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ABSTRACT

Developed as a vehicle of communication for the Reading Recovery Council of North America, this journal represents an international effort to connect researchers, teachers, and all those interested in early literacy. Articles in the first issue of this fourth volume are: "The Development of Literate Potential in Literature-Based and Skills-Based Classrooms" (Zhihui Fang); "The Development of Phonological Awareness and Orthographic Processing in Reading Recovery" (Katherine Anne Dougherty Stahl, Steven A. Stahl, and Michael C. McKenna); "Early Writing: An Exploration of Literacy Opportunities" (Billie J. Askew and Dianne Frasier); and "Emotions, Cognition, and Becoming a Reader: A Message to Teachers of Struggling Learners" (Carol A. Lyons). Articles in the second issue of the fourth volume are: "Cultural Production as Reproduction in the Appropriation of Mediational Means in School and in Out-of-School Contexts" (Christopher Worthman); "Case Studies of the Writing and Thinking of Three African American Second Graders in a Whole Language Classroom" (Penny A. Freppon); "The Effects of Reading Recovery on Children's Home Literacy Experiences" (Christine A. Marvin and Janet S. Gaffney); and "The Success of Reading Recovery for English Language Learners and Descubriendo La Lectura for Bilingual Students in California" (Judith C. Neal and Patricia R. Kelly). (RS)

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The Development of Literate Potential in Literature-Based and Skills-Based Classrooms

Zhihui Fang, University of Florida

Abstract

This study examined young children's developing understanding of written discourse in two instructional settings: literature-based and skills-based. Forty-one first graders were each requested to dictate two "written" stories for others to read at the beginning and end of the school year. The 82 texts were analyzed for their cohesive harmony, conformity to the socioculturally-codified genre conventions, and use of specific written language features. Quantitative analysis revealed statistically significant increases in cohesion and genre scores, but only marginal gains in the written language features measures. Further, the development of such written discourse knowledge was not significantly impacted by the instructional context. Qualitative analysis revealed that the children's texts demonstrated impressive advances in the written mode of organizing and communicating information to others, despite evidence of traces of oral discourse patterns and immature control over diverse genres. These findings are discussed in light of relevant literacy research and practice.

Literacy is not a natural outgrowth from orality. Becoming literate in our society requires that children learn to take control over the written mode of communication. In order to do this, they must come to terms with certain features of written discourse: its sustained organization, its characteristic rhythms and structures, its distinctive grammar, and its disembedded quality (Kress, 1994; Olson & Torrance, 1981; Wood, 1998). While home and community are important to the development of a literate mind, it is the school that is commonly considered the most important site for children's literacy development. As Freedman (1985) noted, literacy is "largely learned in school rather than at home" (p. x).

The significance of formal schooling to developing literacy foregrounds a pedagogical issue of immediate consequences to children. That is, what instructional approach is most effective in fostering children's literacy development? In recent years, with the popularity of literature-based instruction, literacy educators have become increasingly interested in its effectiveness as compared to the more tradi-

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tional, skills-based approach. While there have been a plethora of articles and monographs extolling the virtues of literature-based approach to literacy instruction, empirical support for such claims is rather limited (Chall, 1996; Giddings, 1992; Reutzel & Cooter, 1990) and largely inconsistent (Fang, 1997). Of the research that examines the impact of literature-based instruction, children's literacy development was measured almost invariably by standardized tests (in reading) or mechanics (in writing). Few studies (e.g., Purcell-Gates, McIntyre, & Freppon, 1995) have documented precisely what children learn about the features of written discourse in different instructional contexts. This understanding is important because it enables us to gauge the sense young children make of the school curriculum (Erickson & Shultz, 1992) and provides us contextualized knowledge about children's potential for making effective written communication (Gundlach, 1981).

The present study describes changes and development in first graders' understanding of written discourse in two instructional settings: literature-based and skills-based. Three research questions guided the study: (a) What do children learn about written discourse in school? (b) Does the development of written discourse knowledge comprise a significant part of the school learning experience? and (c) What is the role of instructional context in developing children's written discourse knowledge? Before describing the study further, I shall provide a brief discussion of three fundamental features of written discourse: autonomy, stability/predictability, and distinctive grammar.

Features of Written Discourse

There is a persisting interest among language and literacy educators in identifying features of written discourse, with the ultimate aim of describing precisely what has to be learned in terms of literacy in reading and language arts classrooms (Derewianka, 1990; Hammond, 1990; Martin, 1989). Although scholars like Gee (1996), Delpit (1988), Cope and Kalantzis (1993), and Roberts and Street (1997) see these features as constituting a style that is designed to exclude the marginalized outsiders and to enhance the status of powerful insiders, much more needs to be known about academic textual practices before useful evaluations can be made. Nevertheless, whatever the intention, the features of written discourse certainly constitute a barrier with which literacy teachers must help their students deal.

One feature of written discourse is its 'autonomy' (Chafe, 1982; Olson, 1977; Tannen, 1982). Unlike oral discourse that is used in rich, purposeful contexts where communication is anchored to a specific time/place and where responsibility for mutual understanding is shared between the speaker and listener, written discourse is less dependent on the spatial and temporal situation in which it is produced. It is minimally dependent upon simultaneous transmission over non verbal channels (e.g., gesture, facial expression) and the contribution of background information from the receiver. Instead, readers rely to a much greater extent on words alone as cues to meaning. As such, written discourse has often been characterized as "decontextualized" (Vygotsky, 1962), "disembedded" (Donaldson, 1978), or "constitutive" (Halliday, 1989).

Because of the autonomous or decontextualized nature of written discourse, children should have at their disposal a repertoire of linguistic resources for creating intra-textual links and references (Chapman, 1983; Irwin, 1986). One such linguistic resource is cohesion. Halliday and Hasan (1976) have identified three main types of cohesive devices as grammatical (e.g., pronouns, substitution, ellipsis), lexical (e.g., repetition, synonyms, antonyms, hyponyms, hypernyms), and logical (e.g., conjunctions).

Part of the process of becoming literate involves learning to handle these cohesive devices appropriately so that children can successfully calibrate cohesive relations within the text. In the initial stages of learning to construct autonomous texts, children tend to draw upon linguistic resources gathered principally through oral, everyday speech. For example, they imitate in writing the oral telling of a story, where their audience is immediate and where the audience and the speaker can interact vis-à-vis to clarify a given point of confusion or misunderstanding. Young children also have difficulty sustaining an endophoric text for an invisible audience. For example, they sometimes use pronouns to denote objects or persons that are not clearly referenced within the linguistic text proper. Further, they have difficulty conceptualizing what information is and is not available to a non-present reader who does not share the immediate context of discourse production. They also find it difficult to recall information they previously provided in the text. In these cases, cohesive problems have been attributed to limitations in children's linguistic resources (Yde & Spoelders, 1990) and cognitive capacities (Clark & Sengul, 1979; Stoddard, 1991). Whether differential pedagogical practices effect differential outcomes in helping young children overcome these potential difficulties of written discourse production is, therefore, a question that deserves exploration.

Another feature of written discourse is its stability and predictability. This means that different text types (genres) consist of somewhat different sets of relatively stable constellations of text-level features that adhere to certain cultural conventions, that are appropriate for particular social and cultural occasions, and that accomplish specific communicative intents (Kamberelis, 1995; Swales, 1990). Although genres, as staged, goal-oriented social processes (Christie & Martin, 1997), do evolve and expand over time in response to changes in social life and cultural world view, each has a relatively small set of fairly durable and conventionalized compositional structures. These structures provide predictable expectations for particular genres, as they index the particular contexts in which particular meanings are constructed and particular functions are performed (Bakhtin, 1986; Kress, 1989).

Knowledge of genres is critical for the development of communicative competence, which involves the encoding of messages in fairly specific and predictable ways within particular communicative contexts. Scholars (Chapman, 1994; Cope & Kalantzis, 1993; Kamberelis, 1998) have suggested that gaining knowledge of diverse genres and the typified rhetorical situations that constitute and are constituted by these genres is a primary developmental task for young children as they learn to read and write. Thus, it is important to examine whether different peda-

gogical contexts have different impact on children's developing knowledge of diverse genres.

A third feature of written discourse is its distinctive grammar. By comparing a corpus of oral and written texts, researchers (e.g., Chafe, 1982; Halliday, 1989; Hammond, 1990) have identified two aspects of the grammar of written discourse, emphasizing how they are different from the language of everyday talk. The first of these is the greater density of information in the text. This density is achieved partly through linguistic integration such as the use of longer and more complex noun groups. The second aspect is the greater abstraction of written language. This is partly due to the greater use of nouns to express actions and events, whereas in everyday talk they are typically expressed by verbs. Because these aspects of written discourse are essential to the construction of literacy understanding (Christie, 1989; Hammond, 1990), becoming literate necessarily implies building and consolidating children's knowledge of grammatical resources that are central to the language of literacy learning. It follows that an investigation is warranted of whether children develop control over the specialized grammar of written discourse in different pedagogical contexts.

Method

Participants

Participants included 41 children from two intact first grade classrooms in a U.S. elementary school. The classrooms were selected through a triangulation process that involved participant observation (Spradley, 1980), observation checklist (Hollingsworth, Reutzel, & Weeks, 1990), beliefs survey (Deford, 1985), and semi-structured interviews (Briggs, 1986). All children were native speakers of English. There were 21 children, all European Americans, in the literature-based classroom. Of these, 12 were girls and eight received free or reduced-price school lunch. In the skills-based classroom, there were 20 children, among whom 10 were girls, 16 European Americans, three African Americans, one Hispanic American, and five received free or reduced-price school lunch.

The Instructional Context

The Literature-Based classroom. The literature-based classroom teacher had taught for six years in the elementary school. She had a bachelor's degree in elementary education, in addition to over 20 hours of postgraduate work in reading/literacy education. She was actively involved in a school-university collaborative initiative, the aim of which was to reform the school's reading/language arts program by moving it from the traditional skills-oriented, basal-based instruction to the literature-based instruction.

The classroom was rich in print and print-related activities. The room was divided into several centers or work stations, including group sharing corner, listening center, writing center, conferencing area, computer center, project area, math center, and art center. It was equipped with a classroom library that contained many children's books, including trade books, big books, information

books, and reference books. The room was also decorated with child-authored stories and messages (e.g., shape books, mini books, cards, letters, announcements), group-authored big books, chart stories, information charts, number chart, and record keeping lists. Adult-authored messages (e.g., notes, cards, letters, invitations, announcements), directions (e.g., classroom rules, use of centers, activity directions), scheduling (e.g., daily schedule, calendar, lunch time, classroom helpers), and word cards "littered" the walls and poster boards. Location of centers, objects in the classroom, containers for children's belongings, coat closets, and captioned drawings were clearly labeled. Materials for writing (e.g., paper, chalkboard, blank chart paper, blank notebooks, pencils, crayons, markers, glue), reading (e.g., read-along tapes and books, computer software, self-selected storybooks), and playing (e.g., mouse patching game, magnet numbers, alphabet games) were provided in designated areas accessible to children.

On a typical day, the teacher followed a literacy routine that can be divided into several subroutines: Daily News, Word Wall, Journal Writing, Group Time, Work Jobs, and Enrichment Activities. Children's literature was the primary vehicle for teaching and learning literacy in the class. During the Daily News period (about 10 minutes), the teacher previewed the day's important events with children. This time was also used to model writing conventions such as spelling and grammar. During the Word Wall period (about 5 minutes), the teacher reviewed the words that were added to the Word Wall on a previous day. During the Journal Writing period (about 15-20 minutes), the children engaged in writing personal stories. Usually, the topics for writing were self-selected; however, from time to time they were assigned by the teacher. The Group Time (about 40-45 minutes) started with a "show and tell" session when children, gathering around the teacher on a rug, were encouraged to narrate a past event of personal significance or describe an object of personal preference. Then, the teacher read a familiar storybook aloud to the children. Next, the teacher shared a new storybook with the children using Au's (1979) "experience-text-relationship" method.

After the snack time and a brief bathroom break, a 35-40 minute Work Job period ensued. During this period, small groups of children rotated through the following activities: a guided reading session (Fountas & Pinnell, 1996) with the teacher, work with computer (e.g., writing stories, listening to stories, playing games), assigned desk job (e.g., illustrating a page for the classroom big book *I Was Walking*, making three flip cards of verbs with "–ing" endings), and independent or partner reading, when children read teacher-selected books that focused on a particular thematic topic.

After lunch recess, a 25-30 minute sustained silent reading session was allotted for the entire class. During this enrichment period, the children read self-selected books (from the classroom or school library) that focused on a particular thematic topic (author, genre, science, or social studies) or other books that may not be directly related to the theme. After reading, children engaged in responding to their literature books (about 30-35 minutes) through various approaches such as literature circles, author's chair, drama, reader's theatre, or story retelling.

The Skills-Based classroom. The skills-based classroom teacher had 12 years of teaching experience in the primary grades. She had a B.A. in elementary edu-

cation and an M.A. in elementary administration. She did not participate in the school-university collaborative initiative to institute a literature-based reading/language arts program.

The classroom was rich in print and print-related materials. The wall space was covered with A-Z alphabets, vowels and consonants, posters, slogans, photographs, and children's work (e.g., phonics worksheets, drawings, stories). In one corner of the classroom stood a medium-sized bookshelf stuffed with children's storybooks and magazines. On a table next to the bookshelf were several small cupboard boxes where writing materials (e.g., pencils, crayons, papers, markers, glue, scissors) were stored. Students' desks were arranged in rows and columns in an orderly fashion.

Each day the teacher conscientiously read storybooks aloud to the students as a part of the literacy instruction routine. Other modes of reading such as shared reading, partner reading, and sustained silent reading were used mostly to fill time slots during the transition of major school and classroom activities. There were several centers in the classroom, including a book reading corner where students sat and read books after finishing other assigned seat work; a skills center decorated with word walls and phonics charts where the children engaged in phonics and other skills practice; a writing center where the children copied or traced alphabet letters and words for handwriting practice or used teacher-selected words to make sentences; a conference center where the teacher instructed individual students who had problems with phonics; and a computer center where phonics skills were practiced and reinforced through the mastery learning sequence using programs such as *Kid Works 2*, *Bailey's Book House*, and *My First Incredible, Amazing Dictionary*.

Although children's storybooks were used to teach reading and language arts, they were heavily supplemented with basal materials. The literature was used primarily as a vehicle to practice the skills typically found in the basal reader, rather than as a source for reading enjoyment. In other words, literature books were used as a springboard for teaching decoding skills, vocabulary, grammar, and comprehension strategies. The teacher often developed phonics activities out of words, sentences, or concepts in children's books. These activities included phoneme matching, blending, phoneme isolation, sound-to-symbol matching, and sound manipulation.

A typical daily schedule was devoted to reading skills lessons selected from a published scope and sequence chart of reading skills. Each skill/lesson was explained by the teacher and was followed with the assignment and completion of worksheets designed to reinforce the lesson. For example, the "morning message" activity was focused on punctuation, capitalization, and occasionally on sequencing. The station activities were all geared towards phonics practice. Examples of her daily station activities follow:

(1) Cut out the letters for each spelling word and glue them next to the word.
   a) ride b) wish c) nice d) fun
   e) take f) trip g) wear

(2) Read each sentence. Circle the two words that should begin with capital letters. Write the words correctly on the lines.
   a) my pet rabbit is named snowball. _____ _____
   b) what color do you think snowball is? _____ _____
   c) my friend, eric, has a duck. _____ _____
   d) his duck's name is goldy. _____ _____

(3) Fill in the blanks with e, o, or u.
   a) A rabbit can h _ p.
   b) A h _ n sat on some eggs.
   c) A d _ ck was in the water.
   d) A pig was in the m _ d.
   f) A rat was on my d _ sk.

(4) Copy the sentence "Magnets never miss Muffin's mouth" in print in notebook.

(5) Cut and paste short o words on Olly's box.

stop	mop	wig	lock	log	home	doll
clock	cot	hat	shot			

Following is a sample morning literacy lesson schedule:

8:40 a.m. Business (pledge, lunch count, attendance, etc.)

9:00 a.m. The teacher instructed children on the use of "-ed" inflection in verbs.

9:15 a.m. Students engaged in individual worksheet projects. Some were asked to copy ten spelling words that begin with /th/ (e.g., *then*, *this*, *them*, *there*, *this*, *that*) five times in their workbooks. Some practiced morphological analysis by breaking compound words like "something" into two parts: some-thing. Some worked on computers to complete a comprehension mastery learning test (all multiple choice questions) on a story read on a previous day. Some practiced phonics exercises on the computer. The teacher closely monitored students and gave assistance when needed.

9:40 a.m. Class convened as a group. Students sat on a rug in a shared reading corner in front of the teacher. The teacher first engaged students in a conversation about their personal experience over the weekend. Then, she picked a few students to construct a sentence using words like "Tuesday," "yesterday," and "tomorrow." Students were later asked to deconstruct words like "Monday" into two parts: Mon-day. Next, the teacher shared an information book *The Carrot Seed*. She first activated students' prior knowledge by

talking about various kinds of beans and then constructing a Venn diagram to show similarities and differences among the beans. Finally, she read the book aloud while students listened attentively. Occasionally, she asked students to make predictions by looking at the pictures.

10:10 a.m. Bathroom break

10:20 a.m. All students as a group worked on phonics activities. They were requested to clap their hands as they read the following "th-" words with the teacher: *then, then, there, thing*... Next, students were asked to generate a sentence for each word.

10:35 a.m. The teacher lectured on diphthongs /ie/, /ee/, and /ea/. Students were asked to come up with words that bear these spelling patterns.

10:50 a.m. Students were asked to draw a picture for the words they generated above with such diphthongs as /ie/, /ee/, and /ea/. Then they colored the pictures in whatever color they liked. When it was done, they went to see the teacher and read those words to her individually.

11:20 a.m. Class got ready for lunch recess.

Procedures

The researcher spent a few weeks in the target classrooms as a participant observer prior to actual data collection, the purpose of which was to establish rapport with the children. After the children became sufficiently familiar with the researcher, data collection commenced. Each child was seen individually at two sessions, one at the beginning (August) and the other at the end (May) of the first grade. If a child seemed tired or distracted, the session was terminated and rescheduled.

At each session, the researcher engaged the child in an informal conversation about his or her personal experience. During the conversation, an oral monologue story emerged. The researcher commented on the oral tale's interest and suggested that some other children would like to read about it. The researcher then invited the child to assume the role of a writer ("like your favorite book author") and dictate that same oral tale as a book-like story, i.e., as an autonomous text written for other children to read. The dictation of a written text is a fundamentally different task from oral storytelling in that the former requires that the child draw on only linguistic resources to make a coherent text, whereas in the latter the child can draw on not only verbal but non-verbal clues (e.g., gesture, intonation) to construct meaning. In fact, the request for a retelling of a face-to-face oral story as an autonomous text written for others to read defines a new context in which field (topic of the story) remains the same, but changes occur in tenor (from interac-

tive listener to absent/invisible readers) and mode (from oral to written). In order to comply with the request, the child must recognize the unique differences between oral and written discourse and make appropriate linguistic adaptations in cohesion patterns, genre structure, and wording choices, among others.

During the dictation, the researcher acted only as scribe, offering no help beyond simply recording the child's words, re-reading the text back to the child, and inviting edits. This dictation protocol was considered appropriate for emergent writers because it freed them from the mechanical demands of writing (i.e., spelling, punctuation, handwriting) and, as a result, allowed their attention to be more fully devoted to the focal constructs of the study, that is, discourse level concerns such as purpose, word choice, syntax, textual connections, thematic development, organization, and clarity. Recent studies of the writing process (e.g., Gundlach, 1981; Jacobs, 1985; Sipe, 1998) have turned up evidence in support of this hypothesis. Other empirical studies (Hidi & Hildyard, 1983; Kamberelis, 1998; Pontecorvo & Zucchermaglio, 1989; Scardamalia, Bereiter, & Goelman, 1982) have implicated the need for or suitability of this data collection procedure in emergent writing research.

Linguistic Analysis

Each dictated text was analyzed linguistically in terms of three research-based constructs: cohesion, genre, and written language features. In all linguistic analyses, there were three experienced scorers. To ensure consistency across all analyses, the researcher scored all of the data sets. Two other scorers each scored half of the data sets independently and then cross-checked with the researcher. Any disagreement was discussed in light of relevant research/theory and resolved to 100% agreement. The researcher took careful notes of points of disagreement and resolution, and applied these sometimes-hard-to-reach decisions to later cases involving similar situations.

Cohesion analysis. For cohesion analysis, Hasan's (1984) discourse model of cohesive harmony was used. Cohesive harmony is a multifunctional and more powerful concept than Halliday and Hasan's (1976) original conception of cohesion because it captures the "echoing of functional relations" within the text. Specifically, a five-step procedure was instituted. First, the text was parsed into modified t-units. Second, each parsed text was lexically rendered by eliminating all function words and retaining only content words. Verbs were changed into their root forms. Each coreferential or coclassificatory device was replaced with its referent (i.e., the word or phrase that serves as its interpretive source) or else categorized as ambiguous when an appropriate referent could not be located in the linguistic text. The ambiguous linguistic tokens were automatically eliminated from chain membership and were never involved in chain interaction (see step 4). What remained were unambiguous content words (i.e., nouns, verbs, adjectives, and adverbs), which were used to calculate cohesive harmony index (see step 5).

Third, noun tokens were analyzed for semantic relationships. Those determined to be semantically related through the identity or similarity bond were placed in the participant chains. Verb tokens were grouped into one of the six process categories — material, mental, verbal, behavioral, relational, existential

(Halliday, 1994) — and then recorded in the appropriate process chain. Any single noun or verb tokens without associated tokens were called peripheral tokens, which, like ambiguous tokens, were also recorded separately and never figured into chain interactions. Fourth, functional roles (e.g., actor, sensor, behaviour, existent, phenomenon, location) (Halliday, 1994) were assigned to the noun tokens based on an analysis of the relationship between the verb process and the noun in their respective t-units. When the same functional roles were given to two or more tokens within the same participant chain across two t-units with the same verb process, a cohesive harmony interaction was said to have taken place. Fifth, the number of tokens involved in chain interactions was divided by the total number of tokens in the entire parsed text, yielding a cohesive harmony index.

Genre analysis. As noted earlier, genres are staged and standardized ways of organizing discourse for given social purposes. A synthesis of research (e.g., Chapman, 1994; King & Rentel, 1981; Langer, 1985; Martin, 1984; Newkirk, 1987) suggests that children's writing typically falls into two broad genres that include subcategories — expressive (e.g., recount, narrative) and factual (e.g., report, description, procedure, explanation, exposition) — and that children would produce several different types of texts in response to the directive to write a story (as they tend to consider any text, be it expressive or factual, as a story). Each of these genres serves a particular purpose and has its distinctive structural and lexicogrammatical features (Derewianka, 1990; Martin, 1989). For example, a recount text retells events for the purpose of informing or entertaining. Its focus is on a sequence of events, all of which relate to a *particular* occasion. It generally begins with an orientation, giving the reader the background information needed to understand the text (i.e., what happened, who was involved, where it happened, when it happened). Then it unfolds with a series of related events ordered in a chronological sequence. At various stages there may be some personal comment on the incident. It is usually sequenced temporally, often in the past tense.

