating meaning (47 percent) before they read, as they elaborated on their initial expectations even prior to reading.

After glancing at the two pages of The Crowd Pleasing Conservationist, ninth grade Evan said, "It might be about science. Or maybe about environmentalists and people who save things. But it seems to be about an animal, so it will probably be scientific."

After. The concerns of the third and ninth graders after they had read or wrote were quite different. The third graders continued to formulate their ideas and develop their interpretations after reading (53 percent) and after writing (74 percent). On the other hand, the ninth graders' comments after both reading and writing focussed on

evaluation and revision of their developing text worlds. This suggests that the older students used reflective strategies after they had completed the task, while the third graders continued to develop ideas rather than review those already developed. The third graders' strategies after reading or writing differed little from those they used during the tasks.

Third grade Kevin, after reading the Jackie story, continued to formulate his thoughts: "I guess it was a girl. Sure looked like a boy, I bet." In contrast, ninth grade Evan moved beyond the text as he reflected on the life habits of the prairie dogs. He said,

> Adults take turns guarding the burrows. You might think the parents are more, I guess, together. Sometimes the parents will leave, and then the mother or father will take care of 'em, but they take turns. You can sort of see them living together ... with their special barking.

During. Strategies during reading and writing reflected a balance among evaluating, revising, and formulating meaning, with lesser attention to generating. As with monitoring behaviors, there were few systematic differences between the three during-task segments. In their writing, the third graders showed more concern with generating during the first segment than later on, but this pattern was not replicated in either the sixth or ninth grade protocols (in which generating continued at a constant

but much lower level in all 3 segments).

Summary: Reading and Writing Strategies

These analyses indicate the variety of strategies the children used as they read and wrote, in the following order of frequency: formulating, evaluating, revising, generating. These strategies, while used throughout, took different patterns across time. While generating (the process of becoming aware of relevant knowledge) continued throughout reading and writing, it occurred more frequently at the beginning of the process, when the children scanned an array of possible meanings. Formulating (getting and developing meaning), appeared as the strategy the children used to get their ideas out. However, the third graders continued to formulate ideas after they had finished reading and writing, while the older children increased their use of evaluation and revision.

Text Unit

When people read or write, their attention often shifts between the overarching meaning that frames the entire piece and more localized points of meaning that occur along the way. This dimension of the analysis of meaning construction categorizes each communication unit as relating to a local unit or to the global frame of the entire text. Definitions follow:

Local - attention is focussed on localized points within the text

Global - attention is focusses on the overall message of the entire piece

Although every reading and writing experience calls for both local and global attention, one would expect the children's total local comments to surpass their global comments. It could also expected that writing, because of the need to embed each new idea within a total framework, would evidence more concern with the global meaning than would reading, in which each new bit of the text would return attention to local concerns.

General Patterns.

Overall, just over a third (34 percent) of the children's comments pertained to global text units. Writing evoked significantly more attention to global concerns than did reading (39 percent versus 30 percent). This suggests that when the children read, they were more closely bound to the words of the text -- to the emerging and evolving meanings of the text. However, when they wrote, they more frequently kept the overall framework in mind. These findings are similar to those that emerged in the previous analysis of reading and writing strategies, for the (primarily local) category "formulating meaning," which occurred more frequently for reading than for writing.

In general, there was little variation in the overall pattern with grade, though the sixth graders who read the harder passages reduced their attention to global concerns (17 percent of their comments were global, compared with 39

percent of the comments about the easier passage). Supplementary Table 5, Appendix IV, presents the relevant data.

Associations between Reading and Writing

Correlations between and within domains indicate a high degree of consistency in the extent of attention to global aspects of the evolving meaning (Table 6.7). This consistency in approach parallels what was found in each of the previous analyses.

Insert Table 6.7 about here

Patterns over Time

Table 6.8 summarizes attention to global versus local units of text, as it develops over time. As expected, attention to global aspects of meaning was highest before and after the reading or writing tasks, at each of the grade levels. Activities during reading and writing focussed mainly on local units of text, on the smaller units of meaning that were being developed along the way.

Insert Table 6.8 about here

Summary: Text Unit

Approximately two-thirds of the students' comments focussed on local aspects of text. They paid more attention to global units of meaning before and after reading and writing, and more attention to local meanings during the actual times they read and wrote. In addition, writing evoked a greater focus on global meaning than reading.

Data Source

The analysis of meaning construction also distinguishes among three sources of data which the reader or writer can draw upon and which simultaneously affect the developing envisionment. These are knowledge of the genre, knowledge of the content or ideas themselves, and knowledge drawn from the linguistic material of the text itself. Definitions follow:

Genre - reference to the specific genre and the organizational structure and presentation of ideas peculiar to that genre

Content - reference to the topic itself

Text - reference to the linguistic material contained in the text such as syntax, vocabulary, cohesive ties

Based on the findings from the earlier parts of the meaning analysis, presented above, it would be expected that the greatest proportion of student comments would be content-based, since there is compounding evidence that they are predominantly concerned with the developing ideas. One would also expect a slightly higher number of content comments to occur during reading as compared with writing, and a slightly higher proportion of text comments in writing compared with reading.

General Patterns.

Consistent with earlier analyses, the greatest

proportion of communication units fell into the content category (71 percent) and the smallest proportion fell into the genre category (3 percent), with the remaining 25 percent reflecting concern with one or another aspect of text. (Supplementary Table 6, Appendix IV, presents the detailed results.)

A multivariate analysis of variance indicated significant reading/writing differences ($p < .003$) for all three categories. The children focussed on genre and text more often when they wrote than when they read, and on content more often when they read than when they wrote. Third graders were more likely to focus on content when they were discussing reports than when discussing stories (58 percent versus 70 percent), whereas at sixth and ninth grades the proportion of content comments was similar for the two genres.

Reading With Writing.

Consistent with the patterns already described, very strong relationships were found to exist between reading and writing, and between story and report (see Table 6.9). These were particularly evident for text and content, the two most frequently used sources of information. Use of genre information, which averaged only 3 percent of the comments overall, was not consistent within or between domains.

Insert Table 6.9 about here

Summary: Data Source

As predicted, more than 70 percent of the students' comments focussed on content, indicating a primary focus on the topic they were reading and writing about. Further, the students focussed on content more often when they read than when they wrote.

Reader's or Writer's Focus

Much is said about process and product in various chapters of this book; some chapters limit themselves almost exclusively to my researchly interpretations of the children's writings and retellings, the outcomes or products that resulted from their particular language activities. Other chapters are limited to discussion of the means by which the children worked their ways towards those products. It is this distinction I wished to capture in this last dimension in the analysis of the development of meaning. Each communication unit was assigned to either a process or product category based upon the focus of that particular comment. Coding definitions follow:

Process - comments about strategies that have been or could be used, or thinking about thinking in general

Product - comments about the piece itself

Based upon the findings previously reported, we would expect the children's comments to focus more frequently on product than process, and more so in reading than writing.

General Pattern.

Overall, only 31 percent of the communication units fell into the process category, the remainder focussing more directly on the product (the meaning of the text, whether produced by writer or reader). This is in keeping with previously reported findings that the children's primary concern is with their developing ideas. During reading, 26 percent of the comments were process oriented, compared with 37 percent during writing. Supplementary Table 7, Appendix IV, presents the detailed results.

In writing, a concern with process was reflected in such comments as :

> "If I keep saying first day, first day, something will come to mind" and "I want to keep it in a mood."

In reading, similar concerns were apparent in such coments as:

> "That goes against my idea, so I have to think of my idea again, wondering whether which one is right or wrong."

Reading With Writing. Consistent with the findings reported above, the correlations between story and report and between reading and writing were very high (see Table 6.10).

Insert Table 6.10 about here

Summary: Reader's or Writer's Focus

Approximately 70 percent of the students' comments focussed on product, once again indicating the children's

primary focus on the text being read or written.

Overall Summary

In general, the analysis of meaning construction strongly and consistently supports the following conclusions:

1. When they read and wrote, the children's dominant concern was on the meanings they were developing. Across the various dimensions of the analysis, this emerged in their focus on schemata, product, content, formulating ideas, and statements and refinements of meaning.

2. Underlying this overall focus on meaning, the children tended toward a slightly higher concern with "bottom-up" issues such as mechanics, syntax, text, lexical choices, and local text units when writing as compared with reading.

3. The children were more aware of and concerned with the strategies they used to get at meaning when they wrote as compared with when they read. This was evident in their comments about process, generating ideas, setting goals and subgoals, and awareness of monitoring behaviors.

4. In general, the children's comments focussed on thoughts about use-- about what they were actually doing rather than about the options they might have available.

5. The approaches the children used to build their envisionments (their developing text worlds) were quite stable and consistent across a variety of contexts. Consistently strong relationships were found both between

reading and writing and between story and report tasks.

6. The ways in which the children approached their reading and writing tasks differed; despite the fact that reading and writing are both active, meaning-making activities, the children's concerns, behaviors, and actions were not the same in reading and writing. Significant domain effects occurred in each of the categories tested.

7. The reading and writing activities involved different patterns of behavior over time. Before reading and writing, the protocol comments focussed on global units of text, on questioning and hypothesizing, on generating ideas, and on goal setting. After reading and writing, the comments still included some attention to global units of text, but also included validating meaning, invoking schemata, and formulating and refining meaning.

8. The general approaches and behaviors during meaning construction were more restricted in the third graders, at all points in time. There was less variety in the operations in which they engaged at any time. On the other hand, the ninth graders used a wide variety of approaches and behaviors in each of the time segments studied, and varied the balance among these approaches at different points in the task.

9. The protocols indicated a lack of reflective ability on the part of the third graders, particularly after they had completed their reading and writing tasks. The ninth graders, in contrast, reflected on and evaluated their work during as well as after they had finished reading

and writing.

Conclusion

I began the analysis of meaning construction wanting to see if genre was really more powerful than domain in affecting the children's approaches toward meaning development, as suggested by the findings of the "product" studies reported in Chapters 4 and 5. Findings reported in this chapter lead to the rejection of any such conclusion. The analysis of the varieties of behaviors and approaches toward meaning lead me to conclude: 1) the behaviors are varied and complex, 2) they change with age and difficulty, and 3) they vary consistently between reading and writing.

Further, the findings confirm the belief that children of all ages are concerned primarily with their developing ideas, the text world or envisionment they create, in both reading and writing. As they construct these envisionments, children rely on a variety of strategies and approaches, most of which seem to be useful (and used) across a variety of specific reading and writing tasks. At the same time, however, the emphasis they place on specific approaches varies systematically in response to the nature of the task. The data reported in this chapter provide strong evidence that reading and writing invoke different behaviors and approaches, even when the tasks and topics are parallel.

Figure 6.1

ANALYSIS OF MEANING CONSTRUCTION

REASONING OPERATIONS
- Questions
- Hypotheses
- Assumptions
- Schemata
- Metacomments
- Evidence
- Validations

MONITORING BEHAVIORS
(Awareness and Use)
- Task Goals
- Task Subgoals
- Genre/Discourse Structure
- Mechanics
- Lexicon
- Statements of Meaning
- Refinements of Meaning

STRATEGIES
- Generating Ideas
- Formulating Meaning
- Evaluating
- Revising

FOCUS
- Process
- Product

TEXT UNIT
- Local
- Global

TIME
- Before
- During
- After

DATA SOURCE
- Genre
- Content
- Text

Table 6.1

Correlations, Reasoning Operations

	Correlations			
	Between Domains		Within Domains	
	Reading with Writing		Stories with Reports	
	Story (n=36)	Report (n=36)	Reading (n=38)	Writing (n=37)
Questions	.232	.064	.129	.647
Hypotheses	.021	.024	.424	.428
Assumptions	.457	.694	.082	-.010
Metacomments	-.002	-.044	.375	.350
Evidence	.247	.139	.236	.057
Validations	.811	.904	.953	.962
Schemata	.388	.604	.703	.641

Table 6.2

Reasoning Operations Over Time

Percent of Communication Units

	Reading					Writing				
		During					During			
	Before	1	2	3	After	Before	1	2	3	After
Grade 3										
Questions	-	9	10	15	0	42	12	16	5	5
Hypotheses	-	14	14	3	7	10	24	13	10	0
Assumptions	-	0	0	0	0	3	0	0	0	5
Metacoments	-	5	7	8	0	23	24	18	26	18
Evidence	-	0	0	3	7	3	0	5	3	0
Validations	-	26	21	26	36	0	5	3	5	0
Schemata	-	47	48	45	51	19	36	45	51	71
Total		100	100	100	100	100	100	100	100	100
n		58	58	62	106	31	42	38	39	38
Grade 9										
Questions	20	4	6	3	3	17	6	1	5	0
Hypotheses	40	34	24	23	23	46	24	26	17	15
Assumptions	0	1	1	1	10	2	0	1	0	4
Metacomments	0	2	7	3	7	14	22	23	23	35
Evidence	7	12	8	11	7	2	11	1	4	0
Validations	0	13	17	13	32	10	12	11	14	23
Schemata	33	34	38	45	19	9	25	38	37	23
Total	100	100	100	100	100	100	100	100	100	100
n	15	187	182	203	31	93	162	158	165	26

Table 6.3

Correlations, Total Awareness and Use

	Correlations			
	Between Domains		Within Domains	
	Reading with Writing		Stories with Reports	
	Story (n=36)	Report (n=36)	Reading (n=38)	Writing (n=37)
Task Goals	.102	.007	.480	.337
Task Subgoals	.294	.287	.604	.027
Genre Structure	.222	.336	-.050	.371
Mechanics	-.106	.058	-.034	.428
Lexicon	.465	.427	.030	.364
Refinements of Meaning	.746	.760	.890	.562
Statements of Meaning	.566	.745	.832	.548

Table 6.4

Monitoring Behaviors Over Time

	Percent of Communication Units									
	Reading					Writing				
	Before	1	2	3	After	Before	1	2	3	After
Grade 3										
Task Goals	-	3	0	0	1	39	19	5	3	8
Task Subgoals	-	0	0	0	0	3	10	13	3	5
Genre Structure	-	0	0	0	9	10	5	0	3	0
Mechanics	-	2	0	0	0	0	2	11	0	0
Lexicon	-	2	2	0	1					
Refinement of Meaning	-	50	52	61	50	3	33	37	46	8
Statement of Meaning	-	43	47	39	39	45	29	32	41	79
Total		100	100	100	100	100	100	100	100	100
Grade 9										
Task Goals	40	2	0	0	0	29	6	7	1	12
Task Sub-goals	7	0	0	0	0	13	7	11	11	15
Genre Structure	0	3	1	1	0	3	3	2	7	4
Mechanics	0	0	0	0	0	1	3	2	4	0
Lexicon	0	0	2	2	0	1	7	5	9	15
Refinement of Meaning	0	37	39	35	81	29	28	33	38	42
Statement of Meaning	53	57	48	63	19	24	41	41	31	12
Total	100	100	100	100	100	100	100	100	100	100

Table 6.5

Correlations, Writing Strategies

	Correlations			
	Between Domains		Within Domains	
	Reading with Story (n=36)	Writing Report (n=36)	Stories with Reading (n=38)	Reports Writing
(n=37)				
Generating Ideas	-.100	-.107	.110	.452
Evaluating	-.086	.429	.500	.407
Revising	.924	.753	.934	.622
Formulating Meaning	.591	.750	.740	.846

Table 6.6

Reading and Writing Strategies Over Time

	Percent of Communication Units									
	Reading					Writing				
	Before	1	2	3	After	Before	1	2	3	After
Grade 3										
Generating Ideas	-	5	0	0	1	65	29	5	0	5
Evaluating	-	21	19	29	10	3	17	26	36	18
Revising	-	22	24	21	36	3	12	13	8	3
Formulating Meaning	-	52	57	50	53	29	43	55	56	74
Total		100	100	100	100	100	100	100	100	100
Grade 9										
Generating Ideas	47	6	1	1	0	44	6	9	3	0
Evaluating	0	19	19	18	36	18	40	36	42	65
Revising	7	23	23	19	48	9	14	13	18	19
Formulating Meaning	47	51	57	63	16	29	41	42	36	15
Total	100	100	100	100	100	100	100	100	100	100

Table 6.7

Correlations, Attention to Global Aspects of Text

Correlations			
Between Domains		Within Domains	
Reading with Writing		Stories with Reports	
Story (n=36)	Report (n=36)	Reading (n=38)	Writing (n=37)
.756	.790	.858	.764

Table 6.8

Emphasis on Global Units Over Time

	Percent of Communication Units				
		During			
	Before	1	2	3	After
Reading Grade					
3	-	36.2	34.4	32.3	47.2
6	83.6	20.5	17.9	15.9	43.0
9	40.0	30.5	28.0	23.6	61.3
Writing Grade					
3	80.6	42.9	31.6	30.8	68.4
6	68.3	28.1	22.2	20.5	25.3
9	73.1	42.6	37.5	36.4	50.0

Table 6.9

Correlations, Data Source

	Between Domains		Within Domains	
	Reading with Writing		Stories with Reports	
	Story (n=36)	Report (n=36)	Reading (n=38)	Writing (n=37)
Genre	.642	.308	.055	-.116
Text	.922	.885	.928	.921
Content	.910	.896	.923	.914

Table 6.10

Correlations, Attention to Process

Between Domains		Within Domains	
Reading with Story (n=36)	Writing Report (n=36)	Stories with Reading (n=38)	Reports Writing (n=37)
.851	.852	.949	.853

Chapter 7

Reading and Writing: Students' Awareness of What They Do

Throughout the project, in meetings with the children and in separate examinations of their reading and writing activities, I sought to describe the various ways in which the children created and interpreted meaning when they read and wrote. Chapters 3 through 6 discuss the children's context for literacy, their notions of genre, the structures they produced and retold, and the knowledge sources they relied upon to produce their meanings. This chapter will focus on the children's responses to the post reading and writing questions which probed the organizing structures they called upon and the strategies they used during the reading and writing tasks that were set for them. More particularly, the chapter will describe the children's explanations of how they used structure and strategy to help when they read and wrote.