A narrative text is a recount with a twist. Its basic purpose is to entertain, to amuse, or to instruct. The focus of the text is on a sequence of events. It usually begins with an orientation that introduces the characters, establishes the atmosphere, indicates the "when" and "where" of the event, and sometimes foreshadows the action. The story is developed by a series of events, during which some sort of complication or problem arises. Then, a partial or full resolution of the complication is brought about. Characteristic language features of the narrative genre include use of specific individual participants, the past tense, temporal conjunctions, material verb processes in the complication and resolution stages, and relational and mental verb processes in the orientation stages.

Unlike the "expressive" genres, other genres are of the "factual" type. A procedural text is a step by step account of how to go about doing something. It generally begins with a statement of goal, followed by an ordered series of steps. It centers on generalized human agents such as 'you' or 'the experimenter,' uses the simple present tense, links the steps in the procedure with temporal conjunctive relations, and mainly uses material verbs. Unlike recounts which are event-focused, procedures talk about people, places and things in general terms. A report

text makes general, non-specific statements about a class of things. It usually starts with a general classification which locates the phenomenon, followed by successive elements that contribute to a description, such as types, parts, qualities, uses or habits and so on. The focus is on generic participants, without temporal sequence and mostly using the simple present tense. A description text is, in fact, an instance of report. However, it is somewhat different from report in that it is the *particular* individual, place, or thing, rather than the whole class of things or people, that is characterized or described.

An explanation text gives an account of how something works or reasons for some phenomenon. It has a "process" focus rather than a "thing" focus. It usually starts with a general statement about the phenomenon in question, followed by a sequence of explanatory statements. It typically uses generalized participants, timeless present tense, and material verbs. An exposition text is concerned with "the analysis, interpretation and evaluation of the world around us" (Derewianka, 1990, p. 75). In such a text, the writer advances a point of view, judgment, or thesis, often accompanied by some background information about the issue in question. Then the author presents evidence to support or refute the thesis. Finally, there is an attempt to sum up the position in light of the argument presented. Often, the simple present tense is used in the text.

Because genre is a construct that derives from and encodes the functions, purposes and meanings of particular social occasions, becoming literate implicates learning the conventionalized forms, demands and potentialities of different genres such as those described above. It follows that an evaluation of children's written discourse potential requires an examination of whether they have acquired these "fixed, formalized, and codified" (Kress, 1994, p. 11) genre conventions. Accordingly, each text was evaluated based on the following four textual features for each genre: (a) schematic structure (whether all 'obligatory' structural elements are present); (b) participants (whether participants in the text are appropriately general or specific); (c) verb process (whether the verbs used are appropriate for the experience described); and (d) tense (whether the verb tense is properly manipulated). One point was awarded for conforming to the genre conventions in each of these four categories. Thus, each text can earn a maximum of four points. A non-text, which contains less than two independent clauses, earns zero point. In the case of a hybrid text, where the child mixes more than one genre, a total score was computed for each of the genres present in the text. A final score for the text was then calculated by averaging the scores of all genres present in the text.

Written language features analysis. The analysis of written language features was guided by earlier work in linguistics (e.g., Chafe, 1982, 1985; Halliday, 1989; Tannen, 1982, 1985) and emergent literacy (e.g., Cox, Fang, & Otto, 1997; Purcell-Gates, McIntyre, & Freppon, 1995). Specifically, each text was examined for evidence of the following twelve lexical and syntactic features that have been identified as characteristic of written discourse.

1. formulaic opening or ending: use of phrases such as *once upon a time* or *they lived happily ever after* that are often associated with a particular genre.
2. adverbial clauses: clauses serving an adverbial function, including temporal (e.g., *before, after, until*), conditional (e.g., *if*), causal (e.g., *because, since*),

concessive (e.g., *although*), manner (e.g., *as*), purposive (e.g., *in order to, so that*), and resultive (e.g., *so, such that*).

3 complement clauses: clauses introduced by *that* after a verb (e.g., *The king suddenly knew that he had found his true love.*).

4 appositive phrases: noun phrases used to elaborate a preceding noun (e.g., *I ate a kid's meal, a hamburger and fries.*).

5 literary sounding words/phrases: words and phrases that are typically used in writing and sound out of place in speaking (e.g., *She had made her way home. He was entranced by the gift.*). Formulaic openings and endings typically used in written narratives were not counted as instances of this feature.

6 preposed present/past participles: verbs used syntactically as adjectives (e.g., *a vanishing island, the broken bone*). Terms that have become lexicalized with their meanings frozen (e.g., *my coloring pen*) were not counted as instances of this feature.

7 postposed present or past participles: gerunds or verbs in passive voice form used to modify a preceding noun (e.g., *I flipped off the sled rolling down the hill. She found her arms wrapped around a fruit tree.*).

8 unusual syntax: sentence structures that are more typically used in literary texts than in daily oral language (e.g., *Overcome with grief, the girl collapsed on the ground. The more he marveled at its beauty, the more determined he became to find the woman to whom the shoe belonged. Hardly did he finish the cake.*).

9 relative clauses: clauses introduced by words such as *which, who,* and *that* to modify a preceding noun (e.g., *He sold it to a merchant, who presented in turn to the king.*).

10 series of attributive adjectives: a series of adjectives arranged in proper order to describe an upcoming noun (e.g., *the grouchy, wet, tired fish*).

11 sequence of prepositional phrases: prepositional phrases chained in a sequence such that the informational structure is condensed syntactically (e.g., *She left the ball with tears in her eyes. We had the water with ice and lemon in it.*).

12 nominalization: expressing a verb process as a "thing" or participant such that the informational unit is condensed. For example, instead of saying *He disappeared yesterday and his mom worried about him*, nominalization transforms these two clauses into one, *His disappearance yesterday worried his mom*. Other examples are: *we understand* becomes *our understanding* (nominal group), *how it began* becomes *its origins* (nominal group).

Two ratio scores were calculated here. The first is the written language features occurrences score (WLFO), computed by dividing the number of times a child uses features specified above as written by the total number of t-units in the text. The second is the written language features breadth score (WLFB), computed by dividing the number of the written language features categories that were present in the text over the total 12 written language features categories described above.

Statistical Analysis

A 2 x 2 repeated measures design was conducted for each response variable. The between-subjects factor is instructional context and the within-subject factor is time. The repeated measures design was considered appropriate for the study. Within such an analysis, the F ratios for the between-subjects effects are usually not of interest. Of interest instead is the interaction between time of measurement and the between-subjects factor (Gall, Borg, & Gall, 1996). SPSS was used in the analysis.

Qualitative Analysis

Qualitative analysis of selected children's texts was conducted to complement and illuminate the quantitative findings. Such descriptive analysis can yield important insights that may otherwise be obscured in group-based assessment. The discussion was guided by relevant linguistic/literacy theories and research, focusing on the three features of written discourse examined in the study.

Results

Quantitative Findings

Consistent with the recent recommendations by the American Educational Research Association (Thompson, 1996) and the American Psychological Association (APA, 1995) regarding the reporting of statistical significance testing, decisions concerning the acceptance or rejection of various null hypotheses associated with the study's design were based on two indices: a p value and an index of effect size (eta square, η^2). A small p-value in combination with a large index of effect size was considered sufficient evidence for rejecting the relevant null hypotheses. In line with Olejnik's (1984) suggestion, an effect size of 0.13 was considered large enough for this study. Further, a p value of 0.05 or less was considered small.

Based on an examination of stem-and-leaf plots and normal probability plots for the response variables, it was judged that the data approximated normal distributions. Descriptive statistics (means and standard deviations) for the dependent variables are presented in Table 1.

For the cohesion measure, repeated measures ANOVA revealed statistically significant time effect, $F\ (1, 39) = 15.37$, $p < 0.00$, $\eta^2 = 0.28$. This means that over the course of the school year, the first graders developed considerably greater expertise in constructing sufficiently autonomous and more cohesive texts. There was no statistically significant "time x instructional context" interaction effect, which means that the growth in the literature-based group's cohesion knowledge was not reliably different from that in the skills-based group's.

For the genre measure, repeated measures ANOVA also revealed a statistically significant time effect, $F(1, 39) = 7.29$, $p < 0.01$, $\eta^2 = 0.16$, but failed to support a statistically significant "time x instructional context" interaction effect. This indicates that the children were incorporating considerably more conven-

Table 1. Means (M) and Standard Deviations (SD) of Cohesion, Genre, and Written Language Features at the Beginning and End of the School Year

	Literature-Based		Skills-Based		Entire Sample	
	Beginning M (SD)	End M (SD)	Beginning M (SD)	End M (SD)	Beginning M (SD)	End M (SD)
Cohesion	0.52 (0.26)	0.74 (0.16)	0.57 (0.19)	0.69 (0.16)	0.54 (0.22)	0.71 (0.16)
Genre	3.03 (0.85	3.55 (0.38)	3.23 (0.80)	3.48 (0.30)	3.13 (0.82)	3.51) (0.34)
Written Language Features						
a) Occurrences (WLFO)	0.05 (0.12)	0.14 (0.17)	0.12 (0.19)	0.15 (0.17)	0.09 (0.1€)	0.14 (0.17)
b) Breadth (WLFB)	0.02 (0.04)	0.09 (0.10)	0.08 (0.13)	0.08 (0.10)	0.05 (0.10)	0.09 (0.10)

tionalized features of genre in their texts at the end of the school year than they did at the beginning of the school year. However, the instructional context was not a significant factor in accounting for the differential gain scores in genre between the literature-based and skills-based groups.

Additionally, an analysis of the types of textual genre composed by the children over the school year showed the following patterns. Overall, five genre types were found: recount, narrative, description, explanation, and exposition. There were also a few hybrid texts that featured a conglomerate of two or more genre types, usually a mix of recount and description. Two children dictated non-texts, meaning that their dictation was less than two independent clauses. The distribution of textual genres by the instructional context is shown in Table 2.

It is clear from Table 2 that the children composed predominantly recount texts during the school year. For the entire sample, at the beginning of the school year, 30 out of 41 texts (73%) composed were of the recount genre; at the end of

Table 2. Distribution of Genre Types at the Beginning and End of the School Year

	Literature-Based		Skills-Based		Entire Sample	
	Beginning	End	Beginning	End	Beginning	End
Non-Text	1	0	1	0	2	0
Recount	16	13	14	13	30	26
Narrative	0	0	0	1	0	1
Description	3	5	1	4	4	9
Procedure	0	0	0	0	0	0
Explanation	0	0	0	2	0	2
Exposition	0	1	0	0	0	1
Hybrid	1	2	4	0	5	2

the school year, 26 out of 41 texts (63%) composed were recounts. The decrease in the number of recount texts during the school year was accounted for by a concomitant increase in the number of description texts. At the beginning of the school year, four out of 41 texts (10%) belonged to description; at the end of the school year the percentage climbed up to 22% (9 texts). On the other hand, however, the number of hybrid texts decreased by half, from 12% (5 out of 41) at the beginning of the school year to 5% (2 out of 41) at the end of the school year. Other genre types (narratives, explanations, and expositions) were few and far between.

Similar patterns were found in individual classrooms. In the literature-based classroom, at the beginning of the school year, 16 out of 21 texts (76%) were recounts and three texts (14%) were descriptions; at the end of the school year, 13 texts (62%) were recounts and five texts (24%) were descriptions. In the skills-based classroom, at the beginning of the school year, 14 out of 20 texts (70%) were recounts and one (5%) was description; at the end of the school year, 13 texts (65%) were recounts and four (20%) were descriptions. Another notable difference between the two classrooms is that the number of hybrid genre texts increased in the literature-based classroom from one to two during the year, but decreased in the skills-based classroom from four to zero.

Finally, as for written language features, repeated measures ANOVA revealed statistically non-significant time effect for both the occurrences (WLFO) and breadth (WLFB) measures. Nor was there a statistically significant "time x instructional context" interaction effect for either WLFO or WLFB. This suggests that the children did not demonstrate significant growth in their knowledge of the lexical and syntactic features of written language and that the pedagogical context did not have a significant impact on the development of such written discourse knowledge.

Qualitative Findings

Because of the complementary nature of different research paradigms (Fang, 1995), qualitative analysis of children's texts was also conducted to illuminate further the quantitative findings. In this section, I shall provide an in-depth analysis of the dictated-for-others-to-read texts composed by two average children, Tim (a seven-year-old boy from the skills-based classroom) and Dako (a six-year-old boy from the literature-based classroom). With these two case studies, I hope to shed light on the nature and patterns of linguistic and cognitive development typical of both children's peers. Their four texts are presented below.

Tim

1 We went to King's Island and Indiana Beach and old Indiana Water Fun Park. And we went to White Soxs baseball game. And that's my story. (beginning of year)

2 I went to the bug bowl on weekend. And I ate a grasshopper. And then I ate some crabmeat. There is a railing filled with cockroaches. I almost got sick. The end. (end of year)

Dako

1 I went to Walt Disney World last summer. I had fun. That's all. (beginning of year)

2 One day I had a birthday party. And my friends came over to play. And that night my mom asked us to go to Pizza King. When we got back, we opened presents. After we opened presents, my mom asked me if I wanted to go to the Arcade. The next day, when we played basketball she thought that she was going to win. Then I got the ball and I stepped back to the three pointer and I made it. And I won. The end. (end of year)

It is clear that Tim's beginning-of-year text is a much less successful written attempt than his end-of-year one. Cohesion within the beginning-of-year text was poorly established, largely through the repetition of theme. "We" was theme in the two and only clauses. Participants in the trip to King's Island, Indiana Beach, Indiana Water Fun Park, or the White Soxs game were never explicitly introduced, but were simply referred to as "we." Not realizing the absence of immediate audience and the decontextualized nature of written discourse, Tim obviously did not recognize the need to recontextualize his oral monologue where he had identified the participants as "me, my mom and my dad." Furthermore, the text was never adequately developed to give the reader an idea of what happened in those places: it contained only a brief, yet incomplete, orientation (having 'who' and 'where', but no 'when') and was not followed by a sequence of related events. Thus, ambiguous reference, coupled with the lack of textual development, renders this text a grossly unsuccessful written attempt.

Tim's end-of-year text represents quite a distinct contrast to his beginning-of-year one. It contained a reasonably clear orientation (with *who*, *where*, *what*, and *when*), followed by a recount of what the author did at the bug bowl. Cohesion was reflected mainly through the use of two participant chains — an identity chain (*I*) and a similarity chain (*bug-grasshopper-crab-cockroach*) — and one behavioral verb process chain (*eat*). Furthermore, Tim used post-posed past participle "filled" to integrate two propositions that could very well have been expressed, as is typical of spoken language, in two separate clauses (*there is a railing; cockroaches filled the railing*). Such conceptual integration evidences the development not only of Tim's linguistic skills but also of his cognitive potential, as children's language provides a window to their cognitive world (Vygotsky, 1962). Syntactically, the use of post-posed past participle provides a model for the embedding of clauses. Cognitively, it provides a model for the integration of concepts and a model for the hierarchical organization of ideas.

Despite the linguistic and cognitive achievement, the end-of-year text also betrays Tim's immature control over written discourse. The chaining syntax (i.e., *and, and then*) evidenced the influence of oral discourse, suggesting that Tim might not be acutely aware of the distinct differences between oral and written discourse. In addition, the present tense (*there is ...*) was inappropriately used in this recount genre. If we were to adopt a view of language, as Yule (1986) did, which regards linguistic form as carrying conceptual significance or structure itself, then we may, as Kress (1994) suggested, regard Tim's inconsistent use of verb

tense in this instance either as an indication that he had not yet learned to manipulate the tense 'counter' correctly or as an indication that he was not yet able to manipulate the 'counter' and reality through the concept. Furthermore, there was an instance of implicitness in the text. The use of the definite article in the noun phrase, *the* bug show, assumed that readers know which bug show it signified. While the implicitness may not always prevent readers from deducing the referent, it is worth pointing out that the use of definite noun phrase at first mention is normal only in situations where the reader and the writer both share some common knowledge. It is possible that Tim did not envisage any particular audience at all, but wrote without any reader in mind, perhaps just assuming that everyone knows what he knew. This could be, as Kress (1994) noted, a sign of egocentric mode of thinking and composing.

Comparison of the two texts composed by Dako shows identical developmental trajectory to Tim's. Dako's beginning-of-year text contained only an orientation, *I went to Walt Disney World last summer*, and a comment, *I had fun*. There was no textual development of any kind. The author did not elaborate on his experience at Disney World. It may be inferred that he did not yet have a clear sense of what a complete story was like or what a reader may find interesting. The text can be considered a simple one by any measure: its syntax, its plot structure, and its thematic progression.

Dako's end-of-year text is a distinctly different kind from his beginning-of-year one. It contained all of the obligatory elements of a recount genre: an orientation and a sequence of events anchored in the concept "birthday party." The orientation included "when" (*one day*), "who" (*I*) and "what" (*had a birthday party*), but left "where" (*at home*) implicit. Textual development was clearly marked by temporal conjunctions: *one day - that night - when - after - the next day - then*. Cohesion was further established through the use of pronouns such as *me*, *we* and *us*, all of which were clearly referenced. Syntax was much more varied and complex. There were simple clauses (e.g., *one day I had a birthday party*), complement clauses (e.g., *my mom asked me if I wanted to go to the Arcade*), and adverbial clauses (e.g., *when we got back, we opened presents*). There were even two doubly embedded sentences: complement clauses embedded within adverbial clauses (e.g., *the next day, when we played basketball she thought that she was going to win; after we opened presents, my mom asked me if I wanted to go to the Arcade*). If we were to assume that a simple sentence embodies a single idea, then the development of complement, adverbial, and doubly embedded sentence structure is necessarily a prerequisite and corollary of the development of certain kinds of more complex thoughts and expressions.

There were traces of oral discourse patterns in the end-of-year text, however. The use of conjoined sentences linked by the neutral conjunctive "and" (e.g., *then I got the ball and I stepped back to the three pointer and I made it*) is a case in point. Despite the imperfection, it is clear that, like Tim, Dako also made quite remarkable linguistic and cognitive progress during the school year.

Discussion

Schooling and the Development of Literate Potential

Overall, this study suggests that the children in both literature-based and skills-based classrooms were developing similar profeciencies, albeit imperfect, with the written mode of communication. Specifically, they were becoming more competent in constructing autonomous texts that are more cohesive and more adherent to the socioculturally-defined genre conventions. However, except for certain syntactic sophistication (e.g., compound clauses) that is evident in some texts, most children in either classroom used few lexical and syntactic features characteristic of written discourse at both the beginning and end of the school year.

That the children in both literature-based and skills-based classrooms were expanding aspects of their literate potential in the first year of formal schooling suggests that schools, regardless of differences in the pedagogical context, can and do help socialize the child into, to borrow from Kress (1994), "appropriate and accepted modes of organized knowledge, of knowing, and the modes of representing perceptions and knowledge to others" (p. 124). It may be reasoned that this enabling process of schooling took place when the children engaged in literacy-related tasks in school, the most significant of which is probably storybook reading. Wells (1986) has argued that storybooks teach children the sustained meaning-building organization of written discourse and its characteristic rhythms and structure. That is, through experience with storybooks, children see context built up through structures of words, not, as in oral discourse, simply through references to immediate surroundings; all the clues from which the child constructs meaning lie in the words alone.

Such meaning-building prepares them for the less 'contextualized' language that teachers use and is associated with children's developing competence in narrating events, describing scenes, and following instructions. More importantly, it is tied to children's own inner "storying," which they use to make sense of the social world around them and to create meaning. As Rosenhouse, Feitelson, Kita, and Goldstein (1997) has suggested, exposure to storybooks has a secret, "magical" effect. It might be that the kind of storybooks shared in these primary grade classrooms is just right for this *initial* stage of literacy development. The topics, structures, rhymes, and language patterns in the storybooks are familiar enough and developmentally appropriate to be assimilated, internalized, and appropriated by young children.

The lack of statistical significance in the children's use of written language features is contrary to the finding reported in Purcell-Gates, McIntyre and Freppon's (1995) study. Three factors may help explain this disparity. First, the Purcell-Gates et al.'s study defined lexical and syntactic features much more broadly than the present study did. For example, Purcell-Gates and her associates included, as written language features, categories that this study considered part of children's oral language, such as single attributive adjectives (e.g., a *brave* knight), sound effects (e.g., she fell ... *kersplash*), -ly adverbs (e.g., he *slowly* and *quietly* fol-

lowed them), and series of same nouns, verbs, adjectives, and adverbs (e.g., ..a *mean...mean ... mean...* hunter) (Purcell-Gates et al., 1995, pp. 668-669). Second, Purcell-Gates et al.'s study lasted two years, whereas the present study lasted only one year. Third, their study had a different assessment task (i.e., to tell a story from a wordless picture book) from the present study (i.e., to dictate a written story for an absent audience).

There may be other factors that explain the non-significant finding in the written language features measures, however. For example, it is possible that the lexical and syntactic features identified in this study are not used very much in children's storybooks. In fact, many storybooks for beginning readers use oral-like language patterns (e.g., chaining syntax and simple sentences), presumably for developmental reasons. For example, conjoined or simple sentences are quite common in some popular folktales. Here are a few lines from two popular children's storybooks, *Farmer Duck* (Waddell & Oxenbury, 1991) and *Clifford, the Big Red Dog* (Bridwell, 1985).

> They squeezed under the bed of the farmer and wriggled about. The bed started to rock *and* the farmer woke up, *and* he called "How goes the work?" ... They lifted his bed *and* he started to shout, *and* they banged *and* they bounced the old farmer about and about and about, right out of the bed ... . (Waddell & Oxenbury, 1991).
>
> I'm Emily Elizabeth, and I have a dog. My dog is a big red dog. Other kids I know have dogs, too. Some are big dogs. And some are red dogs. But I have the biggest, reddest dog on our street. This is my dog - Clifford. We have fun together. We play games. I throw a stick, and he brings it back to me. He makes mistakes sometimes. We play hide and seek. I'm a good hide-and-seek player ... . (Bridwell, 1983)

If, as Kress (1994) has suggested, the most potent factors in students' learning of writing are the models of written language that school provides and that it encourages them to emulate, then the lack of significant effect on the written language features measures should not surprising.

A further explanation is that even when some of the lexical and syntactic features are present in storybooks, there was little attempt on both teachers' part to highlight these written language features during storybook discussion. It may be that, unlike cohesion and genre knowledge, developing sophisticated control over these linguistically and conceptually more abstract language patterns requires, as some applied linguists and literacy educators (Cope & Kalantzis, 1993; Derewianka, 1990; Hammond, 1990) have argued, some kind of "consciousness raising" (Rutherford & Sharwood-Smith, 1985) or explicit instruction (Delpit, 1988) for most, if not all, children.

The Role of Pedagogical Context

That there were no reliable differences between the literature-based and skills-based classrooms in developing children's understanding of the three funda-

mental features of written discourse is somewhat puzzling, given the current fervor over the literature-based instruction. In order to shed light on this finding, it is necessary, as Gundlach (1981) has suggested, to take a closer look at two factors that contextualize children's early literacy development. They are: (a) children's reading experiences and reading instruction, and (b) children's writing experiences and writing instruction.

Both literature-based and skills-based classrooms provided the children with multiple opportunities to interact with storybooks, ranging from shared reading to independent reading. Despite the fact that the children in the literature-based classroom were given more opportunities to interact with storybooks, they did not develop *significantly* more knowledge of written discourse than did the children in the skills-based classroom who spent more time doing phonics and comprehension worksheets. This finding seems counter-intuitive. A recent longitudinal study of effects of storybook experience (i.e., Meyer, Wardrop, Stahl, & Linn, 1994), however, reported that while storybook reading is certainly important, greater benefits from such storybook experience can come only when children develop print-related awareness and skills. Another study (Senechal, LeFevre, Thomas, & Daley, 1998) found that while storybook exposure may enhance children's oral language skills, additional support in the form of explicit teaching may be necessary to enhance their written-language skills. In essence, the two studies suggest that in order to develop more mature control over written discourse, children need not only be immersed in reading storybooks, but also be engaged in conscious exploration and experimentation with written language in a wide range of discourse genres.

In this regard, it is important to note that neither teacher engaged her students in conscious examination of the techniques and conventions that the book author used in creating the story. There was little, if any, discussion about the lexical or syntactic significance of written language. The book talks hardly touched, in any explicit way, on the schematic and lexicogrammatical features of the textual genres shared. Instead, both teachers focused almost exclusively on the book author, illustrations, and personal responses during the storybook sharing sessions. Therefore, it is not surprising that the children from both classrooms did not differ significantly in their understanding of the features of written discourse.

As for writing instruction, the children in the two classrooms were rarely explicitly instructed in the written discourse patterns of any particular genre during individual or group writing conferences. In the literature-based classroom, the children were, on most occasions, free to write whatever they wished to write. So, while there was time each day for the students to practice journal writing, teacher intervention and direction were kept to a minimum. Typically, the children were encouraged to write a story based on their personal experience and at their own pace. After the story was done, each child showed it to the teacher. The teacher then made a check mark on the student's journal to signal the completion of the writing assignment so that the student can move on to another project. There was little, if any, explicit guidance on how to construct an effective written text. On the other hand, in the skills-based classroom, there were far fewer opportunities for practicing writing for real purposes. Moreover, the teacher seemed to be preoc-

cupied with handwriting, spelling, capitalization, and punctuation in the children's writing, to the neglect of discourse level concerns. Scholars (Derewianka, 1990; Hammond, 1990; Williams & Colomb, 1993) have suggested that in order to construct communicatively adequate and effective autonomous texts, children need to develop conscious understanding and appreciation of the unique characteristics of written discourse genres.

Finally, there was a general lack of opportunities in both classrooms for the children to experiment with writing diverse genres. This might have contributed to the predominance of the recount genre in the children's texts. Almost all writing assignments in class dealt with the retelling of the children's personal experience or were in response to storybooks shared (often recounts and narratives). The "show and tell" time in class offered one rare opportunity for the children to experiment with the description genre. In both literature-based and skills-based classrooms, there was "show and tell" time each morning when the children were encouraged either to relate a personal story or to tell the class something about an artifact (e.g., puppet, poster) they had brought to the class. This classroom experience could have accounted for the increase, albeit small, in the description genre during the school year.

Conclusion

The present study describes young children's developing understanding of written discourse in two different pedagogical contexts. Both quantitative and qualitative findings suggest the first graders were developing emergent understanding of the distinctive features of written discourse (i.e., autonomy, stability/predictability, unique grammar). The striking similarities in the children's written discourse knowledge between the literature-based and skills-based classrooms betray a pedagogical commonality (i.e., lack of explicit talk about textual features) that existed in the two otherwise very different instructional settings. While the children's understanding of the features of written discourse appeared to have developed mostly through "implicit learning" (Reber, 1993), the immaturity demonstrated in their texts suggests that, rather than passively waiting for children's natural development, proactive, explicit instruction on the schematic and lexicogrammatical features of diverse discourse genres, as well as on the stylistic differences between oral and written discourse in general, may enhance children's understanding of written discourse genres in particular and quicken their development of the literate potential in general.

The fact that some children in this and other studies (e.g., Cox, Fang, & Otto, 1997; Purcell-Gates, McIntyre, & Freppon, 1995) did acquire some of the linguistically and conceptually more sophisticated written discourse patterns suggest that this recommendation may not be altogether unfit for young children. Clearly, further research is needed to explore whether and how such an explicit pedagogy facilitates the development of communicative competence among young children from diverse backgrounds.

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Biography

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The Development of Phonological Awareness and Orthographic Processing in Reading Recovery

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Abstract

Success in Reading Recovery has traditionally been measured by text reading, concordant with its meaning-driven theoretical base. Yet Reading Recovery lessons include a considerable amount of attention to the visual or orthographic patterns in words and phonological awareness instruction as well. In this study, children in Reading Recovery were found to perform significantly better than a control group not only on Reading Recovery measures, but also on measures of phonological awareness. Children successfully discontinued from Reading Recovery were also found to perform as well as a group of average achieving first graders on a measure of orthographic processing. This suggests that Reading Recovery has effects beyond those ordinarily claimed.

Reading Recovery is a program intended to accelerate the progress of the lowest-achieving 20% of first-grade children so that they are able to perform as well as the average children in their classrooms (Klein, Kelly, & Pinnell, 1997). Reading Recovery has demonstrated impressive rates of success and a number of evaluations have supported the program's effectiveness (e.g., Center, Wheldall, Freeman, Outhred, & McNaught, 1995; Shanahan & Barr, 1995; Wasik & Slavin, 1993). For example, in their conservative analysis, Center et al. (1995) found that Reading Recovery was able to accelerate the reading progress of 35% of the children who would not, under other programs, reach the level of their successful peers. In addition, group programs that are based on similar theoretical perspectives have been successful in increasing children's reading achievement (e.g., Fountas & Pinnell, 1996; Hiebert, 1994; Taylor, Short, & Shearer, 1990).

Because Reading Recovery educators view the program as a meaning-oriented approach, and consider one of its major goals to be the improvement of students' ability to read and comprehend connected text, evaluations of Reading Recovery have stressed text reading as an outcome measure. However, there are aspects of

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the program that seem to be especially conducive to growth in other aspects of beginning reading, such as phonemic awareness and orthographic knowledge. Those studies that have used isolated word measures have found that Reading Recovery does seem to improve students' word identification. For example, Center et al. (1995) found that Reading Recovery students performed significantly better than a control group on measures of isolated word reading and word attack, but not on a measure of phoneme awareness (see Askew, Fountas, Lyons, Pinnell, & Schmitt, 1998, for review).

Although Reading Recovery teachers generally work within the context of reading and writing connected text, they also pay considerable attention to word and sub-word level information (e.g., letter, clusters) during lessons. In fact, Adams (1990) and J. S. Chall (personal communication, 1998) have both cited Reading Recovery as an exemplar of high quality phonics instruction. Attending to both spelling-sound relationships and phonological awareness is integral to the lesson framework.

How Orthographic Knowledge and Phonological Awareness Develop in Reading Recovery Instruction

The goal of Reading Recovery is for the child to develop a "self-extending" system in reading and writing (Clay, 1991; Clay, 1993b) so that he or she can function independently and benefit from classroom instruction. This self-extending system comprises strategies that enable the child to grow and learn from his or her own attempts to read and write. The successful child demonstrates reading behaviors that signal the underlying strategies used, including the integration of cueing systems, self-monitoring, and self-correction. Such strategy use involves the orchestration of orthographic knowledge (including phonological awareness) with semantic and syntactic knowledge to aid in word recognition.

The development of orthographic knowledge in both word recognition and spelling is well-documented. The basic tenet is that children move through a series of stages, becoming increasingly sophisticated at using letter-sound knowledge to identify words (Ehri, 1998; Stahl & Murray, 1998). As children learn to recognize words, they first recognize them holistically, as a single logograph. For example, children at this stage may recognize words such as 'look' through the two "eyes" in the middle or the word 'monkey' by its "tail." This is considered a pre-alphabetic stage (Ehri, 1995), since children are not using letters and sounds, but rather are using the visual representation of each word.

As children develop phonological awareness, they may begin to use some partial sound information in the word, such as an initial or final sound (see Stahl & Murray, 1998). Ehri called this stage *phonetic cue reading or partial alphabetic reading*. In this stage, a child might substitute a word that begins with the same letter, such as 'bird' for 'bear,' when reading words either in text or in lists. As children learn more words, phonetic cue reading becomes less efficient and children analyze the word more deeply.

In the *cipher* or *full alphabetic* phase (Ehri, 1995), children use all the letters and sounds to identify words. Children's reading may still appear labored as they

rely on sounding out the word (i.e., using a letter-to-sound analysis) or on other, less efficient strategies. At this stage, they are engaging in either this letter-to-sound analysis or in the use of analogies to identify the whole word.

Following this stage, children move to automatic word recognition, what Ehri calls the *consolidated* phase. It is within this stage that children seemingly are able to identify the word as a whole or through rapid recognition of chunks within the word. At this point, children are free to allocate all of their attention to comprehension, for word recognition has become fluent and transparent. With greater practice, children develop such automatic word recognition that they can concentrate fully on the meaning (Chall, 1996; Ehri, 1995).

Stahl and Murray (1998) suggest that children in the first stage lack rudimentary phonological awareness. To reach the second stage, children need to possess not only knowledge of the alphabet, but also the insight that words can be broken into onsets and rimes. Accordingly, the third stage depends on both more sophisticated phonological and orthographic insights. As children learn more about the spellings of words, they can use that knowledge to perform more sophisticated phonological tasks.

Reading Recovery lessons proceed in a manner consistent with the development of orthographic knowledge and phonological awareness. Three features of the lesson improve children's knowledge of words — the use of gradient texts, the use of Elkonin boxes in writing practice, and planned word analysis activities.

Gradient Texts

Students are immersed in easy-to-read books in which the orchestration of the reading process can take place at an appropriate level. The use of gradient, predictable materials provides for a gradual move from an excessive reliance on meaning (context) and structural (syntactic) cueing systems to an increased integration of visual (graphemic or letter-sound) cues.

Even children who have little knowledge of orthography have many language skills that enable them to read without phonological awareness or letter knowledge (Perfetti, Beck, Bell, & Hughes, 1987). In the beginning of a student's work in Reading Recovery, highly predictable books may be used to develop concepts of print. These would include directionality, word-to-word matching, and so on. As students gain greater control over print concepts, the teacher, in a supportive text reading environment, introduces books that are gradually less predictable. This requires that the children use increasing amounts of visual information to recognize words, thereby increasing their reliance on orthography as they progress through the program.

Children who have a self-extending system in reading and writing understand how words work and how they can use what they know to problem-solve difficult words they encounter (Clay, 1993b). To solve novel words one has developed "the cipher" — the analogical mechanism that has been internalized by the process called "cryptanalysis" (Ehri & Wilce, 1985; Gough & Juel, 1991). "Cryptanalytic intent" is the realization by the reader that there is a system to be mastered.

When the cipher has been discovered, children begin to see reading and words in a new way, although actual reading measurements may not register any

immediate change (Chall, 1983; Gough & Juel, 1991). Both Clay (1991) and Chall (1996) concur that a major breakthrough in reading occurs when a child can let go of excessive attachment to meaning and syntactic substitution and see reading as a problem solving process.

Phonological Awareness and Writing

Current theorists no longer believe that letter knowledge and phonological awareness cause reading success to proceed in a linear fashion. Recent research has uncovered a reciprocal causation (Adams, 1990; Clay, 1991; Juel, 1988; Perfetti et al., 1987; Stahl & Murray, 1998; Stanovich, 1986; Stanovich & West, 1989) between children's increasing phonological insights and their knowledge of the alphabetic system. Stahl and Murray (1998) suggest that a certain amount of phonological insight — the ability to segment an onset and a rime — combined with letter knowledge, leads to the insight that letters in words have relationships with speech sounds. This recognition is reflected in both children's initial reading attempts (Ehri, 1991) and their invented spellings (Bear & Barone, 1989). Children's ability to relate sounds and letters increases as they have opportunities both to analyze spoken words further and to tie them to elements of orthography.

In Reading Recovery, phonological awareness is developed largely through activities that support writing. When a child has reached an appropriate level of understanding, the child will be taught to analyze a word using a phonological awareness technique adapted from Elkonin (1973). The technique progresses through stages from simply saying a word slowly in order to hear the sounds, to writing the letters that represent the sounds. Teacher involvement gradually changes over time to allow for independence in processing at each stage.

Initially, to learn the task of analyzing a word into its component sounds, the teacher and the child articulate a word slowly. When the child can do this independently, the teacher helps him or her slide a marker into a box representing each phoneme. When the child can perform this task independently, the teacher selects a word from the child's dictated sentence for the purpose of helping him or her hear and record the sounds of that word. The teacher draws a series of boxes, one for each phoneme in the word. The child then slowly articulates the word, sliding a marker into a box as each phoneme is spoken, and then records the letter or letters that represent that sound. Essentially, this is a shift in the task from a phonological activity to a spelling strategy.

Gradually, the child eliminates the use of the marker and eventually does not require the boxes to hear and record the sounds.

The use of Elkonin boxes is based on a theory of mental process learning, which moves from the establishment of the task, to operating with objects, verbalizing the operation, and finally, operating mentally. Impressive experimental evidence supports the effectiveness of using Elkonin boxes (e.g., Ball & Blachman, 1991; DeFord, 1994; Elkonin, 1973). In DeFord's (1994) study relating writing and Reading Recovery student achievement, more frequent use of boxes for hearing sounds in words was consistently associated with well above average scores on tasks on *An Observation Survey of Early Literacy Achievement* (Clay, 1993).

Planned Word Analysis

Another feature of Reading Recovery lessons that influences the development of phonological awareness and orthographic knowledge is a teaching activity referred to as "making and breaking," a planned word analysis activity from the procedures intended to help children in "Linking Sound Sequence with Letter Sequence" (Clay, 1993b, p. 43). This activity was given greater emphasis in Reading Recovery lessons in Clay's revised book as a response "to recent research on phonological awareness, onset and rime, and analogy" (Clay, 1993b, p. 44).

During the "making and breaking" activity, the child uses magnetic letters to construct words and take words apart. These activities may include, but are not limited to, manipulations of onset and rimes. Stahl and Murray (1994, 1998) concluded that the ability to manipulate onsets and rimes within syllables relates strongly to reading progress, once an adequate level of letter recognition is achieved.

When teachers use gradient texts for reading, Elkonin boxes for hearing sounds in words, and "making and breaking" activities for linking sound sequence with letter sequence, the lesson's emphasis is on the *system*, or the *process*, not on an *item* (Clay, 1993b). When the teacher emphasizes the visual cueing system, it is used as one tool, or strategy, in an effort to help students understand text, rather than as an end in itself. It is this goal distinguishes Reading Recovery lessons from traditional phonics lessons.

Previous Research on Reading Recovery and Metalinguistic Development

Previous research evidence shows strong support for the effectiveness of Reading Recovery (Center et al., 1995; Clay, 1993b, Iversen & Tunmer, 1993; Wasik & Slavin, 1993). However, some of these studies had some methodological concerns about Reading Recovery-based research reports. One concern is Reading Recovery's research emphasis on discontinuants (Center et al., 1995; Iversen & Tunmer, 1993). These studies addressed an additional concern over the absence of a phonological recoding instrument in Reading Recovery assessments. Center et al. (1995) and Wasik and Slavin (1993) investigated limitations of the *An Observation Survey of Early Literacy Achievement* (Clay,1993a). It is the only battery of tests used to determine selection of children receiving and discontinuing from Reading Recovery service.

Children who are pre-tested, tutored in the Reading Recovery format, and then re-tested in the same format, may have an advantage over children not required to perform similar tasks on a daily basis. There may be a bias in favor of skills taught in low levels of text reading, where assessment tends to measure concepts about print and the utilization of syntax and context (Wasik & Slavin, 1993).

Based on these concerns, Center et al. (1995) included a more detailed testing procedure on first graders in Reading Recovery. The researchers found no marked pretest differences between students who could be successfully discontin-

ued and those who could not be, except in metalinguistic areas (phoneme awareness and phonological recoding). Center et al. suggest that children with poor metalinguistic skills are less likely to be successfully discontinued.

Hatcher, Hulme, and Ellis (1994) compared three individual intervention methods: phonological training, reading and phonology (based on a Reading Recovery model but incorporating 10 minutes of phonological activities) and a reading only intervention (similar to Reading Recovery). The reading and phonology group made the greatest progress in contextual reading achievement and comprehension. Although the phonological training group had the highest scores in phonological skills, they were unable to use the skills in contextual reading.

Iversen and Tunmer (1993) had similar positive results with greater attention to phonological processing within a Reading Recovery lesson. They modified a Reading Recovery lesson by adding daily activities specifically focused on word analysis. They found that students in the modified program discontinued with fewer lessons, but that there was no overall difference in the achievement of the two groups of students. Iversen and Tunmer theorized that the additional emphasis on the visual cueing system within their study caused a greater overall promotion of word analysis and less reliance on context. Results of a path analysis suggested that instruction and manipulation of phonograms promotes the development of orthographic processing, allowing children analyze words at a deeper level.

The aim of early reading instruction is to enable children to develop a self-extending system. This involves the development of orthographic processing, among other abilities. Both phonological processing abilities and exposure to print are prerequisites and facilitators of this aim (Clay, 1991; Cunningham, 1990; Perfetti et al., 1987; Stanovich, 1986). Reading Recovery has been effective in promoting reading success for "at-risk" first graders through the use of a metalevel instructional model (Clay, 1991; Clay, 1993b; Iversen & Tunmer, 1993; Wasik & Slavin, 1993). Despite the wide range of measures used to assess emergent reading in *An Observation Survey of Early Literacy Achievement* (Clay, 1993a), more refined measures of phonological processing may be needed to give an accurate portrayal of children's metalinguistic abilities (Iversen & Tunmer, 1993; Stahl & Murray, 1994; Yopp, 1988).

The purpose of this study was to use refined measures of phonological and orthographic processing in conjunction with *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) to determine whether techniques utilized in Reading Recovery lessons are effective in promoting progress in the metalinguistic areas of phonological awareness and phonological recoding.

Method

Participants

The participants in this study were first-grade students in a public elementary school in a small city in south Georgia. Students receiving Reading Recovery were the treatment group (n = 12). The control group (n = 19) was comprised of stu-

dents who qualified for Reading Recovery service, but who were not accepted into one of the available first-round slots (i.e., they were on a "waiting list" to be served) because of the selection criteria (i.e., serving the lowest children first).

Originally, there were five girls and seven boys in the Reading Recovery group. One of the girls moved at the end of her program, before testing could be completed. There were six girls and thirteen boys in the control group. All students were six or seven years old and were in first grade for the first time. The majority of the students came from middle to low socioeconomic families. The Reading Recovery group consisted of 64% African-American participants and 36% European-American participants. The control group included 63% African-American participants and 37% European-American participants.

All participants were "at-risk" students who were given *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) as part of the school Reading Recovery selection process. This selection process began at the end of the students' kindergarten year when the teachers ranked students in their classes from those needing the most help to those needing the least help in reading and writing activities. At the beginning of the next school year, first-grade teachers followed the same ranking procedure for their students. Based on a comparison and compilation of both sets of rankings, Reading Recovery teachers formulated a list of students who were achieving in the lowest 25% of the ranked lists (n = 31).

The six survey tasks were administered to those children by the three Reading Recovery teachers (including the first author). The children were then priority ranked based on the results of the survey and Reading Recovery teachers' observations of the students. In this particular county, the selection process for Reading Recovery gave weight to the results of the following survey subtests in descending order: Text Reading, Concepts About Print, Writing Vocabulary, Hearing Sounds in Words (Dictation Task), Ohio Word Test, and Letter Identification. The authors acknowledge this is a variance from the procedures recommended by Reading Recovery standards.

The 12 available Reading Recovery slots were filled by selecting the children with the lowest scores on the survey tasks. At this stage, students who were among the lowest-achieving group were placed on the "waiting list" only if their oral language was extremely developmentally delayed or if the student support team process recommendation for a long-term program was close to completion. (The authors acknowledge this is another variance from standards.)

Both Reading Recovery and control group students were from five first-grade classrooms receiving approximately two hours of language arts instruction daily. All of the classrooms incorporated instruction in literacy groups, which are designed to provide a small group setting where children can participate in literacy activities at their ability level. The control group did not receive any support beyond what was offered within their classroom. There was little consistency in methods of literacy instruction among the first-grade classrooms in this school.

Measures

Pretest and posttest scores were compared to determine achievement on two subtests of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a). The

subtests that were relevant to this study were Letter Identification and Hearing and Recording Sounds in Words (Dictation Task). In addition to Clay's instruments, the Yopp-Singer Test of Phoneme Segmentation (Yopp, 1988) was given a a more refined measure of phonological processing. In addition, a pseudoword reading measure developed for this study (see Appendix) was used to measure children's knowledge of orthographic patterns. By utilizing instruments not affiliated with Reading Recovery, we hoped to have measures in which the instructional format of Reading Recovery did not provide a treatment group advantage. Behaviors demonstrated on these tasks reflect children's phonological processing abilities as well as the early orthographic connections they are making.

The Letter Identification task is an assessment of letter recognition of the fifty-four capital and lower case letters, plus conventional print forms of a and g, arranged in a random manner. Children may identify the letters by name, sound, or by identifying a word that begins with the letter. Reliability measures were calculated in 1990 and yielded a Cronbach's alpha coefficient of .95. Concurrent validity was established in 1966 yielding a .85 correlation with the Word Reading subtest (Clay, 1993a).

The Hearing Sounds in Words task requires the child to record one or two dictated sentences. There are 37 possible points with one point scored for each correctly analyzed and recorded phoneme. Points are given if the child uses graphemes that may record the sound even if the spelling is not correct (e.g., 'koming' for 'coming'). Reliability measures were calculated in 1990 and yielded a Cronbach's alpha coefficient of .96. No validity information is available for this subtest (Clay, 1993a).

The Yopp-Singer Test of Phoneme Segmentation is used to measure each child's ability to hear and articulate sequentially the separate sounds of 22 words (Yopp, 1995). Reliability was calculated at .95 using Cronbach's alpha (Yopp, 1988). Construct validity was determined using a factor analysis (Yopp, 1988). Of the ten measures included in Yopp's (1988) study, it had the highest predictive validity with a reading task. Predictive validity based on a seven-year longitudinal study ranged from .58 to .74 (Yopp, 1995).

We had planned to determine the orthographic stage of word recognition achieved by the discontinued Reading Recovery students by gauging each child's ability to "pronounce" pseudowords. For the purpose of this study, pseudoword decoding was selected because prior research has found it to be the best measure of phonological recoding and one of the best indications of the development of "the cipher" (Gough & Tunmer, 1986). We designed this test (see Appendix) using a constant onset and twenty common rimes (Wylie & Durrell, 1970). The validity of the test was determined by jurying six reading specialists. Pilot testing was conducted among first-term second graders who had been discontinued from Reading Recovery the previous school year and average and above average first grade-readers during the current year.

Procedures

The total battery of six tasks from *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) was given as a pretest to all subjects by three trained

Reading Recovery teachers (including the researcher) during the first two weeks of the school year. The results of the Letter Identification task and the Hearing Sounds in Words task were used as measures of letter familiarity and phonological processing for the purposes of this study. The Yopp-Singer Test of Phoneme Segmentation (Yopp, 1995) was conducted by the researcher during weeks three and four before Reading Recovery lessons were started.

Based on the prioritized survey pretest results, four students were selected for treatment by each of the three Reading Recovery teachers (n = 12). Each member of the treatment group received a daily 30 minute, individualized, prescriptive, tutoring session according to the standard Reading Recovery lesson format (Clay, 1993b).

Posttest procedures occurred between week 12 through week 16 as explained below. In order to be discontinued from Reading Recovery mid-year in this district, children must be able (a) to read text level 10 with at least 90% accuracy and with evidence of a self-extending system, (b) to spell correctly 30 high-frequency words within 10 minutes, and (c) to demonstrate mastery of the Hearing Sounds in Words task (Clay, 1993a). Such criterion levels correspond to the class average in this particular school. Text Reading evaluations were conducted by a Reading Recovery teacher who had not been the child's Reading Recovery instructor. The other discontinuation measures were conducted by the child's Reading Recovery instructor.