After the students' completed their think-aloud or retrospective self-report (analyzed in the previous

chapter), they were asked a variety of probing questions about issues they had not spontaneously discussed. A prepared series of probing questions served as a checklist for each researcher to use during each session. The questions focussed on students' awareness of: 1) distinctions in their use of genre, 2) audience/author, 3) organizing features, 4) language, and 5) meaning-getting strategies. (The complete schedule of probing questions is available in Langer, 1984c.) Each specific probing question was used only when the answer had not already been given in the student's self-report, or during general conversation. If the student had already supplied the data, the earlier response was coded. Thus, data for the "probing question" analysis came from students' comments throughout each session.

The probing questions were used four times with each student: after story reading, after story writing, after report reading, and after report writing. The tape recordings of each session and pertinent field notes were used to code responses. In all, 254 probing interviews were completed: 65 story reading, 64 story writing, 62 report reading, and 63 report writing. Interrater agreement in completing the coding was 89.9 percent, for 2 raters across the full set of categories. The completed coding permitted within-subject comparisons across genre and domain, and between-subject comparisons across grade, mode, and passage difficulty.

Like the interview questions summarized in Chapter 3,

the probing questions generated large amounts of data, much of which served simply as a check on the results of other methods of data collection used in the study. Rather than push tediously through all of the results, this chapter presents a selection of responses chosen to illustrate the compounding evidence that accumulated in support of our major conclusions. Also like the interview responses, multiple responses were coded in response to each question, so that tabled percentages often total more than 100.

In general, across the analyses of probing questions, the students' awareness of their use of genre knowledge showed the greatest number of significant effects (49.5 percent of the effects tested were significant at at least the .05 level). Domain differences (reading versus writing) were next in importance (34.7 percent of the effects were significant). Grade level and passage difficulty showed the fewest significant effects, with significant grade effects occurring 13.9 percent and passage difficulty effects occurring less than 2 percent of the time. This suggests that for the questions posed in this part of the study, grade level differences made relatively little difference, while the students' notions of stories and reports, and to a slightly lesser extent their notions of reading and writing, were more critical. These findings are consistent with those presented in Chapters 4, 5, and 6 which indicate that although grade differences occur, genre (story versus report) and domain (reading versus writing) effects are

more widespread.

How Students Use Genre Knowledge

The first set of probes concerned students' use of genre knowledge to formulate ideas and shape expectancies about what would follow (see Table 7.1). They were asked about their understanding of the task as involving fiction or nonfiction, about the features they used to identify the genre, and about the point in their reading when the nature of the genre became clear. Results are summarized in Table 7.1

Insert Table 7.1 about here

More than 90 percent of the third and sixth grade s and all of the ninth graders correctly identified the genre of the pieces they were asked to read and write. They also exhibited their knowledge of genre characteristics when asked to explain their criteria for genre designation: stories were most frequently identified by their genre markers (i.e., type of beginning, nature of the characters, presence of dialogue, nature of the plot) while reports were identified by their concern with "truth-telling" presentations of reality. Ninth graders were significantly more likely than sixth graders to rely on genre markers for their identification of stories ($p < .059$), though there were no other significant grade level effects for this set of variables. Genre markers were used less extensively in report than story identification; differences in the features used to identify the two genres were significant

for both reading and writing ($p < .001$). Domain differences in story reading and writing were also found ($p < .012$); students were more likely to be aware of the make believe in the stories they wrote, and to pay more attention to genre markers in the stories they read.

Initial recognition of the genre when reading took two basic forms: either the judgment was made on the basis of the first few words, or on the basis of the overall form. For both stories and reports, the majority of students used the title and information contained within the first paragraph (first few words and beyond) to make their decisions. A more general approach (a glance at the format) was used by a smaller proportion of students, usually when they were less familiar with a particular genre, and found it more difficult to interpret the clues provided by the title or opening words.

Let us look at a variety of specific approaches students across the grades used to explain their judgments of genre. In her responses to New Kid, sixth grade Stacey revealed her expectations about both stories and reports,

> This is a sort of story. It's not a report because it doesn't have a bunch of facts. It's all about feelings--about what might happen. It tells it all.

She continued later:

> It's a story because of the way it's put together and it's one person's point of view. Stories tell how someone feels.

Stacey used her knowledge of story structure to guide her understanding of New Kid.

Stacey's clear expectations contrast with third grade Garth's essentially unexamined explanations. In his responses to Jackie, Garth said,

> It just looks like a story. Stories are about people and they just look like this one.

Ninth grade Lora's comments while reading Prairie Dog indicated still other ways in which the students identified the genre. Her reactions focussed on the language of the text. After having read just a few sentences, she said,

> It sounds like something I'd be reading in a history book. Really boring. It's just talking about the prairie dog, just information. They're not using that many adjectives and stuff like that. Sort of like ugh.

Third grade Tom's discussion of genre expectations in response to Moles was content bound, and focussed on the title. He said,

> It can't be a story or it would say Sammy the Mole but it just says the Mole, so it can't be a story.

From these examples, we see that the children not only could identify the genre very well, but used a variety of approaches and drew upon a variety of kinds of evidence in making their decisions.

Findings from this analysis corroborate those reported in Chapter 4, that the students across all three grades had a firm sense of genre. They distinguished between stories and reports appropriately and attributed appropriate content, textual, and linguistic characteristics to each form. Further, they seem to have been aware of the genre as they read, using clues provided by the title, the language of the first paragraph, and the overall format.

Familiarity With Genre

After examining their identifications of the genre they were reading or writing, I moved on to explore the extent to which they were familiar with the form. The children were asked such questions as whether they had read or written passages like that before, whether they read or wrote such things often, and whether they enjoyed such reading or writing. Table 7.2 summarizes the results.

Most students claimed to have completed similar tasks before, though the third graders were somewhat less certain of this. Responses to a question about whether they <u>often</u> read or wrote a particular genre, however, indicated greater familiarity with story tasks than with reports, particularly at the earlier grade levels. By grade 9, story writing had diminished considerably, with only 10 percent of the students reporting they completed such tasks "often."

Insert table 7.2 about here

Responses indicated similar differences in students' attitudes toward the two genres studied. Across the grades,

the students said they preferred reading and writing stories (liked by from 67 to 100 percent in the various samples) to reports (liked by 36 to 50 percent); the genre difference was significant for both reading and writing ($p < .001$ and .005, respectively).

In general, the students felt the passages they had just read or wrote to be typical of their genre. There were exceptions, however. Some students felt Prairie Dog was an atypical report because, "It begins and ends like a story. It doesn't belong that way." Sally (grade 3), on the other hand, took the Jackie story quite literally. She didn't think it was a typical story because it did not have the resolution she expected. Jackie, she felt, was a boy with a strange mother who made him wear a dress to school because his pants had been ripped by the dog. This was not what Sally expected: "She should have bought him a new pair."

Sixth and ninth graders, in general, focussed on organization and language choice in discussing whether a passage was "typical" of the genre. In contrast, third graders were more concerned with the content.

Beginnings and Endings

In Chapter 5, we saw that how well students managed beginnings and endings was a good indicator of their developing sense of genre. In Chapter 6 we saw that they made less overt reference to genre knowledge than to other text and content features during their ongoing meaning-making. In the present analyses, I asked directly about

their expectations about beginnings and endings in their reading and writing.

Looking first at beginnings, the students had a firm notion of both story and report beginnings as serving the functional purposes of introducing characters or settings, or establishing general content expectations (see Table 7.3). Students of all ages were aware that while reports begin with content expectations ("this will be about"), story beginnings generally introduce the character or the setting. Genre differences were significant for all 3 sets of expectations.

Insert Table 7.3 about here

A look at students' awareness of endings (Table 7.3) indicates they thought the usual story ending to be a resolution and the usual report ending a summation; the third graders had more difficulty in talking about report endings, beyond citing "the end" or noting that "you just tell all you know." Significant grade effects were found for summation in stories and reports ($p < .003$, $p < .001$), with third graders showing no awareness of the notion of summary in either genre.

The data displayed in Table 7.3 were gathered after the students had completed their own writing; the questions were also repeated in the context of the reading passages, providing a measure of the consistency of response from individual students across genres and across domains. There

was considerable consistency in response in both contexts: reading/writing relationships were significant for both story and report ($p < .039$, Cramer's $V = .37$; and $p < .001$, Cramer's $V = .63$, respectively), and story/report associations were significant for both reading and writing ($p < .020$, Cramer's $V = .43$; and $p < .003$, Cramer's $V = .47$, respectively). Though based on a nonparametric measure of association rather than Pearson's *r*, these results are similar to the within- and between- domain correlations discussed in the previous chapter.

It seems, then, that children's awareness of the use of summation was one of the more sensitive measures of the effects of grade, genre, and domain. The third graders did not indicate knowledge of this type of ending, while the ninth graders referred to it exclusively as the appropriate way to end reports. Genre distinctions on this measure were to be expected; and the domain associations suggest that individuals have similar notions of the appropriateness of summations in their reading and writing tasks.

The students' use of endings can be further examined by referring back to the discussion in Chapter 5 of the endings they used in their own writings and retellings. The analysis of written structure indicated that they produced less closure in reports than stories. A grade and genre difference existed that was attributed to the younger students' general unfamiliarity with the more sophisticated report forms. The findings reported in this section

indicate that in addition to the students' inability to produce well- formed report endings, they were also unable to talk about them.

The Reader's Sense of Author and Writer's Sense of Audience

A number of the questions asked focussed on the reader's sense of author or the writer's sense of audience. Results are summarized in Table 7.4.

Insert Table 7.4 about here

Responses to questions about sense of author indicated that the students did not often think about the person who wrote the pieces they were reading. Attention to audience was similarly rare, when the students were talking about their own writing. (There was a moderate relationship between individual students' awareness of audience in the stories and in the reports they were writing ($p < .004$, Cramer's $V = .42$), though this was not replicated in their comments about authors when they were reading.)

Though the students did not overtly attend to author or audience, there were a number of indications that they were quite aware of the roles of these partners in the communication process. When asked whether the piece would have been different had the author (or themselves as writers) written with a different audience in mind, most students answered in the affirmative. Moreover, as we will see in a moment, they were able to go on to specify how the text would have been different, as well as the effect that they or the author had intended.

Sixth grade Maggie was evidently quite aware of the author and the author's point of view as she read the Prairie Dog passage. After reading, she thought the author was a conservationist:

> If a livestock owner had written it he would have stressed the bad things about prairie dogs while a conservationist would concentrate on the good things.

In reference to her story writing, she said,

> You have to picture what the other person would really think. I had to keep changing my mind because I wanted to be precise and make it a clear picture in the person's mind.

Sixth grade Lin was even more specific about how her audience shaped her story from the very beginning:

> Well, I just sat there. You saw me. I just sat there and kinda made a bunch of facts. And then I sat there and I thought, "Well, gee, I have this little girl and people are gonna wanna know how she feels first. Cuz, you know, people aren't--they'd be bored in the beginning. And then I had to think about, well, maybe they're not going to understand this if I just go into the last paragraph about how they got together. So, I had to make the facts. And then I thought, well there's only one way to end this and that's to leave a person in a good mood. An so you've gotta

have 'em all happy.

In contrast, third grade Jason paid little attention to audience while writing his story:

> I didn't think of who I was writing for because I was so full of ideas that I didn't want to forget them.

He also managed to revise without worrying about a specific audience:

> If I can't understand what I wrote nobody else can. So, that's what I change. That's all.

Students' awareness of how a text might vary to accommodate a different audience is probably the best indication of their understanding of audience. When asked how the author (or they) would change the piece to accommodate to a different audience, most students responded that the language could be changed, and also that it could be written to better address interests of the specific audience (Table 7.4). In general, the younger students showed less concern with details of language, and more with neatness, than did the older students studied. (They were also less sure that the piece could be changed at all.)

When asked about the effect that had been intended by the author (or themselves), the majority of students saw stories as entertaining or amusing and reports as informative, although a low but consistant percentage of responses indicated that no particular effect had been

intended. Tests of significance indicated a grade effect for story writing ($p < .029$). While the third and sixth graders meant their stories to be entertaining, the ninth graders wanted them to be informative in some way.

Students' expectations about the effects stories and reports should have are illustrated in the comments of two students, Lora and Lin. Lora (grade 9) observed that

> A good story entertains you. It's not at all like scientific writing that tells you all the facts.

Lin (grade 6) had an equally typical view:

> For my report I just thought about a bunch of facts, but for my story I thought a bit longer about what was gonna happen and about something to make it different. When you read, though, mostly it tries to tell you something.

Findings from these analyses suggest that the majority of students did not pay overt attention to the author/audience relationship when they were reading or writing. Nonetheless, they had an underlying understanding of the author's role in communicating messages, with particular effects, to a particular audience.

What Students Know About Structure

Chapters 4 and 5 presented an analysis of the kinds of structures the students formulated in their own reading and writing activities. The analyses presented here examined

the students' awareness of the structures they had read about or created, as well as the control they felt they had over the structures (see Table 7.5).

Insert Table 7.5 about here

One series of questions asked about students' perceptions of the kinds of ordering appropriate to stories and reports. While students felt that in general there was a usual order within each of the genres, this response was stronger for stories than reports, in both their reading and writing ($p < .001$). After reading the Mole passage, none of the third graders felt there was a usual order to reports, though after writing their own reports one-third of the same students discovered that there was such an order. In general, students seemed more aware of typical patterns of organization after writing than after reading; reading/writing differences were significant for stories ($p < .001$), and showed a similar trend for reports ($p < .149$).

Responding to this questions, third grade Tai said,

> I don't think reports have parts. Like a story has a beginning, a middle and an end, but a report it's just all facts --unless if you're doing animal reports and the teacher says you should do parts like a part on food, and where they live, and things like that.

When asked about the order presented in the particular piece they had just read or written, the students generally

responded that stories were chronological and reports more logically ordered (general to specific, more to less important), although the third graders' responses were split across the two. The genre differences were significant for both reading and writing.

Ninth grade Jake said,

> In a report, you can list and plan, but in a story you have to go along with what sounds right, with the way it happens.

In writing her story, ninth grade Lora said she usually gets specific about everything that happened:

> I don't know whether I should start from the morning when she wakes up, or what... Stories generally have plots but you have to organize the information in a report in a different way.

Sixth grade Elizabeth said,

> Stories usually aren't so neatly organized and all put together in a special order -- it just sort of happens, what happens to the characters.

When asked whether, in the piece they had just read or written, the parts could be switched around, a greater percentage of the students said "yes" for reports than for stories. Genre differences were significant for both reading and writing ($p < .005$). Responses for individual students were again somewhat consistent across reading and writing. The association between reading and writing responses was

significant for stories ($p < .042$, Cramer's $V = .47$), though not for reports ($V = .13$).

Third grade Tai said,

> It really doesn't matter about the order in a report because it's information about things -- information can be in any order. Like in a story, sometimes it matters, right? Like you can't have the ending at the beginning 'cause that would give away the story.