Two students in this study were successfully discontinued from the program during week 12. Four students were discontinued during week 15. The student who moved during week 15 was being tested for discontinuation but moved before testing was concluded. Her results are not included in this study. The other five treatment group students were given the Letter Identification and Hearing Sounds in Words tasks (Clay, 1993a) as posttests during week 16 by their Reading Recovery instructor.

Letter Identification and Hearing Sounds in Words posttests (Clay, 1993a) were administered individually to all control group students by one of the three Reading Recovery teachers during weeks 14 to 16. The phoneme segmentation test was given individually to all participants by the first author during weeks 16 and 17. In addition, the first author conducted all pseudoword assessments at the time of discontinuation of individual Reading Recovery students.

Results and Discussion

Independent *t*-test analysis of the pretests did not find significant differences between the Reading Recovery and the control group students. Even though the differences were not statistically reliable, as seen in Table 1, the control group performed slightly better on all measures than the experimental group. Such a finding is consistent with the selection process of taking the lowest-achieving children into the program first. Recall that the greatest weight was given to the Text Reading, Concepts About Print, and Writing Vocabulary tests in the screening and selection process, with lesser weight given to the measures of interest in this study. Since little or no weight was given to the Letter Identification or Hearing

Sounds in Words tests in the screening process, we did not anticipate that the Reading Recovery group and control group would differ on these measures, nor on the Yopp-Singer measure.

Because the sample size was small, as might be expected in a study of Reading Recovery students, we examined the distribution of the data using Kolmogorov-Smirnov tests to determine the appropriateness of parametric statistical procedures. Of the six pretests and posttests, only the Letter Identification posttest differed significantly from a normal distribution, allowing the use of parametric statistical analysis. Children in both groups approached the ceiling in Letter Identification at posttest, leading to a significantly skewed distribution.

Means for pretests and posttests are shown on Table 1. Analysis of covariance was used to examine treatment effects. For each posttest, we used the corresponding pretest as a covariate. (The data met the assumptions of analysis of covariance.) For all three analyses, there was a significant treatment effect (Hearing Sounds in Words, $F(1,27) = 12.11$, $p < .002$; Yopp-Singer, $F(1, 27) = 6.72$, $p < .02$). Respective effect sizes (η^2) were .30 for Hearing Sounds in Words and .13 for the Yopp-Singer. The Wilcoxin Matched-Pairs Signed Ranks Test, a non-parametric test suitable for examining pretest-posttest differences, found significant gains in letter identification, $Z = -4.75$, $p < .001$.

In the following sections, we will discuss the findings relative to the focus of the study; that is, measures of phonological and orthographic processing, which were used to determine if Reading Recovery lessons are effective in promoting progress in the metalinguistic areas of phonological awareness and phonological recoding.

Phonological Processing

The results described above suggest strongly that Reading Recovery students gained in phonological processing, even without additional lesson components. Based on the results of this study, all students in Reading Recovery made significantly greater improvement in phonological processing tasks than students not yet served. The relative magnitude of the effects corresponds to the degree of similari-

Table 1. Means of Reading Recovery Group and Control Group on Pretest and Posttest Measures

Variable	Maximum Score	Reading Recovery M	Reading Recovery SD	Control Group M	Control Group SD
Letter Identification	54				
Pretest		33.36	11.34	41.21	10.43
Posttest		50.64	2.80	48.58	6.96
Dictation Task	37				
Pretest		5.36	5.26	8.42	6.35
Posttest		31.18	2.04	23.37	8.86
Phoneme Segmentation	22				
Pretest		5.73	6.13	6.26	5.06
Posttest		15.55	4.01	11.21	7.15

ty between Reading Recovery lessons and outcome measures. Dictation is stressed daily during Reading Recovery lessons, so one would expect that the effects from the treatment would be high on this measure. Letter identification is usually stressed only during the beginning lessons. There is explicit instruction in phoneme awareness only through the use of Elkonin boxes during the writing segment. This instruction is brief and of a different form than the Yopp-Singer tasks. Therefore, we expected the effect size to be lower for this measure.

This study supports the findings of Iversen and Tunmer (1993), namely that all "at-risk" students exhibited deficiencies in phonological processing abilities initially. Yopp (1988) reported average scores of 11.8 on her segmentation test when given to kindergarten students. The pretest mean of all first-grade participants in this study was 6.07. On posttest measures, students with high knowledge of orthography and correct spelling would frequently make the sounds of the letters that spelled the word instead of repeating the phonemes in the given word. This could indicate that phoneme segmentation abilities are reflective of a child's knowledge of how words work in reading and writing. However, a larger sample size would be required to demonstrate that this trend is generalizable to a larger population.

Pseudoword Reading

Students who were discontinued from Reading Recovery within the time frame of this study were given a pseudoword decoding test. To inform our work, we had previously conducted a pilot study of pseudoword reading that revealed differences in abilities in the areas of accuracy and automaticity among students in the different developmental stages defined in this study. Based on the pilot study, students reading at a second grade level (as measured by teacher observations) read the 20 pseudowords within three minutes and had accuracy rates of 90% and above (Gough & Juel, 1991). We judged these students to be reading at the consolidated processing stage.

Students (n = 8) reading at a first grade level (again, from teacher observation) had scores ranging from 20% to 80%. None of these students was able to read the word cards with automaticity. They scanned each word visually and with their fingers, deleted the initial consonant before saying the whole pseudoword (e.g.,"ump, zump"), made verbal analogies (e.g., "can, zan"), and when necessary used letter-by-letter decoding. These students were judged to be at the full alphabetic phase, according to Ehri's (1995) model described earlier.

These procedures took four to ten minutes to perform. Accuracy ranged from 30% to 80% and appeared to correlate negatively with the amount of time it took to attempt the 20 pseudowords.

In the current study, discontinued Reading Recovery students (n = 6) displayed a range of accuracy from 10% to 60%, slightly lower than that of the average first-grade reader but within the full alphabetic stage. Their attempts to associate the given letters of the pseudowords to the sounds were similar to those made by the children reading at the first grade level in the pilot study. This suggests that these discontinued students were using strategies similar to children in the alpha betic stage (Ehri, 1998), a stage reached by normally achieving first graders.

Students who were reading at the second grade instructional level appeared to have arrived at the consolidated phase based on the automaticity and accuracy of their responses. However, most children in the sixteenth week of first grade may not yet have had enough exposure to print and be fluent enough with words for orthographic processing to be fully developed (Adams, 1990; Chall, 1983). The average ability first-grade readers were still operating in various levels of the alphabetic stage. The children at the lowest level appeared to be engaging in tedious, letter-by-letter reading. Those in the level immediately preceding the automaticity of the orthographic stage appeared to be noticing the familiar rime and adding the onset, without verbalizing the analogy.

Limitations of the Study

There are several limitations to this study to consider. First, we used a small sample size. This study's lack of power is of concern only if we failed to reject a null hypothesis. The lack of power would increase the probability of a Type II error. But since all analyses produced statistically significant findings, this is not an issue. The fact that we found statistical significance with such a small sample size suggests that the effects are robust. Second, the students were evaluated by other Reading Recovery teachers in the same school, who were aware of these children from ongoing discussions. It is possible that these discussions may have biased the examiners. Because Reading Recovery teachers receive extensive training in coding running records, it is unlikely that any other group of individuals would be as reliable in administering or coding. However, it would have been preferable to tape record the final evaluations and have them checked by a neutral party. Third, some Reading Recovery teachers may have given different emphasis to the activities discussed earlier in this paper, in spite of the extensive training designed to create uniformity of instruction. These results may not generalize to other Reading Recovery teachers.

Finally, we should have administered the pseudoword measure to both groups. As a result, we cannot conclude that Reading Recovery instruction produces better word recognition skills than a control intervention would have. However, the results do support the idea that many discontinuants reach the alphabetic phase of word recognition, and process words in ways similar to average first graders. This is useful information.

Concluding Remarks

Reading Recovery is intended to be a supplemental program, given only to children who have difficulties in learning to read. To improve the reading instruction of all children in first grade, students need high quality classroom reading instruction, with programs such as Reading Recovery available for children who do not yet benefit from that instruction.

Although Clay based Reading Recovery on her theory of reading development, we have found that the instruction and the growth of children is consonant with other models of reading development, notably Ehri's (1995) model.

Although Ehri's model concentrates on word recognition, rather than reading in general, Reading Recovery lessons seem to have a positive effect on both aspects of reading.

Adams (1990) cites Reading Recovery as an example of a quality beginning reading program, showing a balance between text reading and explicit instruction in decoding, aspects not claimed by advocates (e.g., Clay, 1993b; Klein et al., 1997). Gains achieved by Reading Recovery students on phonological processing tasks in this study provide strong support for the program's effectiveness in promoting these abilities. The inclusion of all Reading Recovery participants and the utilization of measures other than Clay's *Observation Survey of Early Literacy Achievement* (1993a) should dispel some of the methodological concerns stated in other reports (Center et al., 1995; Wasik & Slavin, 1993). This study also reinforced the value of pseudowords as a measure of recoding abilities and as an aid in determining a student's developmental reading stage.

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Appendix

Pseudoword Learning Test

Child's Name _____

Date _____

zack	zain	zake	zale	zall
zame	zan	zank	zap	zash
zat	zate	zaw	zay	zeat
zell	zest	zice	zick	zide
zight	zill	zin	zine	zing
zink	zip	zit	zock	zoke
zop	zot	zore	zuck	zug
zump	zunk			

Early Writing: An Exploration of Literacy Opportunities

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Abstract

Early writing experiences provide children with instances in which they may learn the processes and concepts involved in getting meaningful messages into print. This study examined the opportunities low-progress first-grade children had in learning to use strategies while writing a brief message in daily interaction with a Reading Recovery teacher. Specifically, three strategies for writing words were investigated: (a) writing known words, (b) analyzing new words by hearing and recording sounds in words, and (c) analyzing new words through analogy with known words. Eighty-two Reading Recovery children from eight states were the subjects for this study. Data were collected from the children's writing books, writing vocabulary charts, records of text reading, and the teachers' daily lesson records. Analyses demonstrated that low-progress children acquire a considerable amount of knowledge about words, about letters/letter clusters and their sounds, and about the orthography of the language in a relatively short period of time. Limitations and implications of this study are discussed.

> **Writing involves a complex series of actions. Children have to think of a message and hold it in the mind. Then they have to think of the first word and how to start it, remember each letter form and its features, and manually reproduce the word letter by letter. Having written that first word (or an approximation), the child must go back to the whole message, retrieve it, and think of the next word. Through writing, children are manipulating and using symbols, and in the process learning how written language works. (Fountas & Pinnell, 1996, p. 14-15)**

Few would challenge the importance of writing in early literacy development (Clay, 1975, 1982, 1991, 1993, 1998; Dyson, 1982, 1984; Ferreiro & Teberosky, 1982; Harste, Woodward, & Burke, 1984; Read, 1986; Teale & Sulzby, 1986; Treiman, 1993). The reciprocity between reading and writing is also acknowledged in the literature (Clay, 1982, 1998; DeFord, 1994; Irwin & Doyle, 1992;

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Morrow, 1997; Shanahan & Lomax, 1986; Teale & Sulzby, 1986; Tierney & Pearson, 1983; Tierney & Shanahan, 1991).

Young children approach the task of writing a message with communicative intent. The central process that underlies all aspects of writing is meaning. Yet to communicate a message requires development in the conventions of writing (Hiebert & Raphael, 1998). Children already compose messages in conversation. Teachers, then, can help children to compose and write stories by going from ideas to spoken words to printed messages (Clay, 1998).

While the essence of writing is the construction of meaningful messages, in early writing experiences children also learn a host of things about the processes and concepts involved in getting these messages on paper. For example, the daily writing of a story produces a wealth of opportunities to explore the printed form of the written language. Gibson and Levin (1975) listed eight graphic or design characteristics of writing. These design characteristics describe what children learn about the graphic display of the spoken language:

1. Language is formed by tracings on a surface.
2. Writing is rectilinear.
3. Writing is unidirectional.
4. Writing has a fixed orientation.
5. Writing is patterned.
6. Writing has gaps (or spaces) in the graphic display.
7. Written units are roughly equal in size.
8. Writing has various forms that are not usually mixed.

(pp. 165-167)

Through their daily writing experiences, children not only have frequent opportunities to explore these design characteristics of our written language, they also are required to engage in many complex processes related to print. For example, Clay (1998) asserts that while creating a story in print, a child must do some of the following:

- attend closely to the features of letters
- learn about letters, distinguishing one from another
- access this letter knowledge in several different ways
- work with letter clusters, as sequences or chunks
- work with words, constructing them from letters, letter clusters, or patterns
- work with syntactic knowledge of what is likely to occur in the language and what does not happen
- use their knowledge of the world to compose the message and anticipate upcoming content
- direct attention to page placement of text, directional rules, serial order, and spaces
- work with some sense of the sequence rules and probability status of any part of the print
- break down the task to its smallest segments while at the same time synthesizing them into words and sentences (pp. 130-131)

Within the task of writing continuous text, children have opportunities to learn about the many concepts that dictate the way in which language is written down (i.e., conventions of print). Children use a variety of strategies as they produce written texts, and three strategies for writing words are the focus for this study: (a) writing known words, (b) analyzing new words by hearing and recording sounds in words (phonology and orthography), and (c) analyzing new words through analogy with known words (Bissex, 1980; Clay & Watson, 1982; Ehri, 1979; Elkonin, 1973; Goswami, 1986; Goswami & Bryant, 1990; Henderson, 1982; Henderson, 1986; Juel, Griffith, & Gough, 1986; Read, 1971, 1975, 1986; Teale & Sulzby, 1986; Treiman, 1993). Reading Recovery teachers engage first-grade children in opportunities to gain control of these three strategies for writing words in daily writing interactions as part of this early intervention literacy program.

The purpose of this study was to explore the opportunities low-progress first graders have for learning to use these strategies while writing a brief message in a daily interaction with a teacher, in this case a Reading Recovery teacher. The following questions guided the study:

- What opportunities for acquiring and using a writing vocabulary of known words are evident in the writing activities of low-progress first-graders in a Reading Recovery setting?
- What opportunities for learning about and using phonological and orthographic principles are evident in the writing samples of low-progress first graders in a Reading Recovery setting?

Writing in Reading Recovery

Reading Recovery (Clay, 1991, 1993) is an early intervention program for first-graders, delivered by one teacher to one child, that provides a cognitive apprenticeship setting for children who are the lowest performing in their classrooms on literacy tasks. In each Reading Recovery lesson, following a brief conversation with the teacher, the child constructs a short story, usually one or two sentences, based on personal experience or on a book recently read. The writing of the child's orally composed messages is initially shared by the teacher and child. The child writes all that he or she can independently, but the teacher provides assistance as needed until the child takes more control of the task and little teacher help is required.

An unlined book is used for writing these stories. The child's story is written on the bottom page while the top page has working space for problem-solving with the teacher's guidance. The work space is used for the child to engage in strategic processing behaviors such as hearing and recording sounds in words, rehearsing known and almost known frequently used words, and attending to possible analogous relationships.

In Reading Recovery lessons, the interactive framework is a process of scaffolded learning (Clay & Cazden, 1990; Hobsbaum, Peters, & Sylva, 1996). During the writing portion of the lesson, the teacher provides enough support to help the child accomplish tasks that will lead to new learning. The teacher structures the

situations so that the child grows into increasingly more complex actions and becomes independent in using these actions in future situations. The highly scaffolded interactions in Reading Recovery, then, help to facilitate a child's learning of 'how to learn' in new settings (Lyons, Pinnell, & DeFord, 1993).

The data presented in this study were gleaned from Reading Recovery lessons because this setting allowed for examination of daily writing samples across a series of lessons. The study is not about Reading Recovery itself, but rather about opportunities for young children to learn about printed language during a brief daily interaction with a teacher. Implications for classrooms follow from the impact of engaging young children in the written construction of the language. Following are explanations of the three strategies comprising the focus of this study: writing known words, hearing and recording sounds in words, and analyzing new words through analogy.

Writing Known Words

Children need to know that sometimes you simply have to know how to write or spell a particular word. There are at least two important reasons for children to acquire a core of words that they know how to write in every detail.

First, as the frequently used words of the language become known, they require less attention and free the writer to attend to other challenges of producing written text. Learning to write frequently used words fluently "helps the child to practise producing the sequence of letters needed for that word and to do this with a minimum of attention. . . like having a little movement programme for producing that word" (Clay, 1993, p. 30). Furthermore, children seem to make sense of the hierarchical relationship of letters to words as they begin to acquire a writing vocabulary.

The frequency principle which applies to all features of all languages must influence opportunities to learn in both reading and writing (Clay, 1998; Clay & Watson, 1982; Gibson & Levin,1975; Treiman, 1992). Frequency "usually ensures repeated exposure and thus repeated encounters.... Usage continues to be confirmed until mastered, or known in every respect, or until the response is (almost) automatic. Such (almost) automatic learning supports and provides context for new learning" (Clay, 1998, p. 154).

Wilde (1989) argued that beginning at a relative early age, ownership (such as writing words without having to stop and think about them) is probably the most common spelling strategy. She suggested that this spelling strategy involves knowing how to spell a word and knowing that one knows.

The second reason for acquiring a writing vocabulary is that known words can be used to analyze new words through analogy. Children can see similarities in words, and the "ways words work" become more obvious as children construct words in writing (Clay, 1991; 1993). The importance of analogy is discussed later in this section.

In Reading Recovery, teacher assistance for building a writing vocabulary involves opportunities for children to practice writing newly acquired frequently-used words fast, fluently, and flexibly. Additional opportunities over several days bring the word to a point of writing it with a minimum of attention. The teacher

then expects the child to initiate the writing of known words in stories independently. The learner not only comes to control more and more high-frequency words, but also shifts from laborious writing of those known words to fluent production (Clay, 1993).

Hearing and Recording the Sounds in Words

Writing is more potent than reading in forcing children to come to grips with the alphabetic principle (Treiman, 1993). Goswami and Bryant (1990) concluded that although it is difficult to find a connection between phonological awareness and children's reading, there is a strong connection between phonological awareness and children's spelling in writing. They argued that there is abundant evidence that children depend on a phonological code when they are working out how to spell words. Ferreiro and Teberosky (1982) and Harste, Woodward, and Burke (1984) have also shown that writing provides opportunities for children to develop their understandings about how the sounds of language are mapped onto written letters. Treiman (1993) offered support for writing's contribution to sound-letter relationships:

> **For first graders, the many benefits of independent writing outweigh the costs. Writing requires children to think about the sounds and meanings of spoken words, to observe the characteristics of printed words, and to form hypotheses about the relations between sounds and letters. All of these activities are of great value in helping children grasp the alphabetic nature of the English writing system. (p. 289)**

When writing new words, a useful strategy is to say the word slowly, hearing its sound sequence and attempting to record the appropriate letters for the sounds. Elkonin (1973) wrote that "...it is very important to use a method from the beginning that will provide the child with a correct orientation to the role of the sounds in language and acquaint him with the correct sound form and structure of words" (p. 556). He defined sound analysis as " ...the operation of arranging the succession of sounds in a spoken word. In the process of accomplishing such an operation, the child discovers the basic principle of constructing the sound form of words" (p. 559).

Clay (1977) called for a close look at Elkonin's goals. "He uses the word's sound form. He says that sound analysis is **the operation of arranging the succession of sounds in a spoken word.** This is not the same as determining the separate sounds contained in a word" (p. 11). Sounds of a word are altered by surrounding sounds and have different qualities from the same sounds spoken in isolation. The "attributes of each phoneme spill over into that which precedes and that which follows" (Adams, 1990, p. 69). In speech, information about two or more successive phoneme segments is carried on the same piece of sound (Liberman, 1974).

Goswami and Bryant (1990) suggested that "phonological awareness" is a blanket term, representing different ways in which words and syllables can be divided into smaller units of sound. They cited syllables, phonemes, and intra-syllabic units such as onset and rime as types of phonological awareness.

Early Writing Opportunities

Writing supports phonological awareness, but it also forces children to experiment with the orthography of the language. In addition to learning the graphemic representations of sounds, children learn to cope with English irregularities, the morphological basis of the English writing system, the use of digraphs, and the consonant clusters in the spoken language (Treiman, 1993). Both the phonology and the orthography of English are related to constructing written text from the beginning of writing experiences.

Gibson and Levin (1975) suggested that in writing, orthographic rules govern what sequence of letters and groups of letters may be put together to form words. They reported that in English orthography, there are two separable issues that are often confused: the orthographic rule system (legal letter sequences) and the relationships between these written sequences and the spoken language. The early English writing system abandoned regular letter/sound correspondences to reflect linguistic functions such as word origins, inflectional and morphological units, and differences in word meanings.

Because English has only 26 letters that map on to more than 36 phonemes, the orthographic cipher of English is very complex (Gough, Juel, & Griffith, 1992). Byrne (1992) described the orthographic stage of reading as reached "when the child uses letter groups to identify words, ideally by correspondence to morphemic units, and when the route from print to the lexicon is not necessarily via phonology" (p. 5). Similarly, Gentry (1977) argued that English orthography is a complex, abstract system representing deeper levels of language than the surface sound continuum.

It appears impossible to separate the phonology and the orthography of the language for young readers and writers. Orthographic classification schemes are not sufficient to explain first graders' spellings; Treiman (1993) suggested that it is also important to consider the words' sounds:

> **Even first graders seem to have a fairly sophisticated knowledge of the relations between phonemes and graphemes in English. They know that many phonemes have more than one possible spelling. They know that some spellings of a particular phoneme are more common than others. Moreover, children know that the spelling of a phoneme may depend on the phoneme's context. (p. 279)**

In Reading Recovery, teacher assistance for hearing and recording sounds in words is based on an adaptation of Elkonin's (1973) work. Elkonin suggested a five-step teaching sequence based on Russian pedagogy: establishing the concept of the task; mastering the operation with objects; mastering the operation at the level of overt speech; mastering the operation with objects; transferring the operation to the mental level; and operating entirely at the mental level. Clay's (1993) procedures for hearing and recording sounds in words are modified from Elkonin, with the sequence determined by finding the problem and searching for a solution. Procedural choices include articulating and, if necessary, using a mirror in order to hear the sounds; using boxes for each sound to be written; attending to spelling using boxes for letters; and working without boxes.

Analyzing New Words Through Analogy

In addition to an awareness of the phonology of the spoken language and the orthography that controls the written form, children also need to understand that they can use their knowledge about phonology and orthography to get to new words by analogy (Bruck & Treiman, 1992; Ehri & Robbins, 1992; Goswami & Bryant, 1990). While some children tend to use analogy easily in writing, others seem to benefit from explicit attention to phonological and orthographic links.

"As the core of known words builds in writing, and the high-frequency words become known, these provide a series from which other words can be composed taking familiar bits from known words and getting to new words by analogy" (Clay, 1991, p. 244). In addition, she said:

> **Knowing forty to fifty words will cover almost all the letters, many high frequency words, many common-letter clusters, and some orthographic or spelling patterns useful for getting to other words by analogy, in either reading or writing. This small writing vocabulary plays host to almost all letter knowledge and quite a variety of the letter-cluster knowledge. The words can be constructed or remembered, or taken apart and used in analogies. (Clay, 1998, p. 149)**

Children can use their known words to solve new words. For example, the known word *sock* can be used to analyze new words such as *block*, and the known word *and* can be used to analyze new words such as *landed*. The knowledge of the word *going* may help children in analyzing other words that end with *ing*.

When children understand that words that have sounds in common also frequently share spelling sequences as well, they have a powerful way to figure out how to read and write new words. "They can use the spelling pattern in one word to work out the sound of another word with the same spelling sequence, and to decide how to spell a word which rhymes with a word that they know how to spell already" (Goswami & Bryant, 1990, p. 78).

Although some may argue that analogy is a sophisticated strategy used by older children, Goswami and Bryant (1992) suggested that younger children "may be perfectly capable of using analogies in reading if they know the words on which analogies are meant to be based" (p. 57). Baron (1977) suggested that analogy is a strategy used naturally even by kindergartners. It is a general cognitive strategy used by young children in much categorizing behavior.

A study by Ehri and Robbins (1992) supported Goswami's (1986) claim that reading unfamiliar words by making analogies to known words is easier for beginners than reading unfamiliar words by phonologically recoding the words. However, their findings also indicated that in order for beginners to read words by analogy, they must have phonological recoding skills. The acquisition of the orthographic cipher gives children the ability to generate spellings — when they have been seen the word before and when they have not.

Reading Recovery teachers assist children in generating from what they know to what is new. They point out similarities in words and letter sequences as children construct words in written text. They make explicit links to phonological and orthographic knowledge that the child already controls. Observed changes across time generally reveal that children first use what they know in response to

the teacher's prompt; then they see relationships between something they need t write and something they know; finally they initiate the use of what they know about letters and words to get to a new word (Clay, 1993). Selected recorded examples of links made by a teacher or child during Reading Recovery writing lessons are shown in Table 1.

Teachers also explicitly demonstrate that there are alternative ways of gettin to new words by providing children with many opportunities to apply alternative flexibly. These opportunities include problem-solving new words through sound analysis and through multiple experiences with the use of analogy in applying orthographic features and patterns. Adams (1990) commended the Reading Recovery program for explicitly recognizing the importance of phonological and linguistic awareness.

In summary, in the writing of continuous text, children have opportunities tc engage in these strategies (writing known words, hearing and recording sounds in words, and analyzing new words through analogy) and it was the purpose of this study to explore them.

Method

Subjects

Children served in Reading Recovery are first graders who are identified as the lowest achieving in the class on literacy measures. They work with a specially trained teacher in a one-to-one setting for 30 minutes daily in reading and writing texts. The goal of this short-term early intervention is to enable these children to use reading and writing strategies effectively and independently so that they can function successfully in average settings within the regular classroom.

Subjects for this study were 82 Reading Recovery children from eight states (Arizona, Illinois, Louisiana, Massachusetts, Nebraska, Ohio, Texas, and West

Table 1. Selected Examples of Links Made During Writing in Reading Recovery Lessons

Lesson Number	Word to Be Written	Links to Known
3	dog	Teacher linked beginning to known word dad. "It starts like dad."
	my	Teacher linked beginning to known word mom. "It starts like mom."
18	spooky	Teacher linked to known word too.
20	carnival	Child wrote known word car then moved on to analyze the rest.
21	win	Teacher linked to known word in.
25	farm	Teacher asked, "What do you know that starts like that?" Child wrote far then added the m.
26	flying	Teacher linked known word my to get to fly.
27	his	Child linked known word is to get to his.
29	candy	Child linked to known word can and teacher linked to baby.
43	stay	After writing stay, child says, "Look, it's like day and play!"

Virginia). Of the 82 children, 56 were male and 26 were female. Forty-one children were Anglo, 19 were African-American, 6 were Hispanic, and two were Asian. No ethnicity was recorded for 14 children.

The Reading Recovery teachers of these children represented 37 different training sites and had a wide range of experience in the program: 18 were in their training year, 36 had one to three years of experience, and 21 had more than three years in Reading Recovery.

Data Sources

Major sources of data included each child's writing book, writing vocabulary chart, record of text reading, and the teacher's daily lesson record. A Reading Recovery child's writing book includes the stories written daily as well as all work completed on a practice page, indicating how the teacher supported the writing. Daily lesson records include information about teacher decisions during the writing portion of the lesson and about the child's contributions to the production of the text. The writing vocabulary chart is a weekly record of each child's known writing vocabulary as it is acquired across the program. The record of text reading level is a weekly account of the texts that were read, including accuracy and self-correction indicators. These records are routinely completed by Reading Recovery teachers during daily lessons or weekly charting of progress.

Procedures and Analyses

All Reading Recovery observational records for 100 Reading Recovery children were collected from across 8 states representing 37 districts/sites. Training sites were asked to send complete folders for children who began Reading Recovery service at the beginning of their first-grade school year and who successfully completed the program. These two criteria were established in order to maintain a common standard for describing the sample population: children who began first grade among the lowest in a class cohort and whose accelerated progress returned them to an average setting in their classrooms. Complete records were available for 82 children.

In order to limit redundancy, procedures and analyses are described concurrently with specific findings in the following section.

Findings

Writing Vocabulary

Three interesting findings emerged from the analysis of children's writing vocabulary opportunities and were related to frequency, change over time, and the relationship between words children were writing and those appearing in books they were reading.

First, all of the words used in all daily stories written by 82 children were listed and analyzed for frequency distribution. There was no natural break in the frequency ranking, so an arbitrary decision was made to consider 24 words for further analysis as the most frequently written words. There was a dramatic range in fre-

quencies across these 24 words — from 1944 occurrences for the most frequently written word *I* to 167 for the word *you*. There were 10 words that appeared 300 or more times and 14 words that appeared between 167 and 299 times. Collectively, these 24 high frequency words alone afforded children multiple opportunities to write all of the vowels (*a*, *e*, *i*, *o*, *u*, and *y*) and the following consonants: *c*, *d*, *f*, *g*, *h*, *k*, *l*, *m*, *n*, *r*, *s*, *t*, *w*, *y*.

Of the 82 children, most demonstrated that they could write their own names in every detail before beginning the Reading Recovery intervention. This high frequency word of a very personal nature offered the child unique opportunities for exploring features of printed language. Names frequently introduce orthographic challenges as illustrated by some of the subjects' names in the study: Kimberly, Joshua, Patrick, Ashley, Jonathan, Heather, Anthony, Natasha, Andrew, Shataqua, Shawn, Nicole, and Christopher.

Children demonstrated different profiles in their personal "control" of these frequently written words, as shown by the patterns of 2 children in Table 2. Frequently written words from the aggregated data are shown in bold. The placement of a word in the "weeks" columns indicates *when* that child first demonstrated knowledge of that word by writing it independently and accurately. Each child demonstrated control of most of the 24 identified high frequency writing words as well as a unique set of known words emanating from the child's messages.

In addition to an aggregated list of 24 frequently written words, children acquired many other words that they could produce in every detail. Additionally, many more words were written with a minimum of teacher assistance. In a timed testing situation at the end of their programs, children also wrote many words not previously used in their Reading Recovery stories in every detail.

Secondly, to determine change across time in children's use of known writing vocabulary words, the researchers calculated the number of words contributed by the child, without teacher interaction or assistance, to the writing of the story at five points in time: at the beginning of their program and at four equal intervals until the end of program. Children were contributing fewer than 30 percent of the words independently and accurately at the beginning of their programs and more than 70 percent at the end. This finding is impressive when it is noted that sentence length, language, and complexity also increased across time as shown in Table 3.

Clear changes were evident in the writing vocabulary controlled by individual children between the time of entry to program and the time of discontinuing from program. Table 4 includes one child's writing vocabulary that serves to illustrate this point. This child acquired a wide variety of known writing words to serve in making analogies and in linking to known words and features of words.

"Known" words, as sources of information, became *opportunities* for a child to solve new words through analogy, beginning with teacher support and shifting to child initiation of the links needed to go from known words to new ones. For example, the child represented in Table 4 controlled the word *like* early in his program, providing an *opportunity* for him to use this known word to get to new words such as *bike* in week nine. Later in the child's program, he had the opportunity to discover exception words with the silent 'e' ending such as *give* and *have*.

Table 2. The Order in Which Additions to Writing Vocabulary Were Demonstrated by Two Children

CHILD #1	Weeks in Program																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Angelo	to	in	dog	eat	it	down	and	Cook	love	stop	big	cartoons	sun	six	tree	book	love
cat	go	my	book		got	red		egg	bird	feel	gun	TV	not	fix	but	bag	she
mom	I	up	can		on	the		bike	cut	off	you		they	had	took	bus	hop
like	a		zoo		hat				he	we	give		did		bath	yes	ride
			see						pig	ten			today			Anthony	tooth
			do						is	into			bed			play	ball
			so							at			day			plays	bat
																	good
																	have
																	pup

CHILD #2	Weeks in Program																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Ryan	Kyle	I	in	got	we	He	his	sun	that	frog	river	with	room	pine			
		a	is	to	mom	The	log	do	going	Sam	mad	like	bed	wood			
		cat		hot	he	It	dog	doing	sat		frogs	under	box				
		go			at	Up	am		us		did	came	for				
							and		had		did	came	for				
							my		can		home	this	silver				
									cook		last	outside	bike				
									just			that	him				
												cold					
												toy					
												present					
												plant					
												ice					
												went					

Table 3. Sample Stories from One Child During First Quartile and Fourth Quartile of the Reading Recovery Program

First Quartile	• I like the panda bear. • I put up a toy train. • A turtle can swim. • Dad was at work all night.
Fourth Quartile	• The giant roared at the people to get some food. The giant was going to hit the people with his bommyknocker. • The little critter didn't want to clean his room but he did. • What has an eye but can't see? What goes up when the rain comes down? • It's my brother's birthday today and a lot of people will come.

Table 4. Changes in Control of Writing Vocabulary for One Child Across Time

Entry	End of Program			
Words written correctly before entry into Reading Recovery: Writing Vocabulary Test	Words written correctly and independently during brief daily writing experiences across Reading Recovery lessons			
a	about	did	like	thing
go	Alex	digging	look	this
lan	all	do	man	to
me	am	door	mess	Travis
mom	and	eat	milk	tree
no	are	eye	Mr.	two
on	as	fall	Mrs.	turning
	ask	fast	my	uncle
	at	fire	not	until
	ate	for	of	up
	be	fun	off	us
	bee	funny	old	wash
	bell	get	one	we
	big	going	or	Wesley
	boo	good	pan	wet
	book	got	people	what
	boy	gramma	pig	will
	but	he	red	win
	by	here	sad	wind
	can	hi	see	with
	can't	him	she	wonder
	car	horse	so	work
	come	I	ten	yes
	cow	I'll	the	yesterday
	cut	is	them	you
	dad	it	then	your
	date	joy	they	zoo
				zoom

And finally, although the main goal of this study was the exploration of writing, a comparison was made between words appearing frequently in children's writing and words frequently used in texts these children were reading. The identification of high frequency words in reading was accomplished by analyzing reading texts used by 20 randomly selected children. Weekly records of text reading were used to select the texts. One book per week was analyzed. All of the words from all of the texts were analyzed for frequency of occurrence.

Of the 24 most frequently occurring words in reading texts and the 24 most frequently occurring words in the children's writing, 15 words appeared on both lists. The words children wrote were often of a personal nature, including ones such as *I*, *my*, *me*, *we*, and *mom*, along with verbs accompanying personal actions such as *like*, *got*, *went*, *can*, *was*, *said*, and *going*. High frequency reading words not appearing on the writing list included pronouns such as *he*, *they*, *and she*, and story-specific words such as *little*, and *old*.

Evidence of Opportunities to Explore Phonological and Orthographic Principles

Children's writing books, teachers' lesson records, and writing vocabulary charts were used to explore linguistic opportunities in the writing samples. The first analysis involved an examination of all words that children had an *opportunity* to write (the total corpus of words used) for linguistic features including initial consonants, initial consonant blends, consonant clusters, vowel combinations, rimes, inflectional and derivational endings, etc.

Three explanations are needed. First, no one child experienced all of the opportunities described; data were aggregated across all subjects. However, the aggregated data indicate the breadth of possibilities. Second, because all stories were comprised of words children *wanted* to write, there was no predetermined sequence. Opportunities were possible because no control was placed on what the children could explore while recording their messages. Third, all of the stories were written with the support of a teacher who was able to provide scaffolds for the child to learn about a multitude of conventions of written messages.

Analyses of opportunities revealed multiple exposures to consonants. For example, the letter *m* appeared in the children's writing an average of 27 times per hild in the initial position alone. As shown in Table 4, the child had *known* words to serve as exemplars for most initial consonants (all consonants except *k*, *q*, *v*, and *x*).

Collectively, children's writing showed opportunities to write more than 25 different initial consonant blends, as well as numerous consonant digraphs and clusters (see Table 5). Children used at least 25 different vowel combinations in their writing, representing multiple sounds (see Table 6). Most inflectional endings were represented, as well as more than 25 different morphological derivational endings (see Table 7). More than 200 different rimes were represented in the combined writing samples of these low-progress children. In addition, writing samples included abbreviations, compound words, contractions, possessives, silent letters (e, b, k, gh, etc.), and more than 4,764 multi-syllable words.

Early Writing Opportunities

As with the acquisition of a writing vocabulary, opportunities for acquiring linguistic understandings differed among individual children. Unique individual profiles revealed no sequence for acquisition of patterns across all children. Each had laid a personal foundation for more understanding of linguistic features. Opportunities provided by this simple teaching interaction were rich, as shown in

Table 5. Consonant Blends, Digraphs, and Clusters Represented in Children's Writing

Initial Consonant Blends				Consonant Digraphs and Clusters (Initial and Final)		
bl	gl	sk	squ	ch (chick)	ph (f)	th (hard)
br	gr	sl	st	chr (Chris)	ng	th (soft)
cl	pl	sm	str	ck	qu	thr
cr	pr	sn	sw	gh (ghost)	sh	wh
dl	sc	sp	tr	gh (silent)	ch	
fl	scr	spr	tw	ght		
fr				(double consonants as *ss*, *ll*, etc.)		

N = 82

Table 6. Vowel Combinations Represented in Children's Writing

ai	ei	oo (book)	ow (brown)
ar	eigh	oo (door)	ow (grow)
au	er	oo (food)	oy
aw	ew	or (motor)	ue
ay	ey (alley)	or (for)	ui (build)
ea (bear)	ey (Breyers)	ou (could)	ui (juice)
ea (ear)	ey (they)	ou (country)	ur
ea (earth)	ie	ou (coupon)	
ea (spread)	ir	ou (course)	
eau (beauty)	oa	ou (house)	
ee	oi	ou (ought)	

N = 82

Table 7. Endings Represented in Children's Writing

Inflectional Morphemes			Derivational Morphemes			
-d	ed,	ied	-able	-ence	-ful	-ly
-ing			-al	-ent	-ible	-ment
-s,	-es,	-ies (third person singular verb)	-ate	-er	-ie	-or
			-ator	-ery	-ier	-ous
-s,	-es	,-ies (plural)	-el	-ess	-ious	-tion
			-en	-est	-le	-y

N = 82

Figure 1 which illustrates two examples of one child's opportunities to explore linguistic aspects of the language.

In example one, the child was working in sound boxes (one box for each sound). Teaching interactions provided the child opportunities to explore sounds and the letter(s) representing those sounds. Particular opportunities to explore sound analysis are shown in the sound boxes on the practice page: *ow* in the word *down*, *sh* in the word *shot*, and *er* in the word *Joker*.

In example two, the child was working in letter boxes (one box for each letter). This framework assisted the child to attend to the mismatch between the sounds of the language and the way in which we spell words. In this single writing episode, the child had an opportunity to deal with spelling patterns in *tooth* (*oo* and *th*), *ee* in *sleep*, *wh* in *when*, and the silent *e* in *gave*. In addition, the child had to attend to the double letter in *dollar* in writing his story.

A final analysis focused on changes in children's independent use of letter-sound relationships in their writing. There was evidence of increased control of phoneme-grapheme correspondence within continuous text across time. At the beginning of the intervention, 38% of the phonemes in the children's stories were represented by the correct grapheme without teacher assistance. By the end of the intervention, more than 80% of the phonemes were correctly and independently represented by the children.

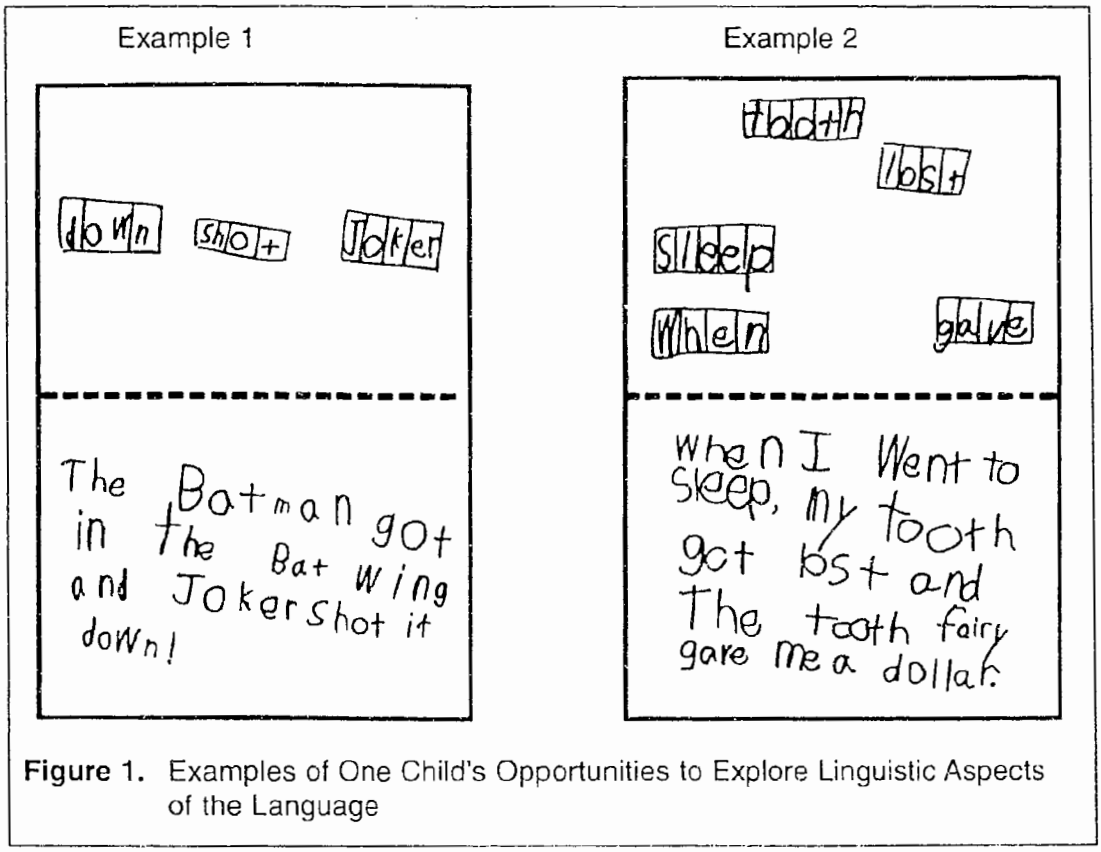

Figure 1. Examples of One Child's Opportunities to Explore Linguistic Aspects of the Language

Discussion

The children in this study were in classrooms representing a variety of environments for writing opportunities. It is acknowledged that the classroom literacy experiences of these children were not controlled nor are they reported here. However, this study does provide compelling evidence that a brief negotiation of a written sentence or two each day between a teacher and a low-progress first grader yields numerous opportunities for the child to learn many things about how their language is written down.

This study was about *opportunities*. Within the task of writing continuous text, with teacher assistance, a child has opportunities: (a) to learn about the conventional features of written language; (b) to explore the phonology and orthography of the English language; (c) to acquire a writing vocabulary representing words known in every detail; and (d) to use this core of known words representing a wide range of linguistic features and patterns to generate new learning through analogy. Based on data gathered in this study and the current knowledge about early writing behaviors, we can support the importance of early writing in developing these strategies that were the focus of the study and substantiate that control can shift from teacher-assisted performance to self-regulated performance across time even with low-progress first graders. In the following sections each of these strategies is discussed briefly.

Acquiring and Using a Writing Vocabulary

Findings in this study revealed that in both writing and reading, very few words are high frequency words when viewed as aggregated data. At this early stage, "known words" involve a unique set of words known to the individual learner. While much attention was given in this study to the most frequently written words across the programs of 82 children, it is important to note that all children had control of *many* words other than those identified as high frequency words. This finding is consistent with Ehri's (1992) suggestion that "sight" words in reading are not limited to high frequency words and irregularly spelled words, but include all words read often enough to initiate the formation of connections into memory. For reading and writing, then, it could be said that a frequency principle operates uniquely for individual learners.

It is important to remember that the teachers did not set out to "teach" these particular words to children. Children composed messages and in the process of writing these messages gained control over high frequency words in situations in which *they* initiated the task. Teachers then supported the child in rehearsing the words so that they became (almost) automatic.

It would be unfortunate if the list of high frequency words identified in this study were used as a teaching list for classrooms or were thought of as a suggested sequence for teaching. "The important insight . . . is that a frequency principle operates in these early attempts to write and that easy words are controlled early and provide (a) opportunities to practise these words [and] (b) opportunities to attend to new words" (Clay & Watson, 1982, p. 20).

These data also support the notion that children demonstrate individual profiles in acquisition of writing vocabulary. Children acquired different words at different rates across their programs, providing a compelling argument for including opportunities for children to write their own messages with assistance from a supportive teacher. There appears to be a unique power when children learn from the construction of their own messages.

Learning About and Using the Phonology and Orthography of English

The present study offers evidence that daily writing experiences provide children with multiple opportunities to explore the code that governs the sounds of the language and their graphic representations. When writing, children have multiple opportunities to learn about letters and the sounds they make, including even the production of letters. In this study, the 24 high frequency writing words alone provided massive practice in producing 19 of the 26 letters: *a, c, d, e, f, g, h, i, k, l, m, n, o, r, s, t, u, w, y*.

In the writing component of Reading Recovery, children are encouraged to hear and record sounds as they analyze new words. They progressively move through a series of procedures adapted from the work of Elkonin (1973). Therefore, the opportunities in this setting that served as the context for the study included both the writing activity itself and the teacher support in doing a phonemic analysis. Massive opportunities were provided through the daily writing of sentences for children to hear and record sounds including vowels and vowel combinations representing multiple sounds, to learn about consonant frameworks, and to gain understandings about the spelling processes involved in representing these sounds. The teacher support included sharing the writing of the difficult parts specific to each child.

To demonstrate such opportunities, the words analyzed on the practice page by one child with the teacher's support were recorded. Samples of words analyzed in sound boxes (i.e., a box for each sound) across this child's program included the following: like, nice, sand, stand, top, him, bike, cross, got, boy, drove, can, miss, pool, broke, down, she's, home, her, bed, cold, head, call, and, crashed, wing, joker, shot, drove, jump, climbed, hill, with, him, flew, space, landed, will, old, want, threw, gang, out, his, gun, apples, hugs, then, took, floor, teacher, when, and fell. This child also had the opportunity to analyze words in letter boxes (i.e., a box for each letter) such as the following: tooth, lost, sleep, when, gave, dollar, show, moon, will, wash, mud, wish, just, house, drove, penguin, second, first, little, would, most, made, spell, turned, boat, water, them, start, had, goalie, kept, pucks, always, stuff, and throw.