When asked such a switch would change the piece, the students felt that the stories would no longer make sense, but were less certain it would make a difference for reports. Tests of significance for the "not make sense" response showed genre differences for both reading ($p < .001$) and writing ($p < .032$). A related set of responses indicating that the change in order would not really matter also showed significant genre effects for both reading and writing ($p < .003$, $p < .009$).

Students were also asked which parts of the piece they had just read or written had been hardest. Overall, the students did not report much difficulty with reading, but found all aspects of writing difficult, with getting started the hardest. Reading/writing differences in the difficulty of getting started were significant for stories and reports ($p < .026$, $p < .001$).

In general, the students' comments about their work gave evidence of their subtle, if not overt, awareness of

structure. Some students used works they had previously read as models. In reflecting on her writing, Maggie (grade 6) said,

> I think about what I've read and kinda put it the way I read it, the way I had seen it written. I flip back to the books I've read and the way they've positioned them.

Others thought of the clearest way to state their message:

> I just think of how the parts will fit together to make sense and say what I want.

Still others relied on some scheme they had been taught:

> I always start by asking specific questions and then answering them.

It is interesting to note that across all analyses, more, and more vari l, responses were evoked by the writing as opposed to reading questions. This may reflect the fact that once students had actually engaged in the writing process they were more aware of the structures they had formed and the control they had exercised in producing the piece than they were after eading.

Approaches to Writing

In addition to their awareness and use of structure, the children were also asked about the decision-making strategies the students used. One set of questions focussed specifically on the strategies the students used to organize their writing. Results for these questions are summarized

in Table 7.6

When students were asked about how they got started, some two-thirds of the students indicated they based their writing on the first topic that came to mind (see Table 7.7). Sixth grade Elizabeth explained the process:

> I sort of get an idea for a story...I get a character and I decide what the character's gonna do. I think about stories I know and things that happened. Then I start and keep on going. My ideas keep going on. Then for an essay I usually get a topic and I decide what I'm gonna put under that topic. It's sort of the same kind of thinking... for completely different things.

Grade effects were significant for story writing ($p < .003$), with the ninth graders choosing their first ideas more often than the younger students.

Insert Table 7.6 about here

Students were also asked about the extent to which they thought of ideas that were never included in their actual pieces of writing. The majority of students were aware that they went through some such filtering process, with the older students rejecting more ideas than did the younger students. Ninth grade Peter said,

> It's like collecting things together. You have to take all the facts and piece them together like a puzzle. You never use the leftovers.

Another question in this series asked about the planning students do. Most showed evidence of some planning before they actually began, though this was less evident for third grade report writing than for the other tasks. Even more interesting was the large amount of planning that continued during the actual writing experience, while the students had pen to page. Some 80 percent of the students at each of the three ages were aware of such planning. Peter, our Music Mayhem report writer (see Chapter 4), was aware of the changing nature of what he intended to write:

> As you're writing, the ideas come. It's like waking up in the morning. Things start waking up and the ideas keep coming.

Handling Difficult Parts

One set of strategies that children need to develop has to do with how to handle difficulties that arise while reading or writing. Reports of such strategies are summarized in Table 7.7. In their reading, the most typical approach was simply to move on, skipping over the difficulty; if they did not move on, the students were most likely to just "stop and think."

Insert Table 7.7 about here

During troublesome times in their writing, the students tended to stop and think, or (particularly in the upper grades) to abandon the whole task for a time. Approaches to

reading and writing were significantly different for "moving on" ($p < .007$ and $p < .026$ for stories and reports, respectively); reading/writing differences were also significant for abandoning the task for a while ($p < .005$ for stories, $p < .004$ for reports). It is interesting to note that the third graders almost never abandoned the task, even when they were quite stuck. Grade effects for willingness to abandon the task for a while were significant for both story and report writing ($p < .016$, $p < .021$).

Other strategies for dealing with difficulties included using words that came before or (in reading) after the difficult parts, rereading major segments, and changing one's ideas in order to make better sense of what was being read or written. For all of these I found significant associations between genres in the ways in which individual students approached their story and report tasks, but no significant associations between domains. Each of the students seemed to have a general approach to difficulties in their reading, and a different set of approaches to difficulties in their writing; they used the same set of approaches for stories as well as reports.

What were the difficult parts the students reported? These are also summarized in Table 7.7. In their reading, the students' concerns dealt primarily with meaning, whether of words or longer sections. In contrast, their difficulties in writing were primarily caused by mechanical problems such as spelling and punctuation. As with their approaches to hard parts, I found significant associations between

story and report in the types of difficulties individual students reported, but no relationship between the difficulties reported in reading and writing.

Using Background Knowledge

Students were also asked about the knowledge they were drawing upon in their reading and writing-- whether based on "factual" knowledge or personal experience. In general, students were aware that were drawing on their previous experiences (67 percent) and things they knew (96 percent), for their writing tasks. In their reading, however, they were somewhat less aware of the relevance of what they already knew (63 percent), and significantly less sure that their previous experience could be any use in understanding what they were reading (38 percent).

Students' comments reflected their awareness of the usefulness of their topic knowledge. As sixth grade Stacey put it,

> Reports are easy when you have the information in your head.

Buddy, also a sixth grader, expanded on this image:

> Well, I had it in my head. I mean all this stuff is locked up somewhere in a little locker. I just go think to myself, 'Let's see. I'll open the whale locker'. Out pours the stuff. And I just sort through it and see what I need.

Summary

A strong and continuing pattern emerges from the students' responses to the probing questions. First, genre differences were apparent across most of the questions, though they were less strong for questions about strategies than they were for questions dealing with the students' sense of structure. Second, the domains of reading and writing also accounted for a large portion of the significant effects, particularly so for questions dealing with strategies. Grade effects were less frequent, reflecting the fact that even the third graders had consistent strategies and a well-developed sense of genre; between grades 3 and 9, the development that did occur centered around more advanced skills, such as summarization and planning. In general, these distinctions parallel those explored in earlier chapters.

Although the students were very willing and verbose informants, the richness of their response was often greater after they had engaged in a writing as opposed to a reading task. After completing a writing task, they were more aware of what they knew about structures, showed a keener sense of distinctions between audience and author, and had a sharper sense of their use of relevant background knowledge.

In this chapter, I have probed more deeply into the students' underlying understandings of the genres by examining the extent to which they were aware of particular structures and strategies when directly asked about them.

Findings indicate that they were indeed able to discuss many of the distinctions between story and report passages, and these understandings in turn affected their approaches to structuring the content, setting expectations, manipulating their understandings, and controlling the meanings they formulated as they read and wrote.

This chapter is the last of four in which I have attempted to present what I learned from the children about the structures and strategies they knew and used when they read and wrote. While analyzing the work of many children has permitted me to search for patterns and make comparisons, it has prevented me from sharing the tales of individual children - and the insights that can only such portraits can bring. In the next chapter I will tell about two children.

Table 7.1

How Students Use Genre Knowledge

	Percent of Students							
Reading:	Story				Report			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Genre Identification								
Fiction	91.7	92.9	90.5	100.0	7.1	0.0	0.0	0.0
Nonfiction	8.3	7.1	9.5	0.0	92.9	100.0	100.0	100.0
Genre Characteristics								
Make believe	57.1	42.9	23.8	8.3	0.0	0.0	0.0	7.1
Tells truth	0.0	7.1	23.8	0.0	73.3	73.3	90.0	85.7
Genre markers	42.9	50.0	52.4	91.7	26.7	26.7	10.0	7.1
When Identified Genre								
Title	12.5	30.8	27.8	36.4	30.8	15.4	10.5	7.7
1st paragraph	37.5	38.5	38.9	36.4	23.1	38.5	73.7	69.2
General approach	25.0	0.0	16.7	0.0	23.1	38.5	5.3	7.7
Other	25.0	30.8	16.7	27.3	23.1	7.7	10.5	15.4

Writing:	Story			Report		
Grade:	3	6	9	3	6	9
Genre Identification						
Fiction	100.0	97.1	100.0	9.1	0.0	7.1
Nonfiction	0.0	2.9	0.0	90.9	100.0	92.9
Genre Characteristics						
Make believe	50.0	62.5	70.0	0.0	9.7	7.1
Tells truth	25.0	12.5	0.0	100.0	77.4	85.7
Genre Markers	25.0	25.0	30.0	0.0	12.9	7.1

Table 7.1, continued

Significant Effects (by variable)

		Chi-square	df	Probability Level
Genre characteristics				
Grade effect:	story reading (6 vs 9)	5.63	1	.059
	report reading (6 vs 9)	1.52	1	ns
Domain effect:	stories	6.26	1	.012
	reports	0.40	1	ns
Genre effect:	reading	10.08	1	.001
	writing	24.04	1	.001
When identified genre				
Mode effect:	report reading	10.65	3	.059
	story reading	2.59	3	ns

Table 7.2

Familiarity with Genre

Percent of Students

Reading:	Story				Report			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Read genre before	77.8	100.0	94.7	91.7	72.7	92.3	90.5	100.0
Likes to read it	83.3	66.7	86.7	90.0	40.0	36.4	41.2	36.4
Reads genre often	77.8	44.4	83.3	40.0	27.3	28.6	20.0	27.3
Passage was typical	80.0	61.5	77.8	100.0	100.0	85.7	82.4	69.2

Writing:	Story			Report		
Grade:	3	6	9	3	6	9
Wrote genre before	100.0	88.2	92.9	71.4	88.6	100.0
Likes to write it	100.0	83.3	78.6	37.5	50.0	50.0
Writes genre often	71.4	58.3	10.0	25.0	30.4	36.4
Passage was typical	87.5	68.8	83.3	55.6	86.2	69.2

Significant Effects (by variable)

	Chi-square	df	Probability Level
Likes to read genre			
Genre effect:	11.25	1	.001
Reads genre often			
Genre effect:	2.72	1	.090
Likes to write genre			
Genre effect:	7.58	1	.005
Writes genre often			
Grade effect: story	16.79	8	.032
report	11.30	8	.185

Table 7.3

Beginnings and Endings

	Percent of Students					
	Story			Report		
Grade:	3	6	9	3	6	9
Usual Beginning						
Introduces character	44.4	57.1	46.2	0.0	6.5	0.0
Introduces setting	22.2	53.6	38.5	0.0	9.7	0.0
Sets content expectations	11.11	35.7	23.1	62.5	80.6	61.5
Usual Ending						
Summation	0.0	18.2	57.1	0.0	48.4	92.9
Resolution	60.0	52.9	21.4	0.0	0.0	0.0

Significant Effects (by variable)

	Chi-square	df	Probability Level
Introduces character			
Genre effect	20.04	1	.001
Introduces setting			
Genre effect	15.43	1	.001
Mode effect: story	5.13	1	.024
report	0.00	1	ns
Content expectations			
Genre effect	15.70	1	.001
Summation			
Grade effect: report	15.98	2	.001
story	12.00	2	.003
Genre effect	9.00	1	.001

Table 7.4

Sense of Author and Audience

Reader's Sense of Author

	Percent of Students							
	Story				Report			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Think of author	13.3	6.7	36.8	42.9	15.4	45.5	26.7	7.7
Different for diff. audience	50.0	91.7	80.0	100.0	100.0	100.0	86.7	100.0
How?								
Language	50.0	66.7	66.7	62.5	100.0	87.5	80.0	100.0
Neater	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0
Longer	50.0	16.7	16.7	25.0	0.0	0.0	0.	0.0
Meet their interests	50.0	41.7	33.3	62.5	0.0	25.0	26.7	66.7
Effect author wanted								
Amusing	42.9	14.3	0.0	0.0	0.0	0.0	6.7	0.0
Entertaining	42.9	71.4	22.0	20.0	9.1	0.0	0.0	0.0
Informative	14.3	0.0	44.4	80.0	81.8	100.0	93.3	90.9
None	0.0	14.3	33.0	0.0	9.1	0.0	0.0	9.1

Table 7.4 (continued)

Writer's Sense of Audience

	Story			Report		
Grade:	3	6	9	3	6	9
Think of audience	18.8	35.3	13.3	21.4	45.5	42.9
Different for diff. audiences	44.4	81.8	84.6	66.7	80.0	100.0
How?						
Language	40.0	64.5	81.8	33.3	60.0	100.0
Neater	40.0	25.8	27.3	66.7	37.9	21.4
Longer	0.0	23.3	45.5	66.7	31.0	50.0
Meet their interests	40.0	16.1	36.4	33.3	6.9	35.7
Effect you wanted						
Amusing	25.0	22.2	8.3	20.0	0.0	0.0
Entertaining	37.5	37.0	8.3	0.0	7.1	0.0
Informative	0.0	7.4	50.0	60.0	67.9	69.2
None	37.5	33.3	33.3	20.0	25.0	30.8

Significant Effects (by variable)

		Chi-square	df	Probability Level
Think of author/audience				
Domain effect:	story	0.00	1	ns
	report	4.50	1	.030
Different for different audiences				
Grade effect:	story writing	6.11	2	.047
	report writing	4.34	2	.114
Language				
Domain effect:	story	0.08	1	ns
	report	3.72	1	.054
Neater				
Domain effect	story	4.00	1	.045
	report	6.75	1	.009
Effect wanted				
Grade effect:	story writing	14.03	6	.029
	report writing	9.73	6	.137
Domain effect:	story	1.50	1	ns
	report	7.11	1	.008

Table 7.5

What Students Know About Structure

	Percent of Students							
Reading:	Story				Report			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Has usual order	66.7	100.0	81.8	100.0	0.0	50.0	61.5	27.3
What order?								
Chronological	50.0	100.0	90.0	100.0	0.0	0.0	16.7	33.3
Logical	50.0	0.0	10.0	0.0	0.0	100.0	83.3	66.7
Parts can be switched	20.0	18.2	20.0	0.0	54.5	38.5	62.5	44.4
How change piece?								
Not make sense	100.0	80.0	69.2	90.0	42.9	45.5	33.3	25.0
No real change	12.5	10.0	23.1	0.0	66.7	54.5	53.8	50.0
Hardest parts								
Getting started	0.0	0.0	0.0	0.0	10.0	7.7	5.9	0.0
Introduction	12.5	0.0	15.0	0.0	0.0	0.0	11.8	15.4
Conclusion	12.5	8.3	0.0	0.0	0.0	0.0	35.3	30.8

Table 7.5, continued

Significant Effects (by variable)

		Chi-square	df	Probability Level
Has usual order				
Genre effect:	reading	10.32	1	.001
	writing	6.72	1	.009
Domain effect:	story	10.32	1	.001
	report	2.08	1	.149
What order?				
Genre effect:	reading	9.09	1	.002
	writing	7.03	1	.008
Could parts switch?				
Genre effect:	reading	7.58	1	.005
	writing	7.68	1	.005
Not make sense				
Genre effect:	reading	10.32	1	.001
	writing	4.55	1	.032
No real change				
Genre effect:	reading	8.64	1	.003
	writing	6.72	1	.009
Hardest parts-getting started				
Domain effect:	story	4.92	1	.026
	report	13.14	1	.001
Hardest parts-conclusion				
Domain effect:	story	4.00	1	.045
	report	0.00	1	ns
Passage effect:	story	0.01	1	ns
	report	3.74	1	.050

Table 7.6

Approaches to Writing

	Percent of Students					
	Story			Report		
Grade:	3	6	9	3	6	9
Getting started						
Use first idea	87.5	54.3	100.0	66.7	67.6	81.8
Any ideas not used	44.4	62.5	36.4	57.1	74.2	81.8
Planning times						
Before writing	56.3	61.8	50.0	21.4	69.4	69.2
During writing	81.3	82.9	85.7	86.7	86.1	76.9

<u>Significant</u> <u>Effects</u> (by variable)

		Chi-square	df	Probability Level
Use first idea				
Grade effect:	story	11.87	2	.003
	report	0.90	2	ns
Plan before				
Grade effect:	story	0.58	2	ns
	report	10.33	2	.006