When writing words, as in reading them, there are regular words, exception words, and ambiguous words (Goswami & Bryant, 1990). Regular words are those that are sounded and spelled the same way (e.g., *dish*). Exception words violate the predictable spelling of the rime (e.g., *said* would be expected to end with *ed*). Ambiguous words are those for which there are several possible ways to spell the sounds (e.g., *beef*).

The present study demonstrates how children in a daily writing activity have opportunities to explore all three categories. For example, the child represented

earlier in Table 4 worked with multiple examples of regular words (e.g., *fast, big*), exception words (e.g., *come, to*), and ambiguous words (e.g., *be, bee, eat*). Writing opportunities present "the vagaries of written language to the child in a more valid form than most sequenced reading and writing curricula, and yet it is an approach in which the poorest performers of the age group succeeded" (Clay & Watson, 1982, p. 30). The child develops a sense of the possibilities that exist in language in a context that is not distorted by an over-emphasis on the regularities.

The 24 most frequently written words from this study alone provided exposure to alternative sounds of vowels within words, introducing children to the flexibility needed in handling letter-sound relationships in English. For example, alternative sounds for the letter o were represented in the frequently written words *to, on, got, for, you,* and *going*.

Irregularity of the English writing system is a source of difficulty for children learning to spell in English, but it is not the only problem. Other difficulties include the morphological basis of the English writing system, the use of digraphs, the consonant clusters in the spoken language, and the reality that English letter names are not always a helpful guide to spelling (Treiman, 1993). In this study, children had multiple opportunities (see Tables 5-7) to deal with all of these challenges in a supportive instructional environment.

Writing provides children with multiple opportunities to use a variety of linguistic features and patterns. Their writing also affords opportunities to experiment with abbreviations, compound words, contractions, possessives, silent letters, and multi-syllable words. Table 8 illustrates the opportunities experienced by one Reading Recovery child in his written stories.

Developing the Potential for Using Analogy to Write New Words

As young children acquire a writing vocabulary and have opportunities for learning about the phonological and orthographic principles of written language, they also have the opportunity to apply these understandings to the generation of new words by analogy. With this knowledge, some children will solve new problems by analogy easily in writing, while others may require a teacher's explicit attention to phonological and orthographic links.

Sources of data for this study were restricted to written records. There was no consistent account of verbal interactions between children and teachers, making

Table 8. Additional Opportunities Within One Child's Written Stories

Exemplars From KNOWN Words	Opportunities From All Stories Written
• 4 proper names	• 7 contractions
• 15 multisyllable words	• 5 possessives
• 2 abbreviations	• 7 compound sentences
• 2 contractions	• 7 complex sentences
• 10 vowel combinations representing different sounds	• 30 inflectional endings
• 3 different r-controlled vowels	• 97 multisyllable words
	• 17 proper names
	• punctuation (period, question mark, exclamation mark, apostrophe, hyphen)

it difficult to document the use of analogy. Daily lesson records often revealed evidence that attention was given to the process of using what was known to get to something new, but these notations could not be considered all-inclusive. It was also difficult to determine who initiated the link from the known to the unknown.

What we do know is that when a child has an independent strategy for working out new words by using knowledge he already possesses, he has the power to push his own knowledge further and to gain more independence in the writing task. The child is then learning how to analyze words and how to become an observer of how words work in his language (Clay & Watson, 1982).

Knowing many different words enhances a child's opportunities for getting to new words he needs to write. Writing opportunities in which children compose their own messages encourage them to attempt to construct a wide range of words, allowing them to begin to sense something about the rules and the vagaries of the way English is written down (Clay, 1998). The words (exemplars) controlled by children in this study included both the regularities and the irregularities of the language. The wide range of exemplars should contribute to flexibility and fluency in using analogy to solve new problems when writing continuous text.

Some Final Observations

Findings from this study reveal that low-progress children can acquire considerable knowledge about words, about letters/letter clusters and their sounds, and about the orthography of the language in a relatively short period of time. In addition to classroom writing opportunities, children composed and wrote a message with a Reading Recovery teacher for approximately 10 minutes daily for an average of 17 weeks during the first half of first grade.

This study also contributes to the growing evidence that children take unique, individual paths in their acquisition of written language. There is clearly no identified sequence emerging with implications for instruction.

"When teaching supports self-initiated writing, more child-generated learning results. Like children learning to speak, writers who wish to be understood learn to put messages on the page in ways that comply with the adult reader's assumptions about written messages" (Clay, 1998, p. 133). Therefore, opportunities for individual exploration permit learning opportunities that will lead children by different paths to common outcomes.

Another implication arising from this study relates to the role of teacher assistance. The type and amount of teacher assistance was not readily available in analyzing the data for this study. However, in the context of Reading Recovery, children's opportunities and actions were combined with supportive teacher interactions. There is support for such assistance in the literature. For example, Cazden (1992) suggested there are three points on a continuum of social assistance between teachers and children: discovery without a teacher's help, revealing, and telling. She cited Reading Recovery's writing component as one that helps children attend to sounds in their own speech. She used the Reading Recovery procedure adapted from Elkonin's (1973) work to illustrate the concept of "revealing:"

> **For learners, the activity of having to slow pronunciation in order to match the finger action makes possible a new kind of attention to the sounds of their own speech. The teacher's language is directed to involving the child in the activity, in which the child will come to attend in a new way. Thus a teaching technique has been developed that successfully teaches phonemic awareness by revealing the sound structure to the child without explicitly telling the child linguistic labels or orthographic rules. (Cazden, 1992, p. 307)**

Cazden suggested there are at least two reasons that revealing can be more helpful than telling for young learners. First, information gained from telling is often not available for later use. Second, telling about how written language works may risk oversimplifying complex reality.

Gibson and Levin (1975) also cited the importance of teacher assistance. They argued that while the learner himself must search for and discover patterns for transfer of a high level of abstraction to occur, specific help is also a crucial element:

> **But it was clearly better to have attention directed to search for invariant features in the stimulus array, and finding them seemed to lead to repetition of the successful strategy and thus to consistently accelerated performance. This is perceptual learning, not just remembering something. Learning to abstract spelling patterns involves active participation by the scholar, not memorizing a verbal rule or simply being shown. (p. 301)**

Clay (1998) offers the following teaching moves that could be used to support children's writing:

- bringing the topic into the conversation
- maintaining interactive ease
- prompting constructive activity
- accepting partially correct responses
- playing with anticipation
- asking the child to "learn" something
- lifting the difficulty level
- increasing accessibility of the ideas
- supporting performance
- asking the child to work with new knowledge
- accepting child involvement
- developing attention . . .
- praising strategic behavior
- revisiting the familiar (p. 155)

This study also demonstrates that opportunities to learn when writing have some relationship to opportunities for learning when reading. While the relationship between reading and spelling is not perfect, the store of knowledge that children use for spelling words is similar to the store of knowledge they use for reading (Treiman, 1993). For example, writing requires the child to deal with the distinctive features of letters, to learn about words and how they work, to acknowledge the importance of letter order and spatial concepts, and to learn about conven-

tions such as punctuation and capitalization. Therefore, much learning and many operations needed in early reading are practiced in another form in writing.

Clay (1991) suggests that the processes of reading and writing provide opportunities for children to learn important concepts: (a) links between messages in oral language and messages in printed language; (b) aspects of print to which they must attend; (c) strategies for maintaining fluency, exploring detail, increasing understanding, and correcting errors; (d) feedback mechanisms that keep productions on track; (e) feed-forward mechanisms that keep processing behaviors efficient; and (f) strategies for relating new information to what is already known. While writing knowledge serves as a resource that can help the reader, the reciprocity does not occur spontaneously (Clay, 1993). Again, the teacher's role is important in directing the child to use what he knows in reading when he is writing and vice versa.

While many questions remain, this study of opportunities makes a case for the importance of writing for first graders who are taking their first steps into literacy learning. There is evidence that the lowest-achieving children at the beginning of first grade benefit from opportunities to construct and produce a short story with the supporting guidance of a teacher. Children move toward self-regulated behaviors in writing stories independently, incorporating strategic processes that include hearing and recording sounds in words, acquiring a core of known words, and having opportunities to use known words and features of words to generate new learnings through analogy.

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Biography

Billie J. Askew is a professor in the Department of Reading and Bilingual Education at Texas Woman's University where she also directs the Reading Recovery center for training teacher leaders. Before joining the university reading faculty, she was an elementary classroom teacher, a reading specialist, a special education teacher and advisor, and a language arts administrator in public schools. Her current work centers on early literacy and the prevention of reading difficulties in young children. Dr. Askew is past president of the Reading Recovery Council of North America.

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Drs. Askew and Frasier have also investigated subsequent performance of children following early interventions in several longitudinal and cross-sectional studies.

Emotions, Cognition, and Becoming a Reader: A Message to Teachers of Struggling Learners

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Abstract

This paper considers the emotional nature of learning and the critical role emotions play in the making of the mind. It reflects an effort to connect recent theoretical perspectives with the teaching of struggling learners. Perspectives explored include: the recent neurological research on the interaction between cognition (reason) and emotion (feelings) in the development of plans of action and decision making, the role of language in the development of the mind, and the development of higher-order functions arising from social interaction. Implications of these theories for practice are also examined.

Historically, a dichotomy has existed between cognition or intellectual behavior and emotion or affective behavior. This dichotomy is apparent in our schools, classrooms, and curricula. For example, it is not uncommon for school counselors to offer emotional support for children who have experienced a traumatic event such as a fire or death of a classmate. In most schools, when children are experiencing a personal crisis, there is an attempt to meet individual emotional needs. However, school personnel generally hold an impersonal, cognitive view when it comes to addressing children's individual *learning* needs. This view holds that one approach to instruction will fit all children. Thus, making it the child's responsibility for learning the material as it is presented. For children who do not effectively engage in these types of learning activities, medication often becomes the answer.

Generally speaking, schools operate on the principle that cognitive growth will result in academic achievement. If educators can identify the one best way to teach reading, deliver that program to all children, test scores will improve. Although school mission statements may include concern for improving self-esteem and cultural awareness, the graded course of study and curriculum is nearly always based on learning specific content, developing specific skills, demonstrating specific competencies, and testing to determine if children have acquired a specific body of knowledge.

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It is time for educators to erase the dichotomy by considering the wealth of information that has become available substantiating the role that both intellectual and affective behavior play in learning. It is as Dr. Stanley Greenspan (1997) suggests in his book, *The Growth of the Mind,* our educational system's failure to educate the masses of children who are cognitively capable of learning is due to reliance on a model that ignores the emotional nature of learning and the critical role emotions play in the making of mind.

Processes That Build the Mind

Clinical studies of infants and children conducted by neurologists, pediatricians, and psychiatrists have revealed that cognition (i.e., reason) and emotion (i.e., feelings) begin to interact from birth and continue for a lifetime. Emotions were found to be an integral and inseparable part of the learning process (Damasio, 1994; Konner, 1991). After two decades of clinical research and experience in infant and child development Greenspan (1997) concluded that "emotions, not cognitive stimulation, serve as the mind's primary architect" (p. 1) and "babies' emotional exchanges with their caregivers, rather than their ability to fit pegs into holes or find beads under cups, should become the primary measuring rod of developmental and intellectual competence" (p. 9).

Over a period of about twenty-six years, thirteen of which have been spent working as a Reading Recovery teacher and university trainer, I have found support for the position that emotions play a primary and critical role in learning through four kinds of personal experiences. These experiences include: (a) interactions and conversations with my son, Ken, from birth through college, medical school, and pediatric residency; (b) the teaching of Reading Recovery (RR) children, many of whom were identified as learning disabled or developmentally handicapped; (c) twelve years of research examining teacher/child interactions of effective Reading Recovery teachers; and (d) clinical studies of learning disabled and RR children using the electroencephalogram (EEG) and brain electrical activity mapping (BEAM) tools to track brain activity during problem solving while reading.

These first hand experiences have lead me to believe there are certain kinds of nurturing that propel children's intellectual and emotional development and that affective experience facilitates children's ability to engage successfully in the variety of problem-solving tasks needed to become a proficient reader and writer.

In my view, research conducted by Greenspan (1997) has much to say to researchers and educators interested in how individuals become literate. His work describes and explains how new capacities emerge at different stages of a child's development. These include a "progression of abilities, such as attention and self-regulation, engagement, intentionality, and complex pattern making, that underlie the sense of self, consciousness, and moral awareness" (p. 125). Two personal experiences involving my son Ken provide insight into the development of reason and its inseparable dependence on emotion: The Button Jar and the Calendar Trick.

The Button Jar

My Grandma Mueller loved to sew. As the first born and only grandchild for five years, I received many of Grandma's homemade creations. I would go to the store to help Grandma select the "perfect buttons" for each of my homemade outfits. I generally chose unusual buttons in a variety of colors, shapes, sizes, and what I called "fancy buttons" which were animals, flowers, clowns, and holiday figures. When she died in 1970, Grandma willed me her sewing machine, a sewing box, and a large glass pickle jar filled with buttons. The sewing machine was placed in our spare bedroom and on top of the sewing machine I placed the large glass button jar.

When Kenny was five months old, he started to crawl. Once on the floor, the first place he always went was to the spare bedroom where he would immediately point to the button jar. I think he was fascinated with the many colors, sizes, and shapes of the hundreds of buttons that filled the jar.

I would put the button jar on the floor so that he could take a closer look at it. But looking was not enough; he wanted to touch the buttons. I would open the jar and dump a few buttons on the hardwood floor. I showed him how to push the buttons one-by-one into a pile. Then the two of us would pick up each button and return it to the button jar. I watched him very closely so that he would not put the buttons in his mouth, which of course is what he usually tried to do. After repeatedly telling him not to put the buttons in his mouth because he might swallow them and get sick, I had to tell him that the next time he tried to put the buttons in his mouth, I would put the button jar away. The day after that warning, he learned that I meant what I said. The button jar was put away for several days until he promised that he would not put any buttons in his mouth again.

After about three weeks of pushing the buttons into piles, I showed him how to sort the buttons by color. While demonstrating the process, I would say, "Let's put all the white buttons in this pile." With my help, Ken learned how to make a pile of red, white, and black buttons. We would have a conversation about the color of each group, with my doing all the talking, and Ken making babbling sounds. He would look at me with that proud look mothers come to understand when a child feels good about what he has accomplished. We both had fun and I believe he knew he was pleasing me.

When Ken was eight months old, he started to associate a color word to each pile of different colored buttons. When I asked him to show me the red pile of buttons, he could point to the red pile. He could group the buttons according to a specific color, but could not yet produce the word to associate with each color. Once he could sort by color, I showed him how to count the buttons in each pile. He started to learn the number concepts of one, two, and three and say a word to represent each button he counted.

One day he pointed out that some of the buttons had holes and others had no holes. So we sorted buttons into piles of "holes" and "no holes." Ken, not I, had discovered another classification system. From that activity, we sorted buttons by the number of holes; that is, two holes, four holes, six holes, etc. He also noticed that some buttons were smooth, others were rough, some were square, and others were round. He had not acquired a word to label the concepts, but he

noticed differences and similarities among buttons, thus completing the task visually. By the time he was one, Ken had developed a classification system and specific words (e.g., color, shapes, number of holes) to describe this classification system.

Every day we played the button game. I would push all the white buttons together and ask him to tell me how I grouped the buttons. He would look at the piles and say "white pile, no holes, two holes," etc. Then our roles reversed. Ken would sort the buttons into specific groups and I would tell him how he had classified them. We took great delight in this activity, talking and laughing trying to trick each other. Sometimes I would put a red button into the white pile and he would squeal and tell me, "No!" and push it into the correct pile. Then I would watch him place a button in the wrong pile and he would watch me to see if I discovered his error. In his baby book I wrote that at 12 months of age, Ken's favorite pastime was playing with the button jar.

What did Ken learn playing with the buttons? What may have been going on inside his brain? Distinguished Soviet psychologist Alexander Luria's description of the functional organization of the brain (1973) provides a plausible explanation.

The Neuropsychology of Learning

Luria (1973) believed that human mental processes involve complex functional systems that work together and make their own particular contribution to the organization of the overall system. He proposed three principal functional units of the brain whose participation is necessary for any type of cognitive activity (see Figure 1).

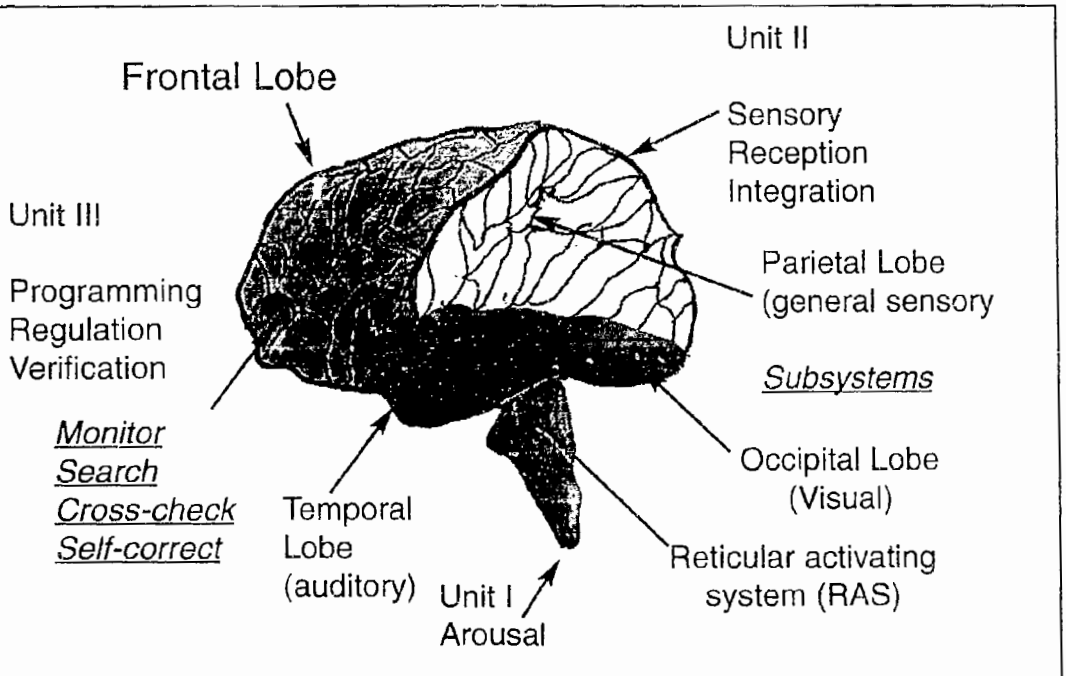

Figure 1. The Functional Organization of the Brain

Note. Adapted from *The Working Brain* by A. Luria, 1973, New York: Basic Books.

Unit I, located in the brain stem, is responsible for regulating tone or waking. The most important part of the first functional unit is the reticular activating system (RAS), a small structure located near the top of the brain stem. The RAS serves as a trap door or gatekeeper, allowing stimuli to enter the brain and be relayed through the limbic system to the appropriate cortical areas. This interaction helps with attention, thinking, balance, and coordinated movement. As children grow, they learn to send messages from the cortex to focus their attention. In this way, the RAS plays an integral role in directing consciousness and attention. On the other hand, without the reticular formation's alerting signals, the brain grows sleepy and disengages.

The RAS was responsible for focusing and sustaining Ken's attention while we played the button jar game. From the first moment the button jar was placed on the floor, he was focused, interested, and engaged in what I was doing and saying. He was able to sustain and focus his attention, even as the activities became more challenging.

The second functional unit (Unit II) is primarily responsible for the reception, analysis, integration, and storage of information. This unit occupies the posterior region of the cerebral hemispheres and incorporates the visual (occipital), auditory (temporal), and general sensory (parietal) regions. The temporal lobe located near our ears is an area believed to be responsible for hearing, listening, language, and memory storage. The occipital lobe processes our vision. The parietal lobe deals with the reception of sensory information that involves movement.

Each of these lobes processes the same information in different ways and in different parts of the brain. There is much overlap in the functions of each of these lobes. These three areas of the brain appear to be involved with types of memory. The parietal, upper temporal and occipital lobes seem to serve as short-term memory banks for auditory, visual, and kinesthetic (motion, perception) impulses (Luria, 1973). Discussion of actions described as subsystems in Bruner's (1973) and Clay's (1991) work are similar to behaviors associated with Unit II.

The sensing, receiving, and integrating unit is involved in specific interactions that involve cortical processing in the temporal, occipital and parietal lobes of the brain. Through the button jar game, Ken learned how to integrate and coordinate actions while involving these three lobes of the brain. He learned to:

- Coordinate and control arm, hand, and eye movements while placing buttons into discrete groups.
- Integrate and connect gesture, touch, sounds, and words with feelings.

The third functional unit is the frontal lobe, which is located in the area around the forehead. It is involved in purposeful acts, which Luria termed programming, regulation, and verification. The frontal lobe plays an essential role in regulating the state of the activity, organizing and changing it in accordance with complex intentions and plans formulated with the aid of speech (Luria, 1973). As the frontal lobes mature, they team up with the RAS, which directs arousal and alertness, and with the limbic system, which regulates hormones and emotions, forming a loop that works to select and direct attention. An important function of this loop is regulation of the child's ability to use "feedback" as an ongoing check on behavior. This feedback system helps the child monitor and catch errors and

remember what he or she is supposed to do to resolve problems. Problem solving actions such as monitoring, searching, cross-checking, and self-correcting involve the frontal lobes. Varied experiences with the button jar provided opportunities for Ken to program, regulate, and verify his actions. He learned how to:

- Associate a specific word (number or color word) with an object.
- Categorize objects into discrete groups according to a plan of action.
- Develop a flexible classification system.
- Recognize similar and different patterns.
- Develop a feedback system to monitor his behavior.
- Reorganize or reclassify individual buttons in a variety of ways.
- Find solutions or rationale for Mom's plan for organizing and developing a category.
- Use language to regulate his behavior to develop his own plan for organizing information.
- Correct his behavior when necessary.

Understanding the role of the three functional units of the brain and the important ways in which each unit participates in the organization of human behavior may contribute to an explanation of the nature of Ken's reasoning as we played with the buttons.

The Relationship Between Cognitive and Emotional Development

Recent neurological research (Damasio, 1994) may help us better understand how cognition (reason) and emotion (feelings) interact to support problem-solving and our ability to make decisions and generate plans of action. Three major principles that support the links between infants' emotional and cognitive development are discussed by Greenspan (1997).

First, the foundations of learning are the infant's own natural intentions. This principle suggests that it is the *child* not the parent or caretaker who determines and controls where attention will be focused and subsequently what is learned. The child's reticular activating system (RAS) located in Unit I arouses and focuses the brain's processing. It is responsible for arousal and consciousness and is critical to focusing our attentional system. So attempting to develop Ken's ability to learn color words or number concepts by manipulating buttons would probably not have worked if it had been *my* idea.

Greenspan's (1997) research indicates that when an infant is confused, senses disapproval, or feels anxious, there is a psychological and physiological reaction in the brain that inhibits processing. The child's RAS shuts down and he will look away. However, if the parent follows the child's interest, many learning opportunities will arise because the infant has voluntarily attended and engaged.