Table 7.7

How Students Handle Difficult Parts

	Percent of Students							
Reading	Story				Report			
Passage:	Jackie		New Kid		Mole		Prairie Dog	
Grade:	3	6	6	9	3	6	6	9
Approaches to difficult parts								
Move on	87.5	33.3	57.9	38.5	70.0	0.0	46.7	61.5
Stop and think	42.9	33.3	21.1	46.2	40.0	37.5	43.8	53.8
Abandon task for a time	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0
Use words before	14.3	0.0	36.8	7.7	0.0	12.5	31.3	0.0
Use words following	14.3	0.0	36.8	7.7	0.0	12.5	18.8	0.0
Change ideas afterwards	25.0	37.5	10.0	0.0	100.0	0.0	22.1	66.7
Reread any parts	21.4	45.5	70.0	42.9	15.4	61.5	61.1	35.7
Difficult parts								
Mechanics	35.7	14.3	47.1	15.4	28.6	10.0	47.4	7.7
Meaning	50.0	62.5	82.4	84.6	78.6	60.0	84.2	69.2
None	30.8	25.0	5.9	7.7	16.7	30.0	11.1	30.8

Table 7.7 (continued)

Writing:	Story			Report		
Grade:	3	6	9	3	6	9
Approaches to difficult parts						
Move on	0.0	0.0	7.7	20.0	0.0	16.7
Stop and think	80.0	84.6	69.2	80.0	92.9	41.7
Abandon task for a time	0.0	30.8	69.2	0.0	28.6	66.7
Use words before	0.0	7.7	0.0	0.0	7.1	0.0
Use words following	0.0	7.7	0.0	0.0	0.0	0.0
Change ideas afterwards	8.3	28.1	40.0	0.0	15.4	50.0
Reread any parts	50.0	53.3	85.7	42.9	56.7	69.2
Difficult parts						
Mechanics	40.0	30.0	14.3	55.6	35.3	0.0
Meaning	10.0	15.0	7.1	0.0	11.1	8.3
None	40.0	47.4	71.4	44.4	33.3	75.0

Significant Effects (by variable)

		Chi-square	df	Probability Level
Move on				
Domain effect:	story	7.36	1	.007
	report	4.92	1	.026
Abandon task for a time				
Grade effect:	story writing	8.25	2	.016
	report writing	7.72	2	.021
Domain effect:	story	7.69	1	.005
	report	8.10	1	.004
Reread				
Grade effect:	story reading (3 vs 6)	1.63	1	ns
	report reading (3 vs. 6)	4.06	1	.044
Meaning				
Domain effect:	story	19.05	1	.001
	report	19.05	1	.001
No difficult parts				
Domain effect:	story	10.56	1	.001
	report	3.27	1	.071

Chapter 8

Developing Text Worlds: Two Children Reading and Writing

Maggie and Charles are two of the 36 sixth grade children who participated in the project; in the interview sessions Maggie was assigned to the think-aloud and Charles to the retrospective reporting procedure; each read the more difficult sixth grade passages. They are both 12 years old, and are average students in their better-than-average school. Maggie scored in the 77th percentile in reading and the 95th percentile in total language, and Charles in the 88th percentile in reading and in the 98th percentile in total language on the Comprehensive Test of Basic Skills. While both children opt to read and write more often than most children, in their everyday lives as well as in school, Maggie prefers writing to reading (she thinks she writes better than she reads) and Charles prefers reading to writing (he thinks he is a better reader than writer). This chapter will explore reading, writing, and the development of meaning through the eyes of these two children.

Attitudes and Understandings

Maggie. Throughout all our meetings, Maggie conveyed a particular sense of enjoyment in writing. Although she surely reads a great deal, the attitudes of those around her seem to have affected her perspective. For Maggie, writing is "fun" and "creative" while reading is "practice." "My mom wants me to get better at reading. I'm not in the high group this year, and I'm terrible at spelling...." " I have to spend a half hour reading after I finish my homework, before going to bed." Maggie's school and home environment count a great deal; although she is well above her age mates on a national scale, she is only adequate in her local environment -- and in this environment, adequate is never enough. Despite her lack of enthusiasm for reading, Maggie actually likes to read "if it's not too hard." "I like a book that's exciting like Judy Blume and Encyclopedia Brown, and mysteries, and books with sad endings." Below are Maggie's responses to some of the reading interview questions:

Q If someone asked you to explain what reading was, what would you tell them?

A You read a story that's not supposed to be true, but usually is and sometimes you learn stuff. It explains life.

Q What do you think the easiest thing about reading is?

A When you get to relax and don't have to think hard and the story just comes to mind.

Q The hardest?

A Spelling and book reports. I hate them, and I get bad grades.

Q What does a person have to do to learn to read?

A Learn to spell, punctuation and stuff, word meanings, know how to check out a book (from the library), know how to write so you'll know what the author wrote.

Q What does it take to be a good reader?

A You need a good average (school grade) to understand the topic or type of book.

Although Maggie talked enthusiastically, and with good comprehension, about some Judy Blume and mystery books she had read, and although she has a good reader's sense of 'curling up with a good book', the lesson-type practice often assigned to less successful readers (such as herself) permeates her views toward reading. She doesn't think of herself as a good speller, so she attributes spelling knowledge to reading as opposed to writing success.

On the other hand, Maggie "love(s) creative writing." "I like the writing and I like the grades I get." She knows she is a good writer. "I usually just do it and don't dawdle." "I like to write stories, mysteries, and Encyclopedia Browns. I write a lot for my free time at home. When I'm angry I write about someone who's angry. I've been doing it (personal writing) since I was 6 or 7 ." Below are Maggie's responses to some of the questions asked about writing:

Q If someone asked you to explain what writing was, what would you tell them?

A Writing is like someone to talk to. It's to get rid of your feelings. (Sometimes I concentrate on what I read to get rid of my feelings too. Just not so much.)

Q What do you think is the easiest thing about writing?

A Looking at what you've accomplished.

Q The hardest?

A Writing it. It takes concentration to know if it's going to be a good story or not.

Q What does a person have to do to learn to write?

A Have good penmanship, think about it first. I usually think of the beginning and end and then write it through. I usually have happy endings.

Q What does it take to be a good writer?

A It takes skill to make it so other people would like to read it. That's what good writers do.

Maggie thinks of herself as a good writer, and she uses writing for her own purposes. Her likes and dislikes seem to be in response to what makes her feel successful, and her yardstick for success is based upon school grades. Her responses to the writing questions are qualitatively different from her reading responses. As a successful writer, she shared her ideas and notions about her craft.

Charles. Charles, like Maggie, scores high on standardized achievement tests, but unlike Maggie he is in

the top reading group. Charles thinks of himself as a good reader as well as a good writer, but he prefers reading to writing. For Charles, writing is "harder work' than reading. Charles reads a great deal, both in and out of school. He reads "for the fun of it. When I'm bored I like it. I like to pass the time with it. You can just put yourself into the book and expand your imagination." Charles thinks of himself as a good reader. He can tell he is good because "I read a lot and I read pretty fast. Also, I can understand a lot." He likes to read "scientific books, science fiction, books about children my age, humorous books, and books that tell you information." Once he starts a book, "...when I'm into the plot, I want to rush to read it through. I keep thinking about it until I finish reading." In response to the reading interview questions, Charles said:

Q If someone asked you to explain what reading was, what would you tell them?

A It's a form of art. You need it to get by in life. You can paint a picture in your mind like in a movie, but it's your own imagination.

Q What do you think the easiest thing about reading is?

A You can stop when you want and you can pick what you want.

Q The hardest?

A Putting the book down.

Q What does a person have to do to learn to read?

A Know the alphabet, understand vocabulary, and have a degree of intelligence to figure out the meanings.

Q What does it take to be a good reader?

A A good imagination.

Although Charles sometimes likes to write, unlike reading he doesn't choose to do it on his own; he writes only "if the teacher says so." Although he likes the notion that "you can write your own thoughts," he doesn't like it "when you don't know what to say" or "when you have to rewrite it." Charles thinks he is a good writer "only sometimes." When he does write, he likes to write about fantasy, science fiction, and "other humans." Following are Charles' responses to some of our writing questions:

Q If someone asked you to explain what writing was, what would you tell them?

A It's work. You use your imagination, but it has to be planned to sound interesting and come out right.

Q What do you think is the easiest thing about writing?

A No one telling you what to do and stopping when you want to.

Q The hardest?

A Thinking about a plot.

Q What does a person have to do to learn to write?

A Learn the alphabet, spell, and make sentences and to connect sentences so it makes sense.

Q What does it take to be a good writer?

A Lots of imagination and skill. You want people to understand. When I write, I want it to be realistic so the readers will have a picture in their minds like I have in my mind.

While others consider Charles a good reader and writer, he seems to find writing more laborious. Planning and organizing are a bit bothersome for him; he doesn't like to take the time.

For Maggie, writing is a creative, expressive activity while reading is more laborious. Conversely, for Charles, reading is a creative and expressive activity, and for him writing is a bit of a chore. I will examine some of the reading and writing they actually did -- to compare what they thought and said with what they actually did.

The Writing They Did

First, let us look at Maggie's and Charles' stories, and then at the reports they wrote. Maggie's story looked like this:

> (1)When Jill was 7 she could not tie her shoe. (2) Her mother taught her (3) but she could not figure it out. (4) One day her ties her shoe and (5) she accedentily steped on her shoe lace (6) and it turned in to a knot. (7) She tried to untie it (8) but it would not come loose. (9) She tied little bows on the knot (10) and she thought that she had tied her shoes. (11) The next day she learned how to tie them correctly.

The end.

I			Learning to tie shoes							
II	Descr	Descr			Sequence					
	1	2	4	5	6	7	8	9	11	
III		Advers						Descr		
		3						10		

Maggie's top level structure is a lexical predicate, based on the unstated main idea of her piece. Her lower level sequence dominates her story, and constitutes her single episode, although she does use descriptions and an adversative to present her background. She presents her story in the past tense. She begins with the setting, "When Jill was 7...." and ends with a resolution, "The next day she learnes to tie them correctly." The piece is written as a third person narrative, and although it includes a setting, episode, and resolution, the story lacks elaboration, and with it, vividness and tension.

Maggie spent some time thinking before she began to write:

> (1) "I'm thinking of writing about a first something that happened to me. (2) Like the first time I caught something. (3) I'll do about my first time at camp when I was 8. (4) So I'll start off like this...When I....(5) I think I'll start over again and make it more imaginary. (6) Maybe about whistling for the first time. (7) I'll do someone tying their shoes for the

first time. (8) When Jill was 7 - that's about the right age...."

The analysis of these first eight segments of Maggie's protocol is presented in Figure 8.1, for the various dimensions in the Analysis of Meaning Construction.

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insert Figure 8.1 about here

Her first thoughts are much like brainstorming for ideas. She explores a number of possibilities, and tries one out. She begins to write about camp and and changes her mind after writing the first couple of words. She thinks again, rejects the "whistling" topic, and finally gets to the "shoe tying" topic she keeps. Her monitoring strategies switch from goal setting to statements of meaning, to refinements of meaning, and back to goal setting and statements of meaning. Her strategies flex back and forth from generating to formulating. to revising, and then to generating. The text units she deals with at first are global -- the topic of the entire piece --, but when she begins to write, she switches to the specific ideas she is putting down. Similarly, her original planning focusses on the writing process, but she focusses more on product, the paper itself, as the ideas are written. Time is fluid; neither stages nor patterns become regulated. Hypothesizing, generating, and all the other cognitive dimensions play their parts in a larger orchestration of meaning. They play differently in different pieces, and in

different portions of a each piece.

In general, Maggie's protocol is dominated by her schemata (62 percent) and hypotheses (31 percent). She seldom reflects and most frequently plunges into meaning without evaluation. Also, Maggie's protocol depicts her use of her own personal experiences, her knowledge of the content, and her knowledge of the genre. Clearly, all three influenced the development of her piece. In the post-writing interview, when asked about writing stories, Maggie said, "Writing a story is fiction. It's all your own ideas. You don't have to do research. It's all original." When asked if she was pleased with this story, she said it was "OK, but sometimes I write better."

Maggie's report looked like this:

English Horseback Riding

(1) I used to take English horseback riding. (2) The way you get on a horse english or western is on the left side. (3) You put your left foot in the stir ups and swing your left foot over the horse.

(4) The difference between the saddle of english and western is the english saddle doesn't have a horn (5) and western does. (6) Western has bogger stirups (7) and the english saddle is smaller.

(8) The clothes you must wear to ride english is boot with about a one inch heel, breeches, which is the pants that tighten up at the ankle, and a hard hat that has a snap underneath the chin.

(9) The difference between western and english

riding is western has walking, trotting, running, and galloping and in english you walk, trot, rising trot, and cantering.

I			English Horseback Riding				
II	Descr 1	Descr 2	Alternat		Descr 8	Alternat	
III		Descr 3	Comp 4	Cont 5		Comp 9	Cont 10
IV			Adv 7	Adv 6			

Maggie's top level structure is a lexical predicate, the title she gave her piece, "English Horseback Riding." Her lower lever structures are descriptions, adversatives, and one alternative. Her one main information cluster is in her second paragraph where she sets up a more elaborated comparison. No real thesis is presented, and the tree diagram reflects the rather loosely presented bits of her knowledge. The report is written in a mixed tense form that is controlled. She opens with a simple "first fact" beginning, and ends with a "last fact." Maggie clearly knows quite a bit about English and Western riding, but lacks sufficient knowledge of report form to present a well developed informative piece.

About story and report writing she says, "Report writing is harder. First you have to find information. Writing a story is fiction, your own ideas. You don't have to research it. It's all original." After a bit of

discussion, when Maggie realized she could also write reports about information she already knew, she said, "That's easier. But still you have to work hard to say it all right."

The beginning of Maggie's report protocol looks like this:

> "(1) Skunk - just did a report on that. (1) Won't do it again. (3) I'll choose English horseback riding 'cause it's one of my hobbies. (4) I'll think of a good beginning. (5) I think I'll write how to get on a horse. (6) Then I'll write about what to wear. (7) I'll write about trotting, running. (8) You have to get on the left. (9)You can het hurt on the right side. (10) Then I'll tell the differences between English and Western saddles. (11) And then I'll talk about clothes. (12) I used to take English horseback riding...."

Maggie thought a lot before picking up her pencil and writing. She thought about the information she would include, and about how the paper would be organized. She planned the chree important segments about horseback writing. Then, when she began to write, she kept on along the lines she had planned. As before, her protocol was dominated by hypotheses (42 percent) and schemata (33 percent). She made no revisions at all. After she had finished writing she explained that she liked to plan reports carefully, "it helps me organize the information and

give me a plan for writing." When probed about organization, she said that the three paragraphs could be switched around because all the information was equally important, but then her introduction and paragraph transitions would need to change.

Charles realized all along that story writing might require research, and be difficult to do:

> Writing a story is usually easier because ideas are in your head and you just write about them. A report usually requires more work. You need to get the information first. But you could write a story about the same topic as a report. I could write a story about hammerhead sharks and it would be different from the report. I'd write about some people searching for a shark and trying to catch and kill it -- a sort of detective or mystery story with action. I'd need to know all the facts, but also use my imagination. That would be hard to do well.

Charles' hammerhead shark report looked like this:

The Hammerhead Shark

(1) The hammerhead shark is one of the most dangerous sharks of the world. (2) It usually lives in warm waters of the Atlantic Ocean.

(3) It is called a hammerhead, hammer, shovel, or shovelhead shark. (4) People call this shark these names because its head looks like a T from a top view. (5) Its eyes are on the side of the head. (6) The

mouth is located under the head.

(7) Hammerheads usually eat fish - any sizes (8) but sometimes they are known to attack humans. (9) sometimes they come farther into the land than most people think they would.

(10) Once a hammerhead came into 3 feet of water and attacked a bather at Maui beach at Hawaii.

(11) Scientists are trying to find out why the hammerhead came so far into the land (12) but have not found out anything yet.

I			Hammerhead Shark				
II	Descr 1	Descr 2	Descr 3	Descr 7	Descr 8	Descr 9	Descr 11
III			Descr (Coll) 4 5 6			Descr 10	Advers 12

This paper has a more sophisticated "feel" than Maggie's paper. The topic is more academic and it is organized in a thesis-support school-like fashion. It is a topic Charles researched for a school paper, while Maggie's report dealt with a topic quite apart from her school life -- about a hobby she has. To many, Charles' paper "feels" to be better written than Maggies' 1) because the content seems harder--more academic, and 2) because the paper seems carefully structured and limited to the topic. However, beyond the surface, analysis of the structural features

shows the two papers to be similar in many ways. As in Maggie's paper, Charles' top level structure is a lexical predicate, his title. His lower level structures, like hers, are predominantly descriptions, with one adversative in contrast to her two adversatives plus one alternative. Her passage is more deeply embedded: his deepest level is three compared with her 4, and he uses all shallowly linked structures as compared with her 2 deeply linked ones. His paper is not organized around an information cluster, but more closely resembles the "and then, and then" pattern of younger children's stories. Like Maggie, he presents no real thesis; both base their reports upon the commonly found tell-all-you-know pattern described in chapter 4.

The first segments of Charles' retrospective protocol look like this:

> (1) I'll write about a hammerhead shark. (2) It was my last report. (3) I looked in a lot of books. (4) I don't know what else to write about. (5) It was a recent report. (6) The hammerhead shark is one of the most dangerous. (7) That is one of its main characteristics. (8) That's why they're called hammerhead sharks. (9) The hammerhead shark is the largest in the world. (10) I wanted this part to tell about the danger (11) then I'd describe the shark (12)then I'd tell what it eats...."

Although Charles decides to use the topic of a report he recently wrote, his attention to organization is evident.

Unlike Maggie, his protocol has few schemata (14 percent), some hypotheses (29 percent), and many evaluations (50 percent). Afterwards, he said, "You have to plan the parts so each paragraph has its own topic. Then you think what you know to go with that topic."

Charles, like Maggie, prefers to write stories. Comparing his report about hammerhead sharks with story writing he said, "The one about sharks is easy. You just write down what you know. Stories are harder than reports where you know the information and just give it -- you need to use your imagination and make them interesting." Following is Charles' story:

The First Time I Went on an Airplane

(1) At first I was scared because I've heard of storys of airplane crashes and how everyone dies. (2) But this was different, (3) I was going to go up by myself. (4) You see, I've been taking lessons for a year (5) and today I was going to go up without my teacher.

(6) Well if I crashed it would be my fault and only mine. (7) My teacher was going to be on the same landing strip and radio me wvery once every while (8) and if I was in any trouble I was to call him immdeiately.

(9) When I was getting in the plane I almost checked out (10) but my teacher urged me on. (11) I got into the plane and started it up while trying to remember all the things my teacher taught me. (12) I finally

got moving (13) and down I went, down the runway, faster and faster and into the air. (14) I was airborne. (15) It was great because I was in charge, noone to tell me what to do.

(16) But then it was all over. (17) I landed. (18) But for that short time I felt wonderful! (19) My teacher went over to me and congratulated me for my fine work. (20) I said "thanks" and "bye" and went home. (21) When I got home I flopped into bed, tired with a hard days work.

I	The First Time I Went in an Airplane											
II	Descr	Descr	Descr	Sequence								
	1	6	7	9	11	12	15	16	17	19	20	21
III	Advers		Descr	Des		Des (Coll)		Des				
	2		8	10		13	14	18				
IV	Explan	Descr										
	3	4										
V		Descr										
		5										

Charles' story is written as a first person narrative. While it appears at first reading to be less sophisticated than his report, it is actually better organized and better elaborated. It is also more elaborately developed than Maggie's story. Charles said that in writing this piece he wanted "to create tension." His top level structure is the lexical predicate he used as his title. His lower level

structures are a mixture of descriptions for his background and setting, and his sequence (elaborated with descriptions) that presented his episode. He also uses an adversative and an explanation. He begins with a setting, and ends with a natural end-of-the-day (weak) conclusion. Compared with his report, Charles' story has more presentational flaws: the tense shifts are uncontrolled, there are more syntactic, punctuation, and spelling errors. However, while his report is a school-like presentation of major points without elaboration, Charles' story represents his not altogether successful (but valiant) attempt to do what he said he would, "to try to make the story interesting and suspenseful."

Retelling What They Had Read

The children's reading protocols provide a way to understand how their text worlds developed as they read. Both Maggie and Charles used their own knowledge to interact with the ideas in the text and formulate their own interpretations. Maggie's New Kid talk-aloud looks like this:

> (1) The way they treat a new kid who comes to a new neighborhood. (2) Maybe they'll treat him differently. (3) So, it's a kid talking. (4) It's early in the morning. (5) Probably a new school, so he has to be introduced to the principal....(13) He's thinking how he can be friends with them. (14) They're probably big and stuff. (15) And they look pretty

strong. (16) He's probably sitting alone 'cause he doesn't have any friends yet. (16) They're wondering if he should be allowed in their group. (17) He's trying to pretend he's all tough like they are. (19) He's probably from more places than that though. (28) The boy wanted a fight. (29) I hate fights. (30) So he had to fight. (34) So it was done. (35) They thought he was OK.

From the very first sentence, Maggie knew the New Kid would have to undergo some sort of initiation test before being accepted. Rather than asking questions or generating hypotheses, her protocol is dominated by schemata, statements of meaning, and formulating meanings. She seemed to be so familiar with the circumstances of the story that the New Kid's experiences were already familiar to her. Her recall was complete, telling a bit about the setting, the episodes, and the conclusion. In discussion afterward, she said," A story's much more interesting to read than a report. You don't feel like you're learning new stuff. It just tells you about people in interesting ways." On the other hand, she said she had to "think and figure out a lot more" when reading the Prairie Dog report. "I didn't know much about them except they dig burrows. I knew they were almost extinct, but not how they were killed. I didn't understand about the subsurface and things." Unlike her New Kid protocol, Maggie's Prairie Dog protocol contained more hypotheses and questions, a good many comments that

concerned with refining meaning, and revising and evaluating strategies.

Charles' Prairie Dog protocol reflects a similar pattern:

> (1) I didn't know what to do with the title. (2) This is kind of a research report. (3) So I just read. (4) I didn't really have an idea until the second paragraph. (5) I knew the prairie dog barks. (6) I didn't know he wags his tail. (7) I kept on reading 'cause it struck my attention. (8) I thought that was funny. (9) I didn't know that. (10) I wanted to know more. (19) Conservationist means... (20) I didn't know what kind of conservation was meant here. (22) I've seen one and they're fascinating. (25) I didn't know what to do with that sentence. (27) That reminds me of my home. (33) I've never been sent to bed without supper. (35) I didn't know about water conservationists. (34) It must be like a wildlife conservationist. (36) I didn't know what to do. (38) It didn't make sense to me. (40) I kept reading on. (42) I don't know what a water table is. (43) Maybe its like a high tide line. (44) I tried to guess what happened to the water. (45) I know there was a drought in California too....

Charles, like Maggie, was interested in the passage. They both found the human qualities of the prairie dog amusing and wanted to learn more about the animals. They

accommodated to and learned the new information with curiosity, until the last section about the water table. Although their reading procedure of relating the new information to what they already knew worked in the first part of the passage, they were less successful in arriving at meaning towards the end. Maggie said, "I tried to guess, but there just wasn't enough information for me to use. I tried to reread it but that didn't help....I even tried to use the title. I thought about it pretty much through, um, like when I got down here and I thought well this is about water conservationists and crowd pleasing. But it didn't help me figure it out." She felt the piece wasn't written for a child her age because "If the author was really trying to make it for a sixth grader, he'd probably make that part about the subsurface stuff easier."

Children and Meaning

Maggie and Charles are very different children. Charles is a very neat and polite boy of Chinese-American descent. He reads a great deal and is a bit of a loner by choice. Although his classmates like him and try to befriend him, often Charles prefers to play thinking games (like Monopoly) with his older brother. Charles speaks softly, smoothly, and convincingly. He thinks he is very bright and presents himself accordingly. He is "school-wise." He generally knows what will get him a good grade and "I give the teacher what I'm supposed to. That's intelligent. If I have an idea I'm not sure of, I usually

don't write (say) it." Charles is bright, but he is also cautious. He likes good grades and takes safe routes. He writes reports about information he has recently researched, he writes using forms he knows will more easily serve him, and he saves his "artful" thoughts for reading time when he does not have to show or share them with anyone at all.

Maggie's socks are always falling and her blouse creeps out of her skirt. She is plump and noisy, and a bundle of motion. Her conversation is punctuated with "uhs", "likes" and "you knows." Her sentences often trail off without completion. She likes bicycle riding and horseback riding and playing outdoor sports. She is less sure of herself, in everything she does, and communicates these insecurities in many ways. She also says what she thinks. She is less self - conscious about her ideas. She doesn't have to always be "right" --she doesn't expect to be. In her own way, Maggie takes more chances. She writes about what interests her, tries to use new forms, new topics, and new language when these seem appropriate -- and she expects to be "corrected when things aren't so good."

Charles uses the world around him as a data base for his own purposes. While he loves to read for escape, he also uses the books he reads as models for his own writing. In conversation he frequently reflects upon a particular book, or author -- commenting on ways in which the piece was organized or the language presented, "I want my last sentence always to be short and crisp, just like the good mysteries I read." Maggie is less reflective and also less

driven to succeed. Although they both score similarly on standardized tests, and are both capable students, they are very different individuals. Their real worlds are different -- as are their text worlds. Their approaches to meaning, and ways in which they form interpretions are also different.

Yet, with all the differences, there are some strong similarities in their approaches toward meaning that are reflective of patterns seen in all of the children in this study.

1) Their approaches were meaning-based. They expected the pieces they read and wrote to make sense, and their approaches towards text reflected that expectation.

2) They expected to know something about what they read and wrote. They tried to connect what they already knew with their ideas at hand.

3) They expected their text worlds-- whether those from their reading or those they created through their own writing-- to be organized in a pattern that would help the bits and pieces cohere.

4) They expected their reading and writing strategies to vary as their understandings developed.

5) They expected to misunderstand and miscommunicate along the way, and they expected to notice these problems and to repair the meanings.

6) They knew ideas change and grow, and that knowledge is sometimes incomplete. Therefore they were not surprised to be left with some unresolved questions and hypotheses even after the reading or writing experience ended.

Figure 8.1

Maggie's Story:
Analysis of Meaning Construction, beginning segments

C-Unit	Reasoning operation	Strategy	Text unit	Data source	Focus	Time	Monitor
1	H	G	G	C	PS	B	UGOAL
2	H	G	G	C	PS	B	UGOAL
3	S	G	G	C	PS	B	UGOAL
4	S	F	L	C	PD	D	USTATE
5	H	RV	G	G	PS	D	UREF
6	H	G	G	C	PS	D	UGOAL
7	S	F	G	C	PD	D	USTATE
8	H	F	L	C	PD	D	USTATE

Chapter Nine

Reading, Writing, and Meaning: A Summary

The last eight chapters have focussed on reading and writing: on the students' awareness and control of pertinent structures and strategies, and the actual pieces they wrote and remembered. In closing, it will be useful to synthesize the major findings and reexamine them in light of our notions of reading, writing, and the development of meaning.

Synthesis of Findings

General Reflections

Above all, reading and writing are interpretive and symbolic activities, incorporating the use of the linguistic and interactional aspects of language as well as the conceptual and interpretive uses of knowledge. Across the school years, the children developed growing control of the linguistic and communicative forms along with an enhanced awareness of the representational properties of their own

interpretations and the meanings they symbolize. Throughout their reading and writing experiences, the students formulated and interpreted their ideas using both content and form to carry their meanings. As readers and writers they, at once, both produced and interpreted the text; the form and content were processed simultaneously as part of the whole creative experience.

Findings indicate that reading and writing tap similar underlying processes. Overall, reading and writing showed strong correlations in the cognitive strategies called upon when children engaged in each task. These correlations were equally strong for reading and writing within and across domain. This corroborates the notion that reading and writing are strongly related cognitive behaviors. However, although reading and writing are undoubtedly cognitively related attempts to create meaning, they operate differently in different activities. Across the grades, the students approached reading and writing tasks differently, based upon their reasons for doing them in the first place. Although similar skills were called upon when the children read and wrote, they went about using them in different ways. The critical factors that seem to have made the difference in the ways in which the children approached their tasks -- ways in which they organized, developed, and communicated their ideas -- were found in the functional uses that underlie those reading and writing activities (e.g. their intent to read or write a story versus a report).

While reading and writing both operated as generative

activities, readers were more constrained because of the need to adapt their developing envisionments to fit their interpretations of what the author wished to convey -- and their interpretation of these constraints were signalled early on by the function (or genre) of the message. On the other hand, while the writers felt fewer constraints, they continually engaged in an interplay of content and form in their attempts to formulate and clarify their own meaningful texts. Across the grades, the students stretched to present the meanings they wished to convey within a particular genre structure, and to include new forms and features appropriate to those genre. It is this continual interplay of thought and language -- symbol and interpretation, intermingled with form -- that orchestrated all relationships between reading and writing and between structure and strategy across all the grades studied.

The Context for Literacy

From the analyses of parents', teachers', and students' notions of reading and writing, I learned that while all groups interpreted reading and writing as meaning-based activities, they viewed each from their own special vantage point in the child's life: 1) the teachers focussed on school objectives and used "pedagese" to state their views, 2) the students focussed on controlling the reading and writing activities in their attempt to make sense, and when they had difficulty, they resorted to th language of the classroom, and 3) the parents focussed on the home

environment they could "arrange" or the interests they could see and try to foster in their individual children.

Of the three groups, the teachers focussed most often and most consistently on the meaning inherent in all reading and writing activities. The students were more likely to talk about the skills they felt they needed to call upon in the act of creating meaning, particularly when things were going wrong. The parents fell between the two, sharing some concerns with each of the other two groups. The parents, teachers, and students all seemed to regard writing in ways that were substantively different from reading. All had less to say about writing, and when they did talk, each group felt writing was directly under a person's control while reading was a more passive activity in which meanings were constrained by the author's intent and the characteristics of the particular text. The students regarded writing in more utilitarian ways than reading--both at home and at school--while they saw reading as serving more varied purposes. Despite these differences, their actual uses of both reading and writing were more varied at home than at school.

Reading and writing differences were evident throughout these analyses. While the nature of reading and writing as conceptually meaning-laden and thought-producing was generally left undeveloped, consistent notions of writing <u>in any sense</u> failed to emerge. All groups experienced greater difficulty talking about how to judge

good performance in writing than reading; their language was more restricted, their responses fewer. The teachers, in particular, were more comfortable and fluent in their responses about student reading than in their responses about student writing. Perhaps related to this was the finding that the students' self ratings, as well as the ratings they were given by their parents and teachers, were consistently lower for writing than reading.

Children's Sense of Stories and Reports

In contrast to their notions of reading and writing, the children had a very firm sense of stories and reports. From third grade on, they saw stories as distinct from reports in the purposes for which they are used, the content they include, and the ways in which they are structured.

The structures they used to write and retell their stories and reports grew in complexity across the grades. The older children began and ended their pieces in more sophisticated ways, used more complex syntax to present their ideas, and created better linked and more elaborated structures.

While the students' notions of stories and reports were firm and consistent, their sense of report was more restricted and less inclusive of adult structures than their sense of stories. Third grade as well as ninth grade stories contained the basic elements of well-formed simple stories; they were canonical, episodic, worked toward resolution, and generally presented an interesting conflict.

In contrast, the reports of even the ninth graders followed a restricted (although legitimate) form. In their report writing, the students generally selected a topic, and then told all they knew. While the ninth graders presented more sophisticated thesis/support papers than the younger students, even they did not use more complex organizational patterns to structure an argument-- they did not write cause and effect or problem/solution papers.

Langer (1984a) in her work on the effects of background knowledge on informational writing, found that the choice of organizational structure is partly a function of the knowledge students have about their writing topic. Students who know a great deal about a topic elect to use a simple thesis/support organizational structure when their knowledge is poorly organized, even when a cause/effect form is requested by the prompt itself. It is a helpful coping tactic. They choose this form because in using it their abundance of knowledge will make a difference, and their lack of organization will not.

In the analyses reported here, it is possible that the students' almost unanimous selection of the thesis/support form may reflect a comparable lack of knowledge. While they selected topics about which they knew a good deal, it is possible the students were unfamiliar with the organizational structures necessary to present this information in other forms; their structural instead of topic knowledge may have been less developed.

If we think about the kinds of discourse forms young children are exposed to from early on, we find that they hear as well as see (in books, television, and movies) countless stories-- all using the basic story structure they are later expected to read and write. The third graders used those forms. Similarly, I posit, the students used the thesis/support form because they already knew it. Young children hear this form in conversational speech (mainstream American), see it in letters, how-to books, and television documentaries. The other rhetorical forms associated with expository reports are, in any real sense, unavailable to them as models during the early years. These forms are not necessarily later developing in any maturational sense (although this may be so), but in any case may need to be presented in a broad context of language modeling, much as children's early exposure to stories, for the structures to become familiar, and finally learned.