Secondly, each sensation, as it is registered by a child, gives rise to an affect or emotion. This process is called "dual coding" of experience and is the key to understanding how emotions organize intellectual capacities and create the sense of self and well-being. According to Greenspan (1997):

> **Emotions and intellect are NOT two separate parts of a person. Emotions are the organizer or the "supersense," helping to organize all the sensory information coming our way. Experience is stored and organized in the brain with a dual code. The dual code consists of the sensory experience and the emotional or affective reaction to the experience, both of which will be coded together in the brain. This double coding allows the child to cross-reference each memory or experience in a mental catalog and feeling and to reconstruct it when needed.** (p. 21)

The dual coding phenomenon may help to explain the relationship between Ken's cognitive and emotional development. I believe that his capacity to reason (e.g., sort buttons in discrete categories) was followed by mechanisms of emotions, which occurred as he began experiencing feelings of affirmation and support from me. Once this occurred, systematic connections between categories of objects and situations, on the one hand, and emotions, on the other were formed in his mind. He labeled and coded the buttons as bright, smooth, red, etc. and also by emotional qualities connected with feelings he exhibited while playing with the buttons. This double coding allowed him to cross-reference the category system with a positive memory.

Third, parts of the brain and nervous system that deal with emotional regulation play a crucial role in planning, discriminating and choosing between alternatives, monitoring, self-correcting, and regulating one's behavior. Recent neurological research (Damasio, 1994) demonstrates that neuronal development in the prefrontal cortex (Unit III) regulates emotions. Furthermore, damage to the prefrontal cortex seriously impairs a child's judgment and regulation of behavior. When the regulatory system is working well, infants between three and eight months can register the appropriate sense perceptions when presented with sights and sounds, attend and discriminate among them, and comprehend sensations that they see, touch, and hear (Greenspan, 1997).

Each sensation that Ken registered gave rise to an affect or emotion. He squealed with delight while touching and pushing the buttons on the floor. He also came to understand that if he tried to put a button in his mouth, the button jar would disappear and the game would end. He responded to the button jar game in terms of the emotional as well as the physical effect on him. From an emotional perspective, he learned how to regulate his behavior by not doing what he wanted to do, which was to eat the buttons.

In one study, Greenspan (1997) found that measurements of emotional regulatory function, taken at eight months of age, correlated with children's mental capabilities indicated on standardized IQ tests at age four.

> **In developing the mind, intellectual learning shared common origins with emotional learning. Both stem from early affective interactions. Both are influenced by individuals, and both must proceed in a step-wise fashion, from one developmental level to another. The sort of learning a child acquires in kindergarten and primary grades is not the true foundation of his or her education. In fact, early school work cannot proceed without previous mastery of various mental tasks. The three R's and all that follows, symbolic and increasing abstract academic knowledge, cannot be**

> **understood by a person who has not grasped the skills that make learning possible. (p. 210)**

Greenspan's view of the developing mind provides a plausible explanation for how Ken created the calendar trick.

The Calendar Trick

Every year I buy a linen calendar towel that depicts the days of the week for each month over the course of that year. I have a collection of towels that spans over forty years. When Ken was two, one of his favorite pastimes was going to the kitchen drawer and throwing the calendar towels out on the floor. Instead of sleeping during naptime, he would take five to ten towels to his room, and carefully line them up according to years on the floor. I never understood why he did this, but as long as he was quiet, I did not care.

When he was two and one-half years old, Ken would ask my husband and me to give him a date and he would tell us on which day of the week the date fell. For example, we would say, "August 7," and he would reply, "Thursday." He was invariably right. We could ask him random dates in different months and years and he always would tell us the correct day of the week. What was particularly amazing was how fast he could do this trick. When asked how he did it, he said he did not know. What we did learn, however, was that he recognized similarities and differences among dates for each month depicted on the towel and he recognized recurring patterns of numbers among the days of the week and months of the year.

The neighbors and relatives soon learned about Ken's calendar trick. He could tell people on which day of the week their birthday would fall two or three years later, or on which day Christmas fell four years ago. He could tell us the day of the week for specific dates in the past, present, and future years, even accounting for a leap year. We did receive an invitation to take Ken to appear on the Tonight Show with Johnny Carson, which we turned down. (However, my husband did consider taking Ken to the local bar to make some money.)

When he was three and one-half years old, he finally told us how he did the calendar trick. He said that if you know on which day of the week the first of the month falls, you can figure out the rest of days for every month in the year. Because the same day of the week has the same numbers all the time. If the first day of January falls on a Thursday, then the other Thursdays in January will be on 8, 15, 22, and 29. If the first day of March falls on Sunday, then the remaining Sundays in March will be 8, 15, 22, and 29. What Ken had discovered was patterns among and across the dates of each day of the week and in each month of a specific year. He had developed a more complex and intricate skill beyond what he had learned while playing with buttons. He had generalized properties and skills learned in one context and applied them to a new context.

Recent neurological research (Damasio, 1994; Greenspan, 1997) provides some explanation for how he acquired the ability to go from concrete thinking and categorizing developed through various activities involving the button jar, to abstract thought developed independently and evident in the calendar trick. The research shows that our minds can instantly retrieve similarly coded information relevant in one situation and use it in a similar way for a new situation. Such neu-

robiological clinical research has indicated that the brain is a natural pattern seeker and synthesizer that actively searches for patterns to categorize, organize, synthesize, code information into memory, and then retrieve it.

Ken was able to retrieve this stored information rapidly and reliably because his affective capacity organized information in an especially functional and meaningful manner. Because the information was dual coded according to its affective, sensory, and cognitive qualities, he had the structure and circuitry established in his brain to enable him to retrieve it easily. He probably was also intrinsically motivated to share the calendar trick with us because he had received such positive reinforcement in the button jar game. The pleasure he experienced was not simply one of mastery, but one of feeling good and seeing the pleasure of others. But the important question is how did he teach himself to do this? An examination of the neuronal development systems of the brain, electrical and chemical, provides some insights.

Neuronal Development of the Electrical Brain

Babies are born with over 100 billion neurons or nerve cells designed to communicate electrochemically with one another. Each neuron has three main parts: cell body, axon, and dendrites. The cell body is the nucleus of the neuron. An axon is a long, slim, "tree-trunk" fiber that transmits signals from the cell body to other cells via junctions called synapses. Dendrites are networks of short fibers that branch out from an axon, receive signals from the ends of axons from other neurons, and bring the signals to their neuron's own cell body (Lambert, Bramwell, & Lawther, 1982).This complex electrical and chemical processing system regulates communication and action (see Figure 2).

Each neuron communicates to other neurons by firing an electrical impulse or message along the input axon. The input axon sends impulses or messages to the cell body. The cell body receives the electrical impulses and sends them to the output axon. The output axon carries the electrical impulses to other neurons over a gap called a synapse.

Each neuron has many dendrites, each of which picks up electrical impulses and sends chemical messages to another neuron cell, starting the process over again. Dendritic spines develop and shift in response to the need to connect assemblies of neurons into memories. They can deteriorate or lose strength from lack of use and gain strength from frequent use. The dendrite spines allow for short periods of continuous attention to develop a permanent record or memory. Cells which become stimulated by picking up and relaying messages develop new dendrite spines and more complex neural networks (Healy, 1994).

As electrical messages are processed over and over again the axons develop a fatty, white/light gray cellular insulation called myelin. Myelin facilitates rapid conduction of the electrical impulses. It makes the axons more efficient, enabling electrical impulses to travel up to 12 times faster. The more myelin there is coating the axons, the more automatic the processing (Lambert et al, 1982).

For years, scientists have had tools that allowed them to observe and study the *electrical* communication system of the brain. Only recently, however, have tools been developed that allow researchers to understand better the *chemical* com-

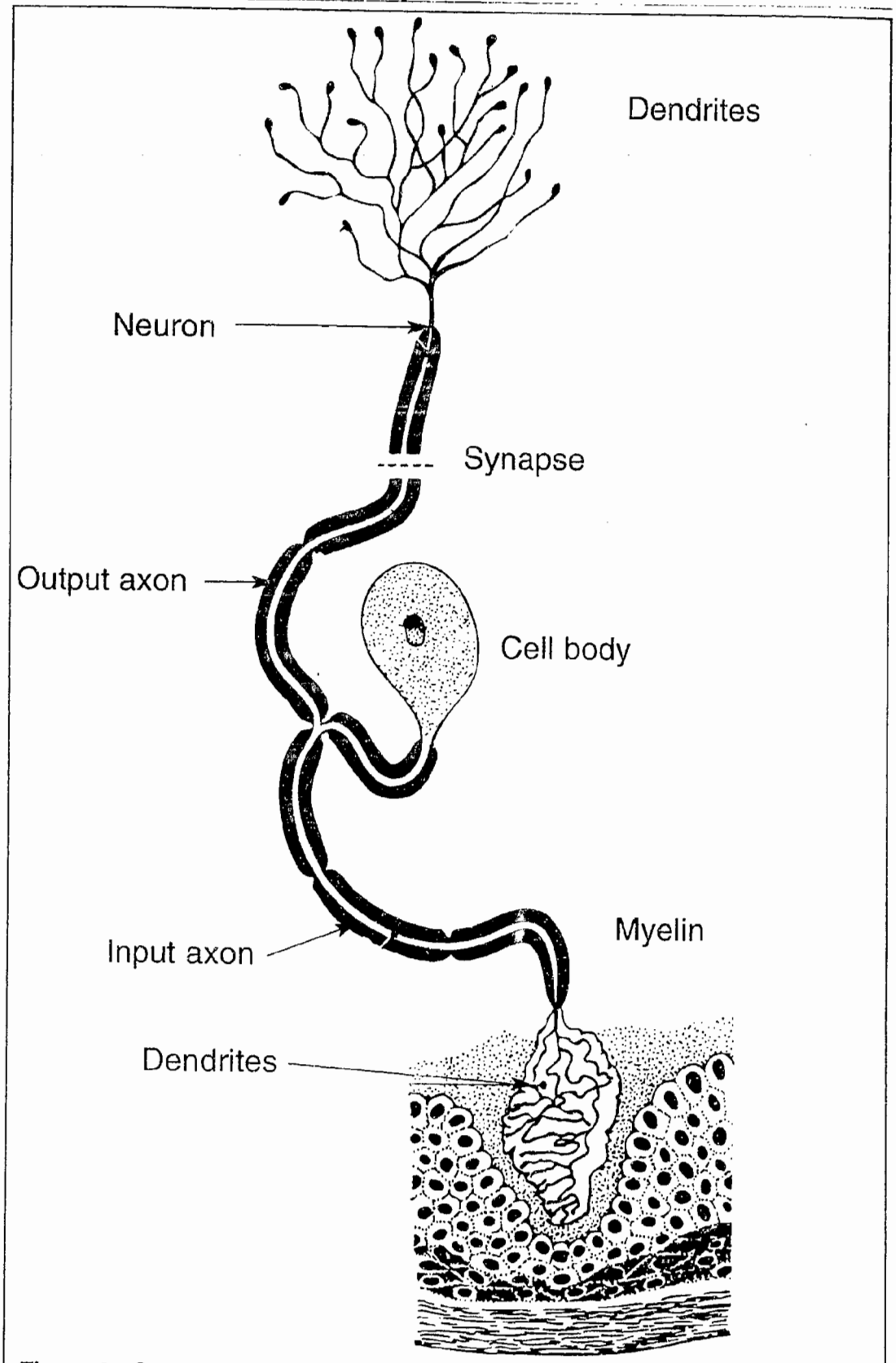

Figure 2. One Neuron Consisting of a Cell Body, Tail-Like Axon, and Dendrites
Note. Adapted from *The Brain: A User's Manual* by D. Lambert, M. Bramwell, and G. Lawther, 1982, New York: G. P. Putnam.

munication system of the brain.

The Chemical Brain

The axon of one neuron releases a chemical agent called a neurotransmitter to stimulate the dendrites of another cell. This reaction occurs at a synapse. The neurotransmitters bind to receptors on other neurons, causing an electrical charge that redirects the neural pathways. The effect on an individual is a change in physical activity, including behavior, mood, and emotion. The adult human has trillions of synapses that connect to the network of our brains. If they are not connected, they disappear (Pert, 1997).

Neuroscientists believe that there are 70 to 80 different kinds of neurotransmitters. Seratonin, for example, is a mood-controlling neurotransmitter. When released in an individual, it is associated with feeling good about oneself and having a positive attitude. High seratonin levels are associated with attention and memory. When individuals feel successful, happy, and proud that they have overcome a difficult task, seratonin levels increase. When they experience failure and feel dejected about not being able to learn, seratonin levels decrease. Neurotransmitters either enhance or inhibit further transmission of impulse to dendrites (Damasio, 1994).

From the first hour of birth, our brains are getting wired, developing tracks that will last us for a lifetime. Early brain stimulation is critical to learning and emotions play a major role in developing cognitive abilities. The critical time to build neural networks is during the first three years of life. By the time a child is three years old, his or her brain has already reached two-thirds to three-quarters of its adult size. By age five, when a child enters kindergarten, so much of the brain is developed that a child who has not acquired the necessary skills of attention, communication, and the ability to participate actively in relationships (give and take with others) is at a disadvantage. The earlier the child is provided opportunities to build this complex electrical and chemical neural network that becomes the mind, the easier it will be for the child to learn (Greenspan, 1997).

Thus, emotions (feelings) are part and parcel of what we call cognition (reasoning); they play a critical role in forming ideas and generalizing information (i.e., seeing the forest through the trees). They orchestrate many of the mind's most important functions, such as classifying and organizing information, problem solving and evaluating the consequence of our actions (Greenspan, 1997).

Neurologists believe that when a child reaches puberty the brain has stopped growing. This does not mean that one cannot continue to learn; certainly our experiences after adolescence demonstrate this. However, it is the case that the most opportune time for building the neural network that is the foundation for learning *how to learn* has come to an end. It stands to reason then, that the more opportunities or experiences a child has had during the first three years of life, preschool, and early elementary school, the more neural pathways he or she has developed. The process is self-perpetuating. That is, the more neural pathways developed, the more dendritic branches appear. The more dendritic branches appearing, the more connections can be made among neurons. The more connections among neurons being made, the more complex reasoning and myelin build-

ing can occur. The more myelin is accumulating, the faster and more automatic the child can process information.

I believe the button jar game was the foundation for the calendar trick. Ken had rich and varied opportunities to develop a complex electrical and chemical neural network that mylinated during those early years. But what about those children who enter school having had limited early childhood opportunities to set the circuitry of their brains? What can be done today to overcome their inadequate beginnings and to help them learn how to learn to read and write?

Emotions, Cognitive Development, and Reading Recovery

Three bodies of research provide insights regarding instructional contexts that may help primary level teachers become more efficient and effective. They include the role of emotions, the role of language, and the role of social interaction in the making of the mind. To illustrate these points, following is an example of how Reading Recovery (RR) teachers support children in ways that are based on these theoretical principles. (Reading Recovery is an early intervention literacy program that serves first-grade children who are at risk of failure in learning to read and write. Children receive individual tutoring daily from a specially trained teacher.)

The Role of Emotions

The first body of research discusses the critical role emotions play in developing the brain structure required for attending, organizing, categorizing, storing, and retrieving information. Research (Damasio, 1994; Greenspan, 1997) has demonstrated that feeling successful is critical to keeping the RAS open. The RAS must be opened and aroused in order for the child to attend; without attention, the child will not learn. Having a positive, non-threatening, non-stressful experience while learning enhances the child's opportunities for success.

Effective RR teachers create an instructional environment that includes two major features to help the child feel positive and successful, both of which support and sustain attention. First, they teach the child the task. Second, they keep the task easy so that the child will feel successful and will attend to the process. An example to describe how this is accomplished follows.

Reading Recovery teachers must teach children "how words work" so they can use what they know about a word to problem solve words in reading or writing. The teacher begins by having the child make a familiar word that has a few letters that he or she is sure the child knows. The teacher may use the known word 'cat,' for example. The teacher gives the child the exact number of magnetic letters and either demonstrates how to put the three letters together to make the word 'cat' or asks the child to make the word by himself. The teacher and/or child make and break apart the known word several times. Starting with a known word frees the child to focus on how individual letters make up words, and how words can be taken apart letter by letter.

The child begins to understand how words are constructed and a process for constructing them. The teacher has organized the experience so that the child is

successful, assuring he or she will voluntarily and easily engage in the activity. In teaching the task and the process of constructing a word by using a word the child knows, the teacher has made it easy for a child to learn how words work. But this activity teaches the child much more. It teaches him or her how to:

- Focus and sustain attention.
- Associate letters to a sound and sounds to letters.
- Discriminate between and among features of letters.
- Categorize letters into groups that are similar and different to make a word.
- Reorganize and reclassify letters into different words.

The list of processing behaviors should sound familiar because those are the skills Ken developed while playing with the buttons. He learned to discriminate features or objects (buttons) which he then used to discriminate among features of letters. Perhaps that is why he was reading at age three and one-half without formalized schooling. Children who engage in the process of making and breaking words apart and constructing new words from known ones develop the capacity to plan, guide, and monitor behavior. These are the problem solving skills that are used every time they read and write.

The Role of Language

The second body of research that has implications for RR teachers involves the role of language in the development of the mind. Four principles regarding the role of language are critical to teachers' work in Reading Recovery.

First, in order to learn language, children must come to understand that language has a purpose and function and that they must learn how to use it to communicate their needs and desires. Neurological research has demonstrated that every child is born with billions of neurons and thus has the potential to learn language. But as Greenspan's research (1997) indicates, unless the child masters the ability for reciprocal emotional and social signaling, his or her ability to use language functionally develops poorly, often in a fragmented manner. Words lack meaning, pronouns are confused, scraps of rote learning, such as repeating illogical phrases that are not connected to what he is doing in a meaningful way, will dominate speech. Marie Clay (1993) writes:

> **Some children have particular difficulty in calling up an association or label for a word, or a name for a letter. This low recall means that the earliest, easiest, and most basic links of oral language with print are very difficult for the child to establish.** (p. 25)

While sorting buttons during infancy, Ken learned to associate a word (red) to a specific color and a number word (three) to a specific number of buttons. He was developing strategies for remembering color and number words. Just think of how many opportunities his neural network had to mylinate prior to former schooling. He could see similarities and differences among features of letter (e.g., noticing where to put the stick to make a lower case b or d), just as he saw similarities and differences among buttons and number patterns on calendar towels.

Secondly, the origins of language are found in the parent's verbal commands and directives and this language or speech usually plays a regulatory function in

everyday life. Luria (1982) contends that the real birth of regulatory speech is when the child responds to a parent's directive. When I asked Ken to group all the white buttons with two holes together in a pile, he complied with my verbal request and regulated his behavior to accomplish the task.

The same process occurs many times throughout a RR lesson. Reading Recovery teachers organize and regulate a child's behavior through language. For example, in *Reading Recovery: A Guidebook for Teachers in Training* (Clay, 1993), there is a section devoted to helping a child who enters RR with very low letter knowledge (i.e., Learning to Look at Print, pp. 24-28). Clay suggests the following procedure to help the child orchestrate three ways of remembering:

1. Movement – The teacher holds the child's hand and guides him, eventually calling for the child to do so independently.
2. Words – The teacher verbally describes the movement while she is making the letter or word and asks the child to do so independently.
3. Visual Form – The teacher writes the letter, providing a visual model and asks the child to do so independently.

The child's behavior is regulated through the teacher's verbal directives. The teacher must be careful to use language specific enough to match the action the child must perform. For example, while writing a lower case b, the teacher must guide the child's hand to form the letter while saying the words, "Down, up, and around." Words and movement must be coordinated.

Third, when young children learn to use language effectively to make sense of their experiences, they begin to plan and regulate their actions. Infant research (Luria, 1982) demonstrates that regulation of behavior by speech is attained slowly over time. It appears first in interaction with others, and later, children can be heard directing their own behavior or problem solving out loud.

While playing the button jar game, Ken would talk to himself and give his plan away. While listening carefully to what he said to himself, I knew when he was going to put one red button into the white pile. He made his thoughts explicit. Sometimes RR children do the same thing. They will say, "That didn't make sense." or "That didn't match." The words provide an oral feedback system that acts as a call for action.

Finally, language guides the behavior according to a verbalized plan and modulates arousal of the brain through motor activity to meet the demands of the task (Luria, 1982). This principle is supported often in Reading Recovery, especially in early lessons. RR teachers' oral language in the form of prompts guides the children to think about something to do. For example, when children notice that what they read did not match the words on the page, they might say, "That didn't match;" "There were too many words;" "There were not enough words;" or "I better try that again and read it with my finger to make it match." They learned those words to regulate their actions by listening and reacting to the teacher's prompts. Eventually teachers will not have to use prompts because the children's internal verbalized plan will be functionally successfully.

The Role of Social Interaction

The third body of research that contributes to our understanding of the mak-

ing of mind, the making of a reader and writer is Vygotsky's theory that higher-order functions (such as problem solving, reasoning, planning, remembering, and communicating) develop out of social interaction. Vygotsky (1978) argued that:

> **Every function in the child's cultural development appears twice; first, on the social level, and later, on the individual level; first, between people (interpsychologically), and then inside the child (intrapsychologically). This applies equally to voluntary attention, to local memory, and to the formation of concepts. All the higher functions originate as actual relations between human individuals. (p. 57)**

This growth occurs in the zone of proximal development, which is the "distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978. p. 86).

Following are examples of two children, my son Ken and Trevor, a Reading Recovery child, which illustrate shifts that occur in learning as children progress through the zone of proximal development (ZPD) as illustrated in Figure 3.

Zone of actual development. The zone of actual development refers to what the child can do independently. Through close observation, RR teachers determine concepts the child has already acquired. For example, Trevor could write the first letter of his name independently, which meant that he had full, mature control of the functions for forming that letter. The RR program is built upon a firm foundation rooted in what the child knows and can do independently. The information gained from both *An Observation Survey of Early Literacy Achievement* (Clay, 1993) and from the first 10 sessions of the Reading Recovery program, called "Roaming Around the Known", serves to uncover what the child knows and can do without assistance. The teacher can determine the aspects of the child's problem solving that have already matured, that is, those that are the end products of development.

The zone of proximal development (ZPD). The ZPD defines those functions that are in the process of maturation, functions that will mature tomorrow or next week. The ZPD has three overlapping phases: (a) assistance provided by a more capable other; (b) transition from other-assistance to self-assistance; and (c) assistance provided by the self.

The stage of *assistance provided by a more capable other* refers to a situation where parents, caregivers, teachers, etc., may organize activities and facilitate learning by regulating the difficulty of the tasks and modeling mature performance through joint participation of the adult and child in those activities. For example, when Ken and I had our first interactions with the button jar, I spilled the buttons on the floor, took his hand, and showed him how to push each button into a pile according to specific color. I was deliberate in my actions, but did not intentionally create a "lesson;" that is, I did not explicitly and intentionally focus on instruction or set out to teach him color words, etc. However, in our joint interactions a tacit lesson was learned.

This is not the case in a Reading Recovery lesson. The teacher consciously and intentionally creates an activity that engages children in such a way that they

have opportunities to use what they know and can do to solve a problem. The teacher structures children's participation so they handle manageable, but comfortably challenging, portions of the activity that increase in complexity with their developing understanding and skill. For example, teachers explicitly teach children how to visually scan a line of text from the left to the right by holding the "pointing finger" to demonstrate how to match what they *say* to what they *see* as the teacher reads the text with them on an individual basis. Through routine and often tacit guided participation, children gain control of directionality and

Figure 3. The Zone of Proximal Development (Vygotsky, 1978)
Note. Adapted from *Rousing Minds to Life*, by R. Tharp and R. Gallimore, 1988, New York: Cambridge University Press.

learn how to match words seen on the printed page with words spoken (i.e., achieve a one-to-one match).

Vygotsky (1978) emphasized language as the most powerful tool for thinking and communicating between individuals. Two types of social speech were evident during the interactions described above. Initially the adult uses language to model the process. For example, through conversation while sorting buttons by color, I believe Ken developed an understanding of how to classify objects by color and the concept of "word" to correspond to each pile of buttons. While engaged in the "sorting buttons by color" activity, my language was very specific. I would say, "Push all the red buttons here." As he became more involved in the activity, he assumed my role and started using my words to regulate what he was doing. For example, he would say, "Push all the red buttons over here" as he found red buttons scattered on the floor and pushed them into the "red" pile.

During RR lessons, the teacher assumes a role similar to the one I had while playing with Ken. However, RR teachers explicitly teach children using specific language to model a process. They routinely adjust their interactions and structure lessons, tasks, and social speech in ways consistent with providing increasingly more challenging activities as children develop additional competencies.

In Figure 3, the dotted line separating *assistance provided by more capable others* and *transition from other-assistance to self-assistance* is designed to show the fluid and flexible adjusting of teacher and child roles and responsibilities as they progress through the program. This transition involves the teacher in a process of assisting children in posing and solving problems through the creation and arrangement of children's activities and responsibilities. For example, in the button jar game, as Ken become more capable of sorting the buttons by color, shape, holes, etc., my role become less directive and our social speech shifted to meet this adjustment. In Reading Recovery, when the child's eyes routinely complete a left to right visual scan of words in a sentence, the RR teacher might ask the child to "Read it with your finger," to support his or her processing.

The dotted line separating *transition from other-assistance to self-assistance* and eventually to *assistance provided by the self* completes the zone of proximal development. The dotted line represents teachers' challenging and supporting children in a process of posing and solving increasingly complex problems that the teacher, and eventually the child, have created as activities. As this process occurs the child's thinking and problem solving are his or hers alone; that is, they occur within the child's mind (intracognitive). During this process the child uses private speech, which is likely the language the teacher used to regulate his or her behavior.

Private speech is self-directing and self-guiding (Vygotsky, 1978). As an example, Ken revealed his plan for sorting buttons out loud through private speech. Once this stage occurs, the child has developed the capacity to initiate and successfully complete a task.

Internalization, automatization, and fossilization occur when the child has emerged from the ZPD into the developmental stage for the activity or process learned. For example, in the case where a RR child has developed the ability to read fluently and flexibly in a left to right direction, executing this directional

reading in a smooth and integrated way, the process (left-to-right serial order) would be considered as internalized and automatized. Vygotsky (1978) described it as the "fruits" of the development, but he also discussed it as "fossilized" which suggests the fixity of the process.

During this period of development there is a transition from private speech to inner speech. Inner speech is the child's silent, abbreviated self-dialogue that is the essence of conscious mental activity. Vygotsky (1978) postulated that "language arises initially as a means of communication between the child and period in his environment. Only subsequently, upon conversion to internal speech, does it come to organize the child's thought, that is, become an internal mental function" (p. 89). When this occurs, assistance from the adult is no longer needed. The following example illustrates a child who, by evidence of his inner speech, has reached this phase of development. He has emerged from the zone of proximal development.

Trevor had been in the Reading Recovery program for seven weeks and this was his first attempt to read the level 6 book *Willy the Helper*.

The text: On Monday, Willy helped me fold the clothes.

Student talk: *On Monday, Willy helped me fix, there's no 'x' (hesitates), find, f-i-n-d, there's no 'o', fold, yea, that looks right. On Monday, Willy helped me fold the clothes.*

It is obvious that Trevor had developed a plan to guide and monitor his behavior independently. Fortunately, he revealed his thinking through verbalized inner speech. Eventually Trevor's inner speech would be internalized and transformed to inner verbal thought. His overt behaviors did, however, suggest shifts in problem solving. For example, Trevor's first plan was to think of a word that began with 'f' that would make sense in the sentence – 'fix' was a meaningful prediction. However, when he said the word aloud, he did not hear or see an 'x'. His next move was to think of a word that made sense, started with an 'f' and ended with a 'd'. He tried 'find'. Once again, 'find' was a good choice because it began with an 'f' and ended with a 'd' and made sense, but after saying the word slowly he did not hear an 'o', the second letter he saw of the unknown word. He had to think of a word that started with an 'f' and was followed by an 'o'. He tried 'fold' and listened to the sounds of each letter in the word, checked them against what he saw in print, and he then pronounced that "The word looked right." He was now ready to read the entire sentence accurately and fluently.

Trevor's behaviors suggested a smooth integration of several task components, each of which was taught several times three to four weeks prior to this lesson. He had developed a flexible strategy system for problem solving that enabled him to predict and confirm words that would make sense, look right, and sound right in a particular sentence. Trevor had developed the ability to regulate his own behavior.

According to Diez, Neal, and Amaya-Williams (1990), self-regulation is "the child's capacity to plan, guide, and monitor his or her behavior from within and flexibly according to changing circumstances" (p. 130). The word "capacity" combines two separate but interrelated concepts, that of will and skill. If the child does not have the will to learn, there is no interest, no motivation, no focused attention, and few opportunities for the child to develop higher order reasoning.

The research of Damasio (1994) and Greenspan (1997) supports the links between feelings and reason; that is, emotion and cognition.

Developing specific skills is equally important. The child must have learned and developed some fundamental cognitive skills in order to make continuous progress. For example, the child must develop the skill to distinguish the features of specific letters (lines, circles, squiggles), to recognize similarities and differences among letters, to determine features of a letter that other letters have in common, and to provide a label (letter name) for specific letters in order to organize them into a specific sequence to make up a word.

For some children, these skills are not going to emerge as easily as they did for Ken. Not because they do not have enough neurons, but because connections between neurons and dendrites have not been estr 'ished or routinely used enough to become mylinated. This is true because some children have had fewer opportunities to engage in reading and writing activities prior to formal schooling. But time has not run out for such children. Reading Recovery teachers know that it is possible, with expert teaching, to provide learning opportunities that enable children who enter school with a low repertoire of literacy skills to become proficient readers and writers in a relatively short period of time.

Neurological studies (Greenspan, 1997) have also demonstrated how experience, organized and directed through specific speech and language patterns, develops the growth of brain structures and minds in such a way that one can see connections among neurons and dendrites. Through repetition and mylination, these neurons and dendrites can become stronger, speedier, and more flexible.

De-automatization of performance represents the final stage of the described process. Life-long learning by all individuals involves the same regulated ZPD sequences—from other assistance to self-assistance—recurring over and over again for the development of new capacities. However, for every individual there is a point in time when he or she needs assistance while learning a new skill. When this occurs, recursiveness through prior stages takes place. In some cases the individual can provide assistance for himself. Other times, however, he or she may need expert help from another individual.

Prior to reading *Willy the Helper*, Trevor's lessons were a mix of other-regulation and self-regulation sometimes occurring in one sentence in the text. Each strategy used (check first letter, last letter, middle of the word) to analyze and read the word 'find' was taught many times while reading and writing texts and sorting letters within words using magnetic letters. A fundamental principle that underpins Vygotsky's (1978) theory of learning is that the instructional activity of teaching and learning is effective only when it proceeds ahead of development. This theoretical principle becomes evident in an analysis of multiple interactions between Trevor and his RR teacher as they progressed through the RR program.

My experiences in the examination of teacher/child interactions while observing and analyzing hundreds of Reading Recovery lessons and interviewing many teachers have led me to discern five characteristics of effective RR teachers (Lyons, Pinnell, & DeFord, 1993). First, they know how to create opportunities for children to learn *how to learn* as they progress from other-assistance to self-assistance within the ZPD. Second, they understand and are able to discuss the

learning and teaching processes at both theoretical and practical levels. Third, they can recognize specific behaviors that indicate shifts in children's learning and conceptual development.

Fourth, they know how to create opportunities (through arrangement of materials and conversations) to accommodate specific child needs and to shift instruction when behaviors suggest a task is too easy or too difficult. Finally, they listen carefully to the child's language as he or she transitions from stage to stage through to self-regulation: (a) from social speech between the teacher and child, (b) to private speech, where the child uses the language of the teacher to control reading and writing behaviors, (c) to inner speech where the child's abbreviated self-dialogue controls his actions, and finally, (d) to inner verbal thought.

Implications for Teachers

The theories discussed in this article serve to present a challenge to teachers of struggling learners. The practical implications of these theories that explain the making of the mind suggest three important things teachers may do to facilitate joyful and accelerative learning:

- Provide emotional support and encouragement for children's imperfect attempts and partially right responses.
- Expect all children to make accelerated progress such that they can benefit from classroom instruction.
- Remember it is the quality of experience and instruction, not the child's cognition, that determines success or failure.

Melvin Konner (1991), a physician and anthropologist who has studied the emotional and cognitive development of children, writes:

> **Consistently losing does not promote self-esteem, no matter how impervious to reality you may be. So every educational program needs to make a choice. You can get short-term gains in self-esteem and continue to lose ground; or you try this theory: that self-esteem can come from making great effort, from facing uncertainty and overcoming obstacles that we are not sure we can meet, from doing our level best. (p. 231)**

I believe effective teachers function in such a way as to support this point of view.

Teachers of at-risk learners may have to struggle with children from time to time to get them to overcome doubts about themselves, to dig in, and to make strong attempts. It is a challenge, but only by accepting it will teachers get to see the excitement in a child's face when he or she closes the cover on a new book just read and says in a thrilled, surprised voice, "I did it!"

True self-esteem grows from mastery of genuine challenges. Recent neurological research (Damasio, 1994; Greenspan, 1997) suggests that no human being can learn material presented in a form that his or her nervous system cannot handle. Children given tasks beyond their capacity lose confidence, the will to learn, and self-respect. They become defeated. As educators, we should take seriously Greenspan's (1997) challenge set forth in the opening of this article, that is, to consider the emotional nature of learning and the critical role emotions play in the making of the mind. To ignore that is to fail children.

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Biography

Carol A. Lyons is a professor of education at The Ohio State University in Columbus, Ohio. She teachers graduate courses in developmental and corrective reading, literacy curriculum development and evaluation, teaching and learning, and the Reading Recovery theoretical courses for teacher leaders and university trainers. Dr. Lyons has conducted research and published numerous articles in the field of cognitive processing, learning and reading disability, and teacher learning, curriculum development, and practice. She is the co-author of two books: *Partners in Learning: Teachers and Children in Reading Recovery* and *Bridges to Literacy*. Dr. Lyons is past president of the Reading Recovery Council of North America.

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Cultural Production as Reproduction in the Appropriation of Mediational Means in School and in Out-of-School Contexts

Christopher Worthman, DePaul University

Abstract

This article presents instances of two children, ages 6 and 10, using representational speech, or the language of formal instruction, in school and in out-of-school contexts. I contend that the children purposely chose to use this language in different contexts and made the distinction between it and other mediational means, such as the more familiar language of home, for reasons tied to the authoritative and hegemonic nature of representational speech. Language use is a complex and dynamic process that arises from not only the context but also from the sociocultural backgrounds and interests of the participants as well the mediational means available to them. As such, teachers need to support their students in their contesting of culture in all situations, being aware of the interaction that takes place in the classroom and where ultimately that interaction leads. Helping students recognize mediational means and why they are used in particular situations may lead to real and positive change that allows for multiple perspectives and voices in the classroom and society.

I open this article with an anecdote from my first year of teaching fifth- and sixth-grade language arts. I taught at a private inner city school that served African American males. Most of the students found their way to the school through a process of elimination. They had no success in the public school system, and many had been labeled as having behavioral or learning problems. Friends, relatives, and neighbors recommended the school as possibly a last chance before they stopped going to school all together.

After two months, I settled in and established a routine centered on process writing and literature-based instruction. Students often worked collaboratively on self-selected and teacher-initiated projects. Classes began with students writing in journals. After a 10-minute mini-lesson, the rest of class time was given over to project work, literature groups, and individual and group conferences with me. This class format, although often chaotic, appeared to interest and challenge students—particularly after they realized there were deadlines to meet and revisions to make on their work—that is, except for Eric, who questioned much of what went on in class. One day I asked what he thought I should do to make school interesting and challenging for him. He shrugged and said he did not know. I asked what he would do if he were the teacher. He looked at me, smiled, and said he would "do better" than I was doing. I asked if he would use different materials or treat the students differently. He said, "I'll show you what I would do." His smile suggested that he may have been joking, but I said, "Okay, half of tomorrow's class is yours to teach." Eric nodded and said, "All right."

I had not expected Eric to come to school prepared to teach, so when he walked to the front of the class the next morning I was surprised. He told me to take a seat and said, "Remember what you said." I nodded and sat in his chair. He told the class that he was the teacher for the day and that if anyone gave him a problem he would deal with them. Everyone looked at me, and I only shrugged. "He's the teacher today," I said. The others' amusement quickly evaporated, however, as Eric proceeded first to lecture about the reading assignment and then to quiz them on it. He stood in front of the class and worked from the textbook, asking questions and, if there was no immediate response or if the response was "incorrect," reading off the correct answer. When a student complained about being curtly told he was wrong, Eric said, "You're wrong, no ifs, buts, or ands about it." He held up the book, a finger pointing to the section he was reading, to show where, in part, his authority resided.

While sitting at Eric's seat and being ignored by him, I was reminded of the childhood game of playing school, that make-believe activity that even the most adamant haters of school play and that invariably takes the form of a question-and-answer dialogue, with the teacher giving the directives and chosen students responding. Eric was serious in his role as teacher and indicated in his interaction with the class what he thought constituted knowledge and how that knowledge is shared. Playing school is no different. Authority resides in the child-made-teacher, and all the other children agree to the form and function of the game and their roles as "students," waiting anxiously, first, for their

turn to be called on and, second, for their turn to be teacher. They mimic the words and actions of their teachers with dramatic emphasis on the authority of the teacher-talk and the transmission of knowledge. Such emphasis on authority and the transmission of knowledge suggests what students believe about the structures of school, society, and knowledge even as many of them struggle within these structures.

Much of the tension between Eric and me, I now believe, was rooted in the image or persona I conveyed as a teacher and how it contrasted with what he expected of school and of me. Eric's background was etched by contact with social service agencies and government-sponsored programs, including state child service agencies, public schools, and community organizations, both private and public. He understood what he needed to do to succeed within the existing social order even as he found the task daunting, and he had come to expect school to be a certain way, with what is said conforming to a certain language style, which he exemplified in his teacher impersonation. This is not to say that Eric, or other students, did not take advantage of or adapt to the new classroom pedagogy or that the pedagogy met all the other students' needs or expectations. The anecdote merely points out that even as Eric struggled within previous, more traditional school structures, he still believed such structures were what school was about, and anything less, was a slight to him.

For Eric and children who play school, performance is serious business, and even if they do not excel in or value formal instruction within a school context, they believe their representation to be what school is about and that there is power and significance in the knowledge sanctioned by schools. Over the past couple of years, I have experienced this phenomenon anew in the words and actions of my son, Ryne. As a six-year-old, Ryne began appropriating, or what I call "trying-out," a language of formal instruction in out-of-school contexts or situations that were familiar to him but in which he never used this language before. In his interactions with his mother and me, he would present information as if it were borne of him and as if nothing in our experiences related to the information. In other words, knowledge moved from him to us in objectified fashion, with no consideration of the context or our prior experience. Before this, Ryne had played school with neighbor kids and cousins on many occasions, but the trying out of a language of formal instruction that caught my interest was more subtle and purposeful and done in familial interactions, which I present later in this article. He nor I would classify these interactions as play.

In defining what constitutes the language of formal instruction used by Ryne and Eric, I borrow from Minick's (1993) research and analysis of repre-

sentational speech. She writes that representational speech concerns itself with "bracketing off" human interests and concerns from what is said, making meaning dependent on the words spoken and, thus, the speaker. Such speech is often a product of the classroom, where it is used as a means of classroom management and control and for imparting specific information to students, hence my referring to it as a language of formal instruction. Representational speech is often a textbook-based speech, where what is learned is the terminology or language of the content area with little consideration of the activities or contexts of which this language is a natural part. It is an objectified knowledge. For example, to learn the parts of the body without focusing on one's own body or others' bodies and how these parts function in people's lives or the significance of these parts in the work of biologists and medical professionals is to decontextualize and objectify what is learned. It is to disengage the language from the object it represents as if the language stands alone as knowledge.

Representational speech neglects lived experience and what the learner brings to and takes away from the learning event that is relevant to her life. Indeed, representational speech disembodies knowledge from human interests and concerns and the situation in which it is presented, often for hegemonic effect, or for the maintenance of existing power relations and a top-down flow of knowledge. It is important to realize, however, that as a mediational means, representational speech is neither exclusive to the domain of schools nor the only language style used in schools. One needs only to read a contractual agreement drawn up by lawyers to realize this. Representational speech is one way of interacting, and as a language of formal instruction, it can be understood as a way of asserting authority (Minick, 1993), even, I think, for those whose position within a particular situation is not normally imbued with authority. The validity and usefulness of the information are ingrained in the authority of the speaker, an authority representing the position one inhabits and not the person.

During the situations with Ryne and, in retrospect, with Eric where representational speech was used, I found myself asking the Bakhtinian question, "Who is doing the talking?" (Bakhtin, 1986). Obviously, they were the people speaking, but in their talk what cultural, historical, and institutional voices were being privileged and why? Privileging in these situations refers to which mediational means, or language practices or styles (Hymes, 1974), Ryne and Eric viewed "as being more appropriate or efficacious than others in a particular sociocultural setting" (Wertsch, 1991, p. 124). Eric, in acting like the teacher, chose to speak and act as he believed a teacher would, using a media-

tional means he thought appropriate for the situation even as he had difficulty functioning as a student in similar situations. Indeed, from past experiences in similar situations, Eric had learned the language of formal instruction and what constituted knowledge and the sharing of knowledge.

Ryne, too, although in less explicit and authoritarian ways, appropriated representational speech in talk with his mother and me, demonstrating his assumptions about this language's use and the contexts in which it is used. Yet, at the time Ryne began trying out the language, he was in a school that strove to contextualize teaching and learning by drawing on students' lives and making instruction relevant. Being a white, male student in a family of educators, Ryne's use of this language style probably would have gone unnoticed or would not have seemed unusual had I not been interested in mediational means appropriation. I had made conscious efforts not to use representational speech in contexts in which Ryne was a part and had chosen his school believing he would not be in such contexts, at least not to the degree as in other schools. Rather than disdain the appropriation, however, I decided to examine Ryne's use of this speech.

In this article, I present Ryne's use of representational speech during conversations with his mother and me for what Willis (1981) calls the dynamic processes of production and reproduction in creative practice in determined sites and how these processes help reproduce culture. Specifically, I show how Ryne reproduced the speech in familial contexts and to what ends. I contend that Ryne, like Eric, purposely chose to use this language and made the distinction between it and other mediational means, such as the more familiar language of home, for reasons tied to the nature of representational speech. He also distinguished between situations in which different mediational means might be appropriated, making explicit what mediational means to use in a particular situation. In conclusion, I maintain that educators need to be conscious of the mediational means they use while helping their students become aware of different mediational means and opening up the classroom to multiple perspectives and voices. Before looking at the familial interactions of Ryne, his mother, and me, or the sites of inquiry, however, I want to outline the theoretical underpinnings of my observations, most notably the dynamic nature of human interaction in self-creation and cultural production.

Human Agency Within Existing Structures

In *Ways with Words*, Heath (1983) demonstrated how mediational means learned outside of school in children's home environments affect their in-

school performance. At one point, however, when discussing the literate traditions in the Trackton community, she referred to Aunt Bertha's son who had "peculiar boyhood habits of wanting to go off and read alone" (p. 191). Although she used this anecdote to point out the social attitudes of the community toward someone who chose to read over socializing with neighbors, Heath did not comment on where the young man might have picked up these habits. From her descriptions of Trackton life and literacy acquisition, I assume that, although he entered school having a history of literacy rooted in functional reading practices with environmental print, it was in school that Bertha's son first encountered any prolonged use of books and the practice of reading that was labeled anti-social by his neighbors. Bertha's son may have loved reading so much that its use in situations where it was not expected or appreciated was worth family and neighbor criticism. However, in most cases, people use language to try to effect a positive image of themselves, particularly from others with whom they are most closely associated or with whom they most closely want to associate. Habermas (1984) terms this self-presentation as "impression management." A person presents himself to the world with the intention of evoking a certain public image.

In any situation, however, a person's self-presentation is mediated by the response of others. If the response does not validate the presentation, then not only does the person usually redefine how she presents herself but also her image of herself is transformed to some degree. As Benjamin (1993) writes,

> ... in the very moment of realizing our own independence, we are dependent upon another to recognize it. At the very moment we come to understand the meaning of I, myself, we are forced to see the limitations of that self. (p. 134)

The dynamic interaction of self and others implicit in any self-representation and in others' responses is an ongoing process, where human beings create themselves in interaction with others within existing structures. In other words, the interaction of individuals, or what Wertsch (1991) terms the intermental plane of existence, affects and transforms how a person understands and presents herself to the world through her speech and actions, the intramental plane of existence. Wexler (1992) suggests that this interaction and subsequent self-understanding may be more dynamic and confrontational for youth who are trying "to create ... visible, differentiated and reputable sel[ves]" (p. 155). Yet, even in such confrontational interactions, or interactions where authority is either assumed or subsumed by the other, the self still looks for and depends on others' responses. At the same time, the self enters

specific situations with certain expectations that are rooted in prior experience and sociocultural backgrounds.

Wertsch (1991) writes that "the power of mediational means in organizing action is often not recognized by those who use them, which contributes to the belief that cultural tools are the products of natural or necessary factors rather than concrete sociocultural forces" (p. 37). For example, the anecdote about Eric suggests the influence of being in situations where representational speech was privileged. Eric's beliefs, and consequently his utterances and actions, about education and school grew out of his experience, even as that experience had not been positive. Eric, like children who play school, believed that how he was teaching was, by definition, how school should be. Yet, Heath's anecdote about Bertha's son demonstrates the dynamic nature of human action and, thus, cultural production. Individuals choose the mediational means they think appropriate even if the situation is antithetical to the means chosen. The selection of mediational means is neither random nor determined. It involves both how one interacts within the situation and the mediational means available to the person (Gilligan, 1982; Kearins, 1981, 1986).

Bourdieu's (1977) and Bernstein's (1975) theories of cultural reproduction assumed that sociocultural background was so much a determinate of human development that people could not help but act a certain way in a particular situation and, thus, reproduce existing cultures. The dominant culture is reproduced because of its "system of objective relations which impart their relational properties to individuals whom they [the objective relations] pre-exist and survive" (Bourdieu & Passeron, 1977, p. 487). The relations that allow the dominant culture to be reproduced are as insipid and preponderant as the air around us, Bourdieu implies. In effect, what happens is that cultural structures, such as educational systems, economic structures, and home environments, reproduce themselves by producing agents who are predisposed to act in ways that contribute to the reproduction of the systems, structures, and environments. Preliminary reflection on both Eric's and Ryne's appropriation of mediational means suggests this to be true. Both mimic what they had already heard. This conclusion, however, ignores the confrontational nature of self-creation, a nature exemplified by the anecdote about Bertha's son, which is possible only if we allow for human creativity within established structures.

Over the past 15 years, a critical ethnography has developed that has transformed Bourdieu's and Bernstein's theories of reproduction to allow for creativity. Lois Weiss (1996) refers to this development as a growing interest among educational anthropologists