The Elaboration of Ideas

When we look across genre, at the internal structures children use to organize their reading and writing, we see that children's use of the structural features they are taught appear to be different from adult forms, but consistent. Examination of the structures the students used to elaborate and link their ideas indicates that the higher level rhetorical structures such as problem/solution, cause/effect, and compare/contrast (those that are gererally taught in school but that did not show up in the children's

global organization of discourse) gradually appeared in the lower level structures they used. Further, these lower level structures gain in frequency and variety across the school years. This suggests that clearly some learning was taking place. It suggests that, as in early language learning, children begin to use new and more complex structures embedded in smaller units of thought before they use them to structure entire texts. This is particularly interesting since instruction almost never focusses directly on teaching students how to use those structures at the lower levels; cause/effect, problem/solution, and compare/contrast are almost always taught as major organizing structures -- in reading as well as in writing. It is possible that, in terms of general genre structure as well as the elaboration of ideas, instruction does not begin with the knowledge children already have; and may focus instead on aspects of structure they are not yet ready to learn.

The Knowledge Sources Children Use

Despite the fact that reading and writing are both active meaning-making activities, the children approached their reading and writing tasks in different ways; their patterns of concerns, behaviors, and approaches were not the same, and their behaviors over time differed as well.

When they read and wrote, the children were primarily concerned with the meanings they were developing. This was evident in the operations they used and the approaches they took.

Third graders were more restricted in their general approaches and behaviors during meaning construction than were the ninth graders. They used a smaller variety of operations to get at and develop meaning.

The third graders were also less reflective than the ninth graders about their developing meanings. The ninth graders reflected upon and evaluated their evolving ideas throughout the reading and writing processes, while the third graders tended not to review their ideas at all, even after having completed the task.

Students' Awareness of What They Do

From the analyses of children's notions of genre, there is a strong and consistent indication that they had a firm sense of the differences between stories and reports, and were able to use each in a different way. Their story and report knowledge accounted for the major differences in their approaches to the tasks given them. They approached their reading and writing of stories and reports differently, used their knowledge of language, content, and structure in different ways, and controlled their developing meanings differently on a variety of levels.

Although reading and writing are undoubtedly cognitively related constuctive language activities, they appear to function in somewhat different ways. Across a variety of analyses, the students provided richer and more fluent reports of the knowledge they had, the structures they produced, and the strategies they used after they had

completed writing as opposed to reading tasks. After writing as opposed to reading, the students were more able to discuss the ideas they had and the ways in which these changed; writing seemed to bring about a more accessible and active awareness of structure, strategies, and actual content.

Implications

In recent years, there has been a growing focus on reading and writing activities and how they are related. The analyses presented here suggest that reading and writing (process or product) cannot be examined in some general sense. It is appropriate, but too limited, to suggest that both are active composing activities. Beyond that, they are functional activities, and the students' understandings of how and why they function as they do make a critical difference both in <u>how</u> they are used and in <u>what</u> is produced. The series of studies reported in this volume suggest that age and text difficulty account for small portions of the variance; the genre and the reading or writing tasks themselves made the greatest difference. Additional studies will need to look at particular reading tasks, with all the contexts, conventions, and associated functions that operate <u>within the child</u>. The greatest promise for future reading and writing research may not be to focus primarily on reading/writing relationships in a decontextualized sense, but on how children's understanding

of the genres and functions within and across each reading and/or writing activity affect the meaning making approaches used, the meanings conveyed, and the learnings that ensue.

WHAT WE HAVE LEARNED

1. All the children we studied were able to develop and organize meanings and elaborate upon them. Their primary and consistent concern was with the meanings they were developing as they read and wrote. They also showed evidence of metalinguistic awareness. They were able to talk about the ways in which they used reading and writing as a means of personal thought as well as to communicate their ideas to others.

2. The children we studied, and the adults around them, had a view of reading and writing as purposeful, meaning-based activities. Beyond that however, the teachers took a more consistently meaning-based view of literacy activities while the students focussed on the skills they used in trying to make sense when they read and wrote. The parents were somewhere between -- a bit like each of the other two groups.

3. In general, the parents, teachers, and students were uncertain about the strategies involved in reading and writing. However, they all regarded reading as a more passive activity than writing, constrained by the author's

intent and the structure of the text. Conversely, they regarded writing as an activity where meaning development was more under the individual's control and direction.

4. All groups seemed to be more comfortable (and were therefore more fluent) in talking about reading than about writing. They spoke more often and more frequently about reading than writing. It could be that because they felt they had a clearer sense of what reading involved, they could call upon more specific language in speaking about it; for writing, their comments were more general and diffuse. In turn, the parents, teachers, and students regarded the individual children as being more successful at reading than writing.

5. The students, parents, and teachers all interpreted reading and writing from their own vantage point in the child's literacy context; all relied upon aspects of reading and writing experiences they felt they could or should control. The teachers focussed on school instructional objectives they taught and judged progress by, the parents focussed on the environment they could regulate, and the children focussed on the skills they felt they could (or could not) call upon in their efforts to create meaning.

6. The children had a firm sense of stories and reports, and they put this knowledge to good use in the stories and reports they read and wrote. This was evident in their notions of the functions of reading and writing, in

the content they presented, and in the structures they used.

7. Between grades 6 and 9, much growth in organizational and syntactic skills occurred; more embeddings were used, the structures became more highly organized, and more elaborationd were presented. This change was particularly dramatic in the students reading and writing of reports.

8. Overall, story forms showed less evidence of change and growth than report forms. The story forms used by the third graders were similar to those used by the ninth graders. While the stories grew more elaborate, the basic structures remained the same. Although children enter school with a firm knowledge of story structure, it is possible that lack of instruction in more complex and varied story forms is responsible for restricted growth in this genre.

9. While the children were flexible in their use of story forms, they were generally unfamiliar with more complex expository devices (e.g., cause/effect, problem/solution, compare/contrast). Across the grades, story and report writing differed quantitatively and qualitatively in the extent of organization, relative length, syntactic intricacy, and complex linking and elaboration of ideas. While this may, in part, be a developmental phenomenon, even the ninth graders were limited to the simplest organizational forms for their

reports. It is possible that lack of exposure to more complex expository forms during the early years deprives children of useful models, thereby creating an impediment to learning.

10. Across the years, the use of more complex expository devices gained in frequency and variety. However, they appeared as lower level elaborations upon meaning rather than as major organizing devices to structure entire texts. This suggests that children may learn to control new structures embedded within smaller units of meaning before using them as more global unifying devices. This is of particular interest to educators since such expository forms as cause/effect, problem/solution, and compare/contrast are taught as macrolevel unifying structures and their roles as elaborating devices within and between sentences are rarely the focus of instruction.

11. Across the grades, the children expected to use what they already knew to make new meanings as they read and wrote. They expected to write ideas in an organized manner and to read language that was presented in an organized fashion. Further, they expected to vary the operations and strategies they used as they moved through each reading and writing task.

12. The strategies the students used to read and write were strongly and consistently related; individual students tended to use similar strategies in approaching parallel

reading and writing tasks. This supports the notion that reading and writing are interrelated cognitive behaviors that tap similar underlying processes.

13. However, the underlying patterns the strategies took differed from reading to writing. The students had different primary concerns when they read and wrote. They organized, developed, and communicated their ideas differently -- even when the topics and tasks were parallel.

14. The third graders general approaches during meaning construction were more restricted than the older children's. Also, there was less variety in the reasoning operations they used in any activity. The ninth graders used the widest variety of cognitive approaches and behaviors, at all points in time.

15. The third graders were consistently less reflective than the older children. The ninth graders tended to evaluate their work and extend their ideas.

16. The students felt they had greater control of the writing than of the reading task. They could plan, develop, and change their ideas more readily, and could abandon the task for a while when things were not going well. They did not see similar options for themselves when reading.

17. Students of all ages talked more about the knowledge they had gained and the strategies they had used after completing their writing as compared with their reading

tasks. While reading and writing are both dynamic activities, the act of writing seems to work in special ways to enhance students' awareness of the strategies they use and the meaningful ideas they develop. As such, writing activities may be particularly useful to help students focus on their developing understandings of the subject matter they are asked to learn. With this in mind, the notion of "writing to learn" takes on special promise as an instructional tool for content area classrooms.

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APPENDIX 1: The Passages[1]

Stories: Jackie

The New Kid

Reports: The Hole

The Crowd-Pleasing Water Conservationist

1. T-unit segmentation added.

JACKIE

[1]It was two weeks before school began when the new family moved in./ [2]With this new family came a new kid whom everyone was anxious to see./ [3]And it didn't take long before the new kid came out, saying, "Hi, my name is Jackie."/

[4]"I am Larry."/

[5]My name's Stanley."/

[6]"They call me Jonash."/

[7]"What ya doing'?" asked Jackie./

[8]"We're playing 'King-o-the-Hill'," Stanley said./ [9]"Wanna play?"/

[10]"OK," said Jackie./

[11]Here was their chance to really "check the kid out,"/ [12]and they did./ [13]Jackie was "king" all afternoon./

[14]"You're all right," said Larry./

[15]"Yeah. [16]Yuh wanna join our club?" asked Stanley./

[17]"OK, [18]What do I have to do?" asked Jackie./

[19]"Meet us in the empty lot at the corner," said Jonash with a grin that just wouldn't wait./ [20]"You'll see!"/

[21]When?" asked Jackie./

[22]"Tonight, after dark," said Larry./

[23]That night, Jackie was the last to arrive at the corner./

[24]"This had better be good./ [25]I had to sneak out of the house," Jackie complained./

[26]"Oh it is!" grinned Jonash./

[27]"Come on," said Larry./ [28]A few houses down the block, they stopped./

[29]"See that red-brick house?" said Stanley./ [30]"All you have to do is go on the porch, pull the string, and turn the porch light out."/

[31]"What's so hard about that?" began Jackie./

[32]"Well, there's this little dog in the yard," grinned Jonash./

[33]"Oh, I'm not afraid of dogs," said Jackie./

[34]"We'll see," said Stanley./ [35]"Go on, now,/ [36]we haven't got all night."/

[37]Jackie crawled to the fence while the others watched, thinking, "This is gonna be easy."/ [38]But looking over the fence, Jackie saw that the "little dog" was an oversized mutt./

[39]"His name is Bear!" yelled Jonash./

[40]"Wonder why?" teased Jackie, trying to hide a sudden fright./

[41]The yard didn't have anything to hide behind./ [42]It reminded Jackie of a huge, empty cage./ [43]The distance from

the porch to the fence was just a little too far in Jackie's eyes./ [44]Bear seemed to be sleeping in front of the porch./ [45]Whatever Jackie was going to do, it had to be done quickly./ [46]Jumping over the fence, Jackie counted to 10, ran up on the porch, and pulled the string./

[47]Then, springing off the porch and starting over the fence, Jackie was bitten in the pants by Bear./

[48]Jackie pulled and kicked with great force./ [49]Something ripped. [50]Jackie fell over the fence and raced for the corner./

[51]"Man, said Larry, "you just barely made it!"/

[52]"Yeah," said Jackie, trying to appear calm.?

[53]The next two weeks went by quickly./ [54]Stanley, Larry, Jonash, and Jackie were always roaming the neighborhood looking for something new./ [55]They played football./ [56]They made a scooter out of a crate and some old roller skates,/ [57]and they decorated it with old bottle caps./

[58]Finally, that day came./ [59]School was to start,/ [60]and Larry, Stanley, and Jonash were waiting outside Jackie's house./

[61]"Hurry up!' yelled Jonash./ [62]"Wanna be late the first day?"/

[63]Just then, out came a skinny girl in a green dress with a green ribbon in her hair./

[64]"OK, I'm ready," she said./

[65]"Who are you?' asked Stanley./ [66]"Tell Jackie to come out."/

[67]"I am Jackie," she said./ [68]Larry, Stanley, and Jonash just stood there, dead in their tracks./ [69]Larry finally spoke./

[70]"Jackie, what are you doing with a dress on?"/

[71]"Mamma wouldn't let me wear pants to school," answered Jackie./

THE NEW KID

[1]After breakfast, Uncle Clark took me to school, introduced me to the principal./ [2]The first half of the school day passed without incident./ [3]I sat looking at the strange reading book, following the lessons./ [4]The subjects seemed simple,/ [5]and I felt that I could keep up./ [6]My anxiety was still in me;/ [7]I was wondering how I would get on with the boys./ [8]Each new school meant a new area of life to be conquered./ [9]Were the boys tough?/ [10]How hard did they fight?/ [11]I took it for granted that they fought./

[12]At noon recess I went into the school grounds,/ [13]and a group of boys sauntered up to me, looked at me from my head to my feet, whispering among themselves./ [14]I leaned against a wall, trying to conceal my uneasiness./

[15]"Where you from?" a boy asked abruptly./

[16]"Jackson," I answered./

[17]"How come they make you people so ugly in Jackson?" he demanded./

[18]There was loud laughter./

[19]"You're not any too good-looking yourself," I countered instantly./

[20]"Oh!"/

[21]"Aw!"/

[22]"You hear what he told 'im?"/

[23]"You think you're smart, don't you?" the boy asked. Sneering./

[24]"As smart as you."/

[25]"Do you know who you can tell that to?" he asked me./

[26]"And you know who you can tell it back to?" I asked./

[27]"Are you talking about my mamma?" he asked, edging forward./

[28]"If you want it that way," I said./

[29]This was my test./ [30]If I failed now, I would have failed at school, for the first trial came not in books but in how one's fellows took one, what value they placed upon one's willingness to fight./

[31]"Take back what you said," the boy challenged me./

[32]"Make me," I said./

[33]The crowd howled, sensing a fight./ [34]The boy hesitated, weighing his chances of beating me./

[35]"You ain't gonna take what that new boy said, is you?" someone taunted the boy./

[36]The boy came close./ [37]I stood my ground./ [38]Our faces were four inches apart./

[39]"You think I'm scared of you, don't you?" he asked./

[40]"I told you what I think," I said./

[41]Somebody, eager and afraid that we would not fight, pushed the boy,/ [42]and he bumped into me./ [43]I shoved him away violently./

[44]"Don't push me!" the boy said./

[45]"Then keep off me!" I said./

[46]He was pushed again,/ [47]and I struck out with my right and caught him in the mouth./ [48]The crowd yelled, milled, surging so close that I could barely lift my arm to land a blow./ [49]When either of us tried to strike the other, we would be thrown off balance by the screaming boys./ [50]Every blow landed elicited shouts of delight./ [51]Knowing that if I did not win or make a good showing, I would have to fight a new boy each day, I fought tigerishly, trying to leave a scar, seeking to draw blood as proof that I was not a coward, that I could take care of myself./ [52]The bell rang,/ [53]and the crowd pulled us apart./ [5] The fight seemed a draw./

[55]"I ain't through with you!" the boy shouted./

[56]In the classroom the boys asked me questions about myself./ [57]I was someone worth knowing./ [58]When the bell rang for school to be dismissed, I was set to fight again,/ [59]but the boy was not in sight./

[60]On my way home I found a cheap ring in the streets,/ [61]and at once I knew what I was going to do with it./ [62]The ring had a red stone held by tiny prongs which I loosened, took the stone out, leaving the sharp tiny prongs jutting up./ [63]I slid the ring on to my finger and shadow-boxed./ [64]Now let a bully come,/ [65]and I would show him how to

fight;/ [66]I would leave a crimson streak on his face with every blow./

[67]But I never had to use the ring./ [68]After I had exhibited my new weapon at school, a description of it spread among the boys./ [69]I challenged my enemy to another fight,/ [70]but he would not respond./ [71]Fighting was now not necessary./ [72]I had been accepted./

THE MOLE

[1]Some morning you may wake up and find a mound of dirt winding all across your front yard./ [2]It was made by a small, furry animal called a mole./ [3]The mole lives underground./ [4]That mound on your lawn is the roof of one of its underground tunnels./

[5]The mole that made that tunnel wasn't going any place special./ [6]It was just hunting for food--such as worms./

[7]The mole has a busy day hunting--and eating./ [8]A mole doesn't weigh very much,/ [9]but it must eat a lot./ [10]Every day, it eats aboutone half of its own weight in food./ [11]Think what that would mean to you if you ate enough food every day to match one half of <u>your</u> weight!/

[12]The furry, little mole is perfectly made for its life of digging and living underground./ [13]It has short, stout, strong legs for pushing the dirt about./ [14]It can hear fairly well,/ [15]but its tiny ears cannot be seen on the outside of its head./ [16]Larger ears would only get in its way when it was digging./

[17]Since moles live their lives underground where it is dark, they have little use for sight./ [18]Their eyes are very small,/ [19]and the animals can "see" only light and dark./ [20]Moles do not like the light,/ [21]and they stay away from it if they can./

[22]The mole can travel easily in both directions./

[23]Because its short furry coat brushes both ways, it can travel back and forth./ [24]When it is going ahead, it feels its way with its nose./ [25]The hairs on its front feet, or "hands," also help to signal direction./ [26]When it is going back, its tail "tells" it which way to go./

[27]Moles tunnel in the soft, wet soil, where there are plenty of worms and insects./ [28]Usually two kinds of diggings are made--a home tunnel and a food tunnel./

[29]The home tunnel may be dug two feet below ground./ [30]This is where the mole lives./ [31]In diggning the home tunnel, the strong front claws on the mole's front feet easily loosen the dirt./ [32]Then the mole pushes this dirt back under its body and gives a kick with its hind fee./

[33]When the load of dirt is ready, the mole turns in a space no wider than its body./ [34]Now the mole is ready to push the dirt to the opening./ [35]The dirt that spills out of the opening is called a molehill./ [36]You may have heard the saying, "Don't make a mountain out of a molehill."/

[37]The tunnel that was dug nearer the surface--the one that made the mound on your lawn--is a food tunnel./ [38]If there is not much food along a surface tunnel, it is used only once./ [39]But usually there are plenty of worms nearby./

[40]In the surface tunnel, the mole kicks and pushes the dirt to one side as it makes its way./ [41]The animal may

burrow 12 to 15 feet in an hour!/ [42]Some of the time is spent in resting and eating, of course,/ [43]but it is something to think about!/

[44]Yesterday, your lawn was flat and smooth./ [45]Today there may be a mound a hundred feet long running back and forth across your yard./ [46]Now you can understand why./ [47]And even if you may not like the tunnels the mole made, his time was well spent, for he was eating cutworms and other things that harm flowers and seeds./

THE CROWD-PLEASING WATER CONSERVATIONIST

[1]Although he belongs to the squirrel family, the prairie dog got to be called a "dog" because he barks./ [2]He also wags his stubby tail when excited./ [3]Indians often feasted on prairie dogs./ [4]However, being labeled a "dog" may have saved many prairie dogs from the colonists' dinner table./

[5]Prairie dogs' numbers have declined over the years./ [6]They are almost extinct./ [7]There were billions of them at the turn of the century./ [8]But as settlers brought in their livestock, the prairie dog got in the way./ [9]There simply wasn't enough grass for both cattle and prairie dogs to eat./

[10]Recently, conservationists have come to the prairie dog's rescue./ [11]The prairie dog is protected in many parks and country areas./

[12]Prairie dogs are fascinating to watch./ [13]They spend a lot of time out of their burrow./ [14]They meet with their neighbors in dog "towns," which are made up of many burrows crisscrossing the land./

[15]The prairie dog is a crowd-pleaser./ [16]Watch his antics/ [17]and you'll marvel at his almost human behavior./ [18]He's family-oriented and keeps his burrow neat./ [19]He uses strict discipline and divides up the work./ [20]Mom and

Pop are boss./

[21]Adults take turns guarding their burrows./ [22]They have special barking signals when an enemy is nearby./ [23]Some observers claim to have seen prairie dogs spanking their pups for wandering too far./ [24]They punish their pups by stuffing them down their burrows--"sent to bed without supper!"/ [26]They have their own playful version of tag./ [27]Squealing in delight, they rush from burrow to burrow and roll each other around./

[28]The prairie dog is considered a water conservationist in the dry Southwest./ [29]In an attempt to wipe out several "towns," thousands of gallons of water were poured in on a group of prairie dogs./ [30]But to naturalists' amazement, the water disappeared almost at once./ [31]Then the prairie dogs popped out of their burrows, none the worse for it./

[32]The water, it turned out, had plunged down the 10- to 20-foot burrows that the prairie dogs had built in the hard ground subsurface./ [33]There the water passed into the underground water table./

[34]Except for the burrows, the infrequent but heavy rainfalls would be unable to penetrate the subsurface./ [35]Thus, the prairie dog became something of a hero in many drought-plagued areas./ [36]It proved yet another dramatic example of every creature's role in the delicate balance of nature./

APPENDIX II

Analysis of Structure: Scoring Manual

Coding Sheet

Operational Definitions

Reading/Writing Project

Analysis of Structure

SCORING MANUAL FOR STORIES AND REPORTS

Analyses of the organizational structure of both reports and stories are based on T-unit representations in terms of tree diagrams including the nodes described below. Each T-unit consists of a main or coordinate clause. Coordinate clauses are marked by such coordinating conjunctions as but, and, thus, therefore, also, and in addition. So's that function as but's or thus's are to be considered as coordinating conjunctions.

TOPMOST LEVEL

1. Rhetorical predicates function as the overall organizing frames below which all other levels of the content hierarchy are subsumed. Lexical predicates which act as rhetorical predicates representing the gist (of a story) or the thesis (of a report) should be used only when none of the other top level rhetorical predicates (see below) can be perceived as dominating the rhetorical structure of the text. These lexical predicates are selected in descending order of preference by the centrality of 1) the title, 2) the first or main sentence (t-unit), or 3) an implied lexical predicate created from the full piece when there is no title and a stated main idea is not present in the text.

Why the Elephant's Nose is Big

Description Sequence

Rhetorical Predicates

a. Causal - antecedent and consequencent specified at levels - should not be attributed to the text without explicit causal markers (e.e. so, because)

b. Response - problem/solution; remark/reply; question/answer specified at equal levels in the hierarchy

c. Alternative - 2 or more equally weighted views or options compared or contrasted

d. Sequence - steps, episodes, or events ordered by time at equal levels in the hierarchy; other rhetorical predicates can serve as events

LOWER LEVELS

Embedded under the top level predicates are any number of levels composed of nodes of the following types:

a. causal (causal markers are required)

b. response

c. alternative (equally weighted)

d. sequence (temporal order)

e. description - a variety of types of subordinate elaborations, including manner, attribution, specific, equivalent, setting, identification, epilog

f. evaluation - opinion or commentary expresses by the writer about other ideas or events expressed elsewhere in the text

g. evidence - supporting argument

h. explanation - causal antecedents subordinate in staging to the main idea or event being explained (requires explicit causal marker)

i. adversative - comparison between alternatives, where one is less favored and subordinate (one alternative may be indirectly stated) - the dominant alternative is related to a higher node

description
9
eats a lot

adversative
8
doesn't weigh much

TERMINAL LEVEL

Each branch terminates with a lexical predicate representing the content of the sentences (t-units) comprising the text.

Level Labelling

All predicates occurring at the topmost level of the structure will be denoted as level 1. All predicates immediately subordinate to level 1 will be denoted as level 2, ...etc. The content falls at the same level as the structure which governs it.

Texts will be analyzed to the level of the individual t-units comprising it.

Special Cases

1. Treatment of descriptive material embedded in a SEQUENCE may be subordinated to a constituent step, episode, or event in the sequence before or after which it is presented and to which it bears the closest semantic bond. However, if material intrudes into the sequence that is not part of that sequence, it should be assigned to a DESCRIPTION node external to that sequence. Nodes beneath a description should be headed by an EVENT structure or by another rhetorical predicate, to reflect the time-ordering structure imposed by the SEQUENCE.

2. Quotations

Speech turns should be treated as sequential events occurring within a sequence unless they function in other rhetorical predicates such as CAUSAL or RESPONSE and serve to further the progress of the plot or presentation.

3. When a structure has an ambiguous representation, that t-unit should be diagrammed using the less structured alternative.

4. Content structure reiterations can be combined at any level, e.g. 1, 14.

5. Collection can exist within any lower level node; any grouping of identical lexical or rhetorical predicates can form a collection. Collections cannot stand alone in the diagram, but are used to designate repitition of any other structural element (e.g. description [collection]). In collection (e.g. description [collection]) all collected elements must be equal. If they are not, and another

element intrudes, it must be diagrammed in a separate collection or node of its own.

adversative
10
but I have lots of things to do

description (collection)				description
11	12	13	14	16
have to swim	practice violin	do homework	cub scouts	I'm not sure I'll have time

These analyses have been revised for our use based on those developed by Meyer (1975, 1981).

Reading/Writing Project

CODING SHEET-ANALYSIS OF STRUCTURE

Student Number _____
Sex B-1, G-2 _____
Reading %ile _____
Language %ile _____
Story-1, Report-2 _____
TA-1, R-2 _____

TOP LEVEL _____
1.0 Rhetorical Predicate
.1 causal
.2 response
.3 alternative
.4 sequence
2.0 Lexical Predicate (check text for source)
.1 title
.2 stated main idea
.3 implied main idea
3.0 Mixed

LOWER LEVELS
Rhetorical Predicates
Causal _____
Response (1/response category)
problem/solution (1/leg) _____

remark/reply (1/leg) _____
question/answer (1/leg) _____
Alternative 1/alternative category) _____
Sequence _____
Description _____
Evaluation _____
Evidence _____
Explanation _____
Adversative _____

COLLECTIONS
Causal _____
Response _____
Alternative _____
Description _____
Evaluation _____
Evidence _____
Explanation _____
Adversative _____

DEEPEST LEVEL _____

BROADEST LEVEL(S) _____

NUMBER OF SEPARATE NODES
deeply linked (in single collections, sequences, or rhetorical units _____
shallowly linked (separate sequences, description/colls,etc.) _____
total collections + sequences _____
total items (content + rhetorical predicates) _____
total items in largest collection _____
total items in largest sequence _____
total content nodes _____
rhetorical predicates at level 2 _____

depth of episodes or information clusters:
1 _____
2 _____
3 _____
4 _____
5 _____
6 _____

TOTAL WORDS _____

TOTAL SENTENCES _____

TOTAL T-UNITS _____

Appendix III

ANALYSIS OF MEANING CONSTRUCTION

Coding Manual

Reading/ Writing Project

ANALYSIS OF MEANING CONSTRUCTION

Each student's think-aloud or retrospective report in reading and writing is segmented into distinguishable communication units. Each unit is a separately identifiable remark that expresses an idea about a thought or behavior. Due to the frequent pauses typical of the self-report activity, the researcher needs to exercise judgment in determining the boundaries of each particular remark; however, it is typically to be associated with the t-unit.

Each communication unit is categorized seven separate times to permit analyses of 1) the general operations, 2) the strategies, 3) the text unit, 4) the data source, and 5) the focus reported by each student, as well as 6) the time in the activity that the remark was made, and 7) the monitoring or regulatory basis of that remark.

Each communication unit is assigned (by identifying numbers) to each category based on the following:

REASONING OPERATIONS IN READING AND WRITING

The first decision is about whether the particular comment is about reading or writing. For writing, the first digit is a 1, and for reading it is a 2.

reader or writer has at any point in the text--related to the genre, content, or text (no specified guess or expectation; moving in no spacific direction)

Writing: "What will I write about?" "I don't know what I'm going to do." "Now I'm kind of wondering about where did it come from.""Let's see, what are some other things they have." (coded 1.1)

Reading: "I can't tell what it means." "...and I got sort of confused around there." "I was wondering how the prairie dogs saved the land." (coded 2.1)

suppositions the writer makes at the point of utterance, including choice of words, or predictions the reader makes about what the genre is about, what the function of a particular piece of text is, or about the answer to a question, based on that specific portion of the text.

Writing: "When Jill was, let's say seven." "Maybe it goes into a knot." "If I should describe it or say it had a bad reputation." "I'm just going to say 'toffee'." (coded 1.2)

Reading: "They're probably big and stuff." "So maybe its about a new kid coming to a new school." "I just

found out that this could be an essay." (coded 2.2)

what will be "said" in succeeding portions of the text including choice of words, or predictions the reader makes about what will be "said" in succeeding portions of the text

Writing: "I'm going to write about something exciting happening." "I think it will be a tall man." (coded 1.3)

Reading: "It'll probably tell what they're doing and stuff." "Maybe later on, the boys will realize she's ok." (coded 2.3)

what might now be "said" in preceding portions of the text, including word choice, or hunches the reader has about past meanings

Writing: "Maybe I should change Western to both kinds of saddles." "I might (now) describe the person in the shuttle or something." (coded 1.4)

Reading: "Maybe it meant like rain and stuff." (coded 2.4)

explanation or elaboration, or meanings the reader takes for granted without textual evidence

Writing: "That sort of tells it all." "In a little

short story, it's not enough really." (coded 1.5)

Reading: "There's nothing to think about." "Right there I knew it was a weapon." (coded 2.5)

based on the genre, content, or text

Writing: "The hammerhead shark is the largest in the world." "She thought she had tied her shoe." "They have populations of really small cities." (coded 1.6)

Reading: "There are hardly any left." "This tells me the mole has wierd ears." "A different school might be different from her school." (coded 2.6)

drawn upon by the writer or reader

Writing: "Those were the kind I liked." "I practice a lot everyday." "Sports are my main interest." "I don't remember when I went to nursery school." (coded 1.7)

Reading: "I've never been sent to bed without dinner." "I can see this kid going to my teacher and saying hi." (coded 2.7)

and judgments being made about what is written or read.

Writing: "That's not right." "That sounds dumb." "They are different ideas." "Oh, I was wrong..." (coded 1.8)

Reading: "That's funny." "That's not so." "It's pretty good." (coded 2.8)

writer or reader

Writing: "The flying and jumping could go together to make a great big flying leap." (coded 1.9)

Reading: "They talked tough and acted tough and fought with him". (coded 2.9)

writer's or reader's use or non-use of particular content information

Writing: "I decided not to use it." "No, I won't do that. "I might put these things in different words." coded 1.10)

Reading: "I kept on reading (the ideas)." "That's the only thing I can think of." (coded 2.10)

or reader's use or non-use of particular surface features of the text itself

Writing: "Some of these sentences are short and choppy and some are long." "I might put these in different order." "I put we instead of when." "Put a comma there." (coded 1.11)

Reading: "The quotes mean she's talking." (coded 2.11)

the explanations the writer provides, or the evidence the writer develops to answer a question, carry out a

hypothesis, or fill in a schemata, or information the reader gathers or explanations the reader provides to answer a question, or to confirm or disconfirm a hypothesis. Includes all direct or implied statements of causality.

Writing: "...because you can get hurt on the right side." "cause its expensive." "That's how I know how to spell penny loafers." (coded 1.12)

Reading: "You can tell he's the leader." "He's trying to make a fight." "Cause it says it was made by a small furry animal called a mole." (coded 2.12)

the plan was fulfilled or a decision made

Writing: "That's what it was." "Well, that's what they're like." "So he had a fight." "I decided not to." "All right, that's about it." (coded 1.13)

Reading: "So, the prairie dog was a hero." "I've seen it before." "OK, that tells me the same thing." "So the title doesn't fit really.")coded 2.13)

STRATEGIES USED IN READING AND WRITING

1.(G) Generating Ideas - getting started, becoming aware of relevant ideas and experiences, and beginning to plan and organize the material in an appropriate fashion.

2.(RF) Refining Meaning - developing the message, considering audience, drawing on personal experience, choosing language, linking concepts, summarizing, and paraphrasing

3.(EM) Evaluating Meaning - reviewing, reacting, and monitoring the development of the message and the piece itself

4.(RV) Revising - reconsidering and restructuring the message, knowing meaning has broken down, and taking appropriate action

Text Unit

1.(L) Local - attention is focussed on localized points within the text

2.(G) Global - attention is focusses on the overall message of the entire piece

DATA SOURCE

1.(G) Genre - reference to the specific genre and the organizational structure and presentation of ideas peculiar to that genre

2.(C) Content reference to the topic itself

3.(T) Text - reference to the linguistic material contained in the text--syntax, vocabulary, cohesive ties

READER'S OR WRITER'S FOCUS

1.(PS) Process - thoughts about strategies that have been or could be used, or thinking about thinking in general

2.(PD) Product - thoughts about the piece itself

TIME IN READING OR WRITING EXPERIENCE

1.(B) Before - before the first word has been written or read

2.(D) During - during the period when text is consiously being read or words written

3.(A) After - thoughts reported after the text has been read or pen laid down at end of draft

Monitoring Behaviors in Reading and Writing

1. Awareness of Own Approaches

.1 Aware of task goals/demands

"I'll think of a title." "It was like my last report."

"I'm not really sure what I'm going to write about."

.2 Aware of sub-goals

"So I don't know how to start the next part."

"I don't know how to get to him giving the answer."

.3 Aware of genre/discourse structure

"If it's a report, let's see."

"Now I want a good summary sentence." "I need to do that to develop the paragraph."

.4 Aware of grammatical routines and mechanical features

"I don't know what to so with this sentence." "Some of these sentences are short and choppy." "Its pretty hard to spell 'goalie.'

.5 Aware of available (or unavailable) lexical repertoire

"I can't think of the word I want."

"I didn't know what that word meant."

.6 Aware of statements of meaning

"I didn't know what to do with that topic." "I don't know how to write what I'm going to write about."

.7 Aware of refinements of meaning

"I know that." "I didn't know what to do with that topic." "So I've taken the information from the text and re-worded it."

2. Uses Self-Regulating Mechanisms

.1 Formulates task/topic goals

"I'll write a report about sharks."

.2 Formulates sub goals

"First I'll tell how to get on them and then how to ride them." "If I should describe it or say it had a bad reputation."

.3 Uses genre/discourse features

"I want to say she learned to tie her shoes in story talk."

.4 Uses grammatical routines or mechanical features

"He were, I mean, he was." "I don't know if I should say 'he is' or 'he was." "See, I put a lower case letter." "And I didn't put a comma after 'great.'"

.5 Makes lexical choices

"Now, what's the right word." "Antics probably means his way of doing things."

.6 States Meaning

"I want to say she learned to tie her shoes." "He wants to figure out how to be friends with them."

.7 Refines Meaning

"I'll keep reading." "It's a bow, not a knot." "So I start off with a large influx of people--no, forget the people, that's not as important as improved technology." "That sounds strange." "Maybe it goes into a knot." "I'm just stuck."

If a comment includes more than one subsection within a category, both may be listed on the coding sheet. However, this is to be avoided whenever possible and used only when both notions are directly stated and connot be separated into two communication units that can stand on their own.

Certain remarks will not fall into any of the categories listed above, and some may be applicable for all but one category (or more). These are to be coded as "O" for other.

Appendix IV

Supplementary Tables

Supplementary Table 1

Reasoning Operations

		(n)	Mean Percent						
			Questions	Hypotheses	Assumptions	Meta-Comments	Evidence	Validations	Schemata
Reading									
Grade 3	Mean	(14)	5.4	9.2	0.0	7.5	2.7	29.3	45.9
	SD		11.8	16.4	0.0	21.4	4.7	42.7	45.6
Grade 6	Mean	(58)	6.4	12.2	3.1	6.6	7.5	11.4	52.8
	SD		8.1	12.4	4.9	13.5	8.6	24.0	30.9
Grade 9	Mean	(21)	8.8	19.6	2.4	4.6	7.7	16.9	40.0
	SD		19.2	15.5	5.5	7.9	8.4	26.2	32.8
Total Reading	Mean	(93)	6.8	13.4	2.5	6.3	6.8	15.3	48.9
	SD		11.9	14.1	4.7	13.8	8.2	28.4	33.9
Writing									
Grade 3	Mean	(13)	18.5	13.3	.5	23.2	2.0	4.8	37.8
	SD		25.2	19.9	1.6	17.1	3.1	13.8	39.0
Grade 6	Mean	(53)	12.1	16.9	1.7	22.0	4.3	7.6	35.4
	SD		16.9	16.7	5.9	16.6	6.1	17.5	30.4
Grade 9	Mean	(21)	4.0	24.6	.3	16.4	4.0	15.9	34.7
	SD		6.7	22.5	1.0	15.9	7.6	29.9	32.7
Total Writing	Mean	(87)	11.1	18.2	1.2	20.9	3.9	9.2	35.6
	SD		17.1	18.8	4.7	16.5	6.1	20.9	32.0
Total									
	Mean	(180)	8.9	15.7	1.8	13.3	5.4	12.4	42.5
	SD		14.8	16.7	4.7	16.8	7.4	25.1	33.6

Significant Multivariate Effects (transformed variables)[1]

Grade: $F[14,90] = 1.72$, $p < .065$
Domain: $F[7,99] = 11.30$, $p < .001$
Mode x Domain: $F[7,99] = 3.63$, $p < .002$

[1]On tests of significance, see Chapter 2.

Supplementary Table 2

Awareness of Own Approaches

			Mean Percent						
		(n)	Goals	Sub-Goals	Genre	Mechanics	Lexi-con	Refine Meaning	State Meaning
Reading									
Grade 3	Mean	(14)	0.0	0.0	1.5	.6	.2	22.0	8.3
	SD		0.0	0.0	5.6	2.2	.6	29.6	22.5
Grade 6	Mean	(58)	.8	.2	1.9	.9	.7	15.3	4.7
	SD		2.8	1.2	4.8	4.1	2.3	18.4	8.8
Grade 9	Mean	(21)	.3	.1	1.6	0.0	.8	19.5	9.1
	SD		1.2	.6	4.4	0.0	3.1	20.4	23.5
Total Reading	Mean	(93)	.5	.2	1.8	.6	.6	17.2	6.3
	SD		2.3	1.0	4.8	3.4	2.4	20.7	15.6
Writing									
Grade 3	Mean	(13)	13.6	4.8	.9	2.5	0.0	19.5	10.5
	SD		27.0	12.7	3.3	6.2	0.0	29.3	14.3
Grade 6	Mean	(53)	2.7	5.5	2.2	2.3	1.9	10.4	10.3
	SD		7.6	8.9	4.2	6.0	5.1	12.5	12.7
Grade 9	Mean	(21)	4.3	4.8	2.8	1.1	.6	13.3	2.9
	SD		12.0	9.4	4.2	2.3	1.6	13.7	5.9
Total Writing	Mean	(87)	4.7	5.2	2.1	2.0	1.3	12.4	8.6
	SD		13.6	9.5	4.1	5.4	4.1	16.4	12.0
Total									
	Mean	(180)	2.6	2.6	2.0	1.3	1.0	14.9	7.4
	SD		9.8	7.1	4.4	4.5	3.3	18.9	14.0

Significant Multivariate Effects (transformed variables)

Mode: $F[7,45] = 2.03$, $p < .072$
Domain: $F[7,99] = 6.35$, $p < .001$
Grade x Domain: $F[14,198] = 1.95$, $p < .023$

Supplementary Table 3

Use of Self Regulating Mechanisms

			Mean Percent						
		(n)	Goals	Sub-goals	Genre	Mechanics	Lexicon	Refines Meaning	States Meaning
Reading									
Grade 3	Mean	(14)	.7	0.0	0.0	0.0	.2	26.9	39.7
	SD		1.8	0.0	0.0	0.0	.6	41.7	39.7
Grade 6	Mean	(58)	1.1	.2	.3	0.0	.1	18.6	55.2
	SD		3.2	1.0	1.0	0.0	.5	26.7	34.5
Grade 9	Mean	(21)	1.2	0.0	0.0	0.0	.2	22.3	45.0
	SD		2.4	0.0	0.0	0.0	.7	34.0	40.6
Total Reading	Mean	(93)	1.1	.2	.2	0.0	.1	20.7	50.6
	SD		2.8	.8	.8	0.0	.6	30.8	36.8
Writing									
Grade 3	Mean	(13)	4.4	3.6	1.5	.6	1.3	10.4	26.4
	SD		7.1	6.9	3.8	2.1	4.6	17.4	32.5
Grade 6	Mean	(53)	3.6	5.9	2.0	.4	3.0	14.3	35.4
	SD		6.1	9.1	4.7	1.4	4.9	22.1	31.8
Grade 9	Mean	(21)	3.2	4.5	.4	.8	4.3	20.9	36.3
	SD		6.8	6.2	1.1	2.3	7.6	27.8	29.8
Total Writing	Mean	(87)	3.7	5.2	1.5	.5	3.0	15.3	34.3
	SD		6.3	8.2	4.0	1.7	5.6	23.0	31.3
Total									
	Mean	(180)	2.3	2.6	.8	.3	1.5	18.1	42.7
	SD		5.0	6.2	2.9	1.2	4.2	27.4	35.1

Significant Multivariate Effects (transformed variables)

Domain: $F[7,99] = 9.15$, $p < .001$
Mode x Genre: $F[7,99] = 3.86$, $p < .001$

Supplementary Table 4

Reading and Writing Strategies

		(n)	Mean Percent Generating	Evaluating	Revising	Formulating
Reading						
Grade 3	Mean	(14)	1.4	16.6	27.8	54.2
	SD		4.0	21.9	42.2	44.0
Grade 6	Mean	(58)	5.6	22.9	12.5	59.0
	SD		10.9	19.4	24.7	34.3
Grade 9	Mean	(21)	8.1	22.7	23.8	45.4
	SD		19.4	25.1	39.2	36.9
Total Reading	Mean	(93)	5.5	21.9	17.4	55.2
	SD		12.7	21.1	31.7	36.5
Writing						
Grade 3	Mean	(13)	22.1	22.6	10.4	44.9
	SD		19.8	28.2	22.1	38.0
Grade 6	Mean	(53)	15.7	19.6	12.6	52.1
	SD		17.8	17.1	26.3	33.2
Grade 9	Mean	(21)	8.5	29.3	15.8	46.4
	SD		17.6	19.2	27.6	36.1
Total Writing	Mean	(87)	14.9	22.4	13.0	49.7
	SD		18.4	19.7	25.8	34.4
Total						
	Mean	(180)	10.1	22.1	15.3	52.5
	SD		16.4	20.4	29.0	35.5

Significant Multivariate Effects (transformed variables)

Grade:	$F[8,96] = 2.23$, $p < .032$
Domain:	$F[4,102] = 7.55$, $p < .001$
Grade x Domain:	$F[8,204] = 2.19$, $p < .030$
Mode x Genre:	$F[4,102] = 4.61$, $p < .002$

Supplementary Table 5

Attention to Global Units

		(n)	Mean Percent
Reading			
Grade 3	Mean	(14)	37.6
	SD		48.6
Grade 6	Mean	(58)	26.3
	SD		34.8
Grade 9	Mean	(21)	33.6
	SD		45.0
Total Reading	Mean	(93)	29.7
	SD		39.3
Writing			
Grade 3	Mean	(13)	52.8
	SD		36.7
Grade 6	Mean	(53)	35.0
	SD		38.0
Grade 9	Mean	(21)	42.4
	SD		39.1
Total Writing	Mean	(87)	39.4
	SD		38.2
Total			
	Mean	(180)	34.4
	SD		39.0

Significant Effects (transformed variable)

Domain:	$F[1,105] = 25.20$, $p < .001$
Grade x Genre:	$F[2,105] = 2.86$, $p < .062$
Grade x Domain:	$F[2,105] = 3.81$, $p < .025$
Mode x Domain:	$F[1,105] = 4.56$, $p < .035$
Passage Difficulty (grade 6):	$F[1,25] = 6.33$, $p < .017$

Supplementary Table 6

Data Source

			Mean Percent		
		(n)	Genre	Text	Content
Reading					
Grade 3	Mean	(14)	1.8	35.0	63.2
	SD		5.6	47.9	47.0
Grade 6	Mean	(58)	2.8	17.9	79.3
	SD		6.0	34.3	35.7
Grade 9	Mean	(21)	.7	31.8	67.4
	SD		3.4	43.6	44.6
Total Reading	Mean	(93)	2.2	23.6	74.2
	SD		5.5	39.0	39.9
Writing					
Grade 3	Mean	(13)	7.1	26.9	65.9
	SD		15.0	42.2	41.8
Grade 6	Mean	(53)	4.0	25.0	71.0
	SD		8.8	34.7	34.7
Grade 9	Mean	(21)	4.2	32.7	63.1
	SD		6.6	40.5	41.3
Total Writing	Mean	(87)	4.5	27.1	68.4
	SD		9.4	37.0	36.0
Total					
	Mean	(180)	3.3	25.3	71.4
	SD		7.7	38.0	38.5

Significant Multivariate Effects (transformed variables)

Mode:	$F[3,49] = 2.52$, $p < .069$
Domain:	$F[3,103] = 4.96$, $p < .003$
Grade x Genre:	$F[6,206] = 2.73$, $p < .014$
Passage Difficulty (Grade 6):	$F[3,29] = 2.52$, $p < .078$

Supplementary Table 7

Attention to Process

		(n)	Mean Percent
Reading			
Grade 3	Mean	(14)	35.6
	SD		45.2
Grade 6	Mean	(58)	22.2
	SD		35.5
Grade 9	Mean	(21)	28.5
	SD		41.7
Total Reading	Mean	(93)	25.6
	SD		38.3
Writing			
Grade 3	Mean	(13)	42.8
	SD		43.5
Grade 6	Mean	(53)	35.6
	SD		34.0
Grade 9	Mean	(21)	35.2
	SD		39.6
Total Writing	Mean	(87)	36.6
	SD		36.5
Total			
	Mean	(180)	30.9
	SD		37.8

Significant Effects (transformed variable)

Domain: $F[1,105] = 33.79$, $p < .001$
Grade x Genre: $F[2,105] = 4.20$, $p < .018$

Appendix V

Mode Effects

Effects of Mode (Talk-aloud versus Retrospective) on Results for the Analysis of Meaning Construction

Significant multivariate effects, including mode, are noted in supplementary tables 1 through 6 whenever they occurred. Since mode effects were minimal, and are of methodological rather than substantive interest, they are explicated here rather than in chapter 6. For category descriptions and details of the analyses, see chapter 6 and appendix X.

Reasoning Operations. Differences between the retrospective and think-aloud modes occurred infrequently, and then only in interaction with reading/writing differences (the multivariate effect for mode x domain was significant, $p < .002$). Univariate interaction effects were significant for validations ($F[1,105] = 10.91$, $p < .001$) and metacomments ($F[1,105] = 4.28$, $p < .04$). For validations, which in general occur more frequently in reading, the on-line procedure increased the proportion of comments for reading (from 10 percent to 20 percent), while having no effect on results for writing (9 and 10 percent for talk aloud and retrospective conditions, respectively). For metacomments, which in general occur more frequently in writing, the on-line procedure increased the proportion of comments for writing (from 18 to 24 percent) while slightly decreasing the proportion for reading (from 8 to 5 percent).

Monitoring. In the multivariate analyses, mode effects were significant for awareness ($p < .07$), as well as for combined awareness and use ($p < .08$). In general, the retrospective condition tended to increase the amount of attention to

simple statements of meaning ($F[1,51] = 4.80$, $p < .033$), by about 3 percentage points for writing and 5 percentage points for reading, with corresponding decreases in attention to in-process decisions about such features as mechanics, genre, or lexical choices (though individually these shifts were not statistically significant). For use of monitoring operations, the multivariate mode x domain interaction was significant, reflecting a similar general pattern: comments about use of mechanics, genre characteristics, or lexical choices were more likely in the talk-aloud than the retrospective condition for writing, though for reading such comments hardly occurred at all in either condition. Univariate effects were significant at the .05 level or better for each of these aspects of use.

Reading and Writing Strategies. Main effects for mode were not significant in the multivariate analyses; however, there was a significant multivariate mode x genre interaction. Univariate analyses indicate that this occurred in the evaluating ($F[1,105]=8.49$, $p > .004$) and revising ($F[1,105] = 13.36$, $p > .001$) categories. The proportion of evaluating remained constant for stories in both modes (at between 20 and 21 percent), but decreased sharply in the retrospective condition for reports (from 20 percent in the think alouds to 16 percent in the retrospectives). Revising showed the opposite pattern, remaining constant for reports (at 14 to 15 percent), but declining for stories from 22 percent in the think alouds to 10 percent in the retrospectives).

Text Unit. Mode effects were significant only in interaction with domain ($p < .04$). In writing, the proportion of global comments remained relatively constant in both modes (38 percent for the think alouds vs. 41 percent for the retrospectives), but in reading the proportion of global comments dropped from 34 percent in the think alouds to 25 percent in the retrospectives.

Data Source. Mode effects were significant, $p < .07$. These seemed to be caused by a greater number of text-focussed comments in the talk-aloud mode, particularly for writing; the univariate mode x domain interaction was significant, $F[1,105] = 3.77$, $p > .055$. This difference, as similar mode differences presented above, seems to reflect the fact that surface or mechanical features dealt with by writers as they pass through a text usually pose relatively transient problems. These are more likely to be commented on during the actual act of writing, and are not well remembered afterwards.

Focus. The mode x domain interaction was significant. For writing, concern with process averaged 37 percent for both the think aloud and the retrospective condition; for reading, however, the on-line think-aloud procedure increased the proportion of process oriented comments to 32 percent (versus 19 percent for the retrospective condition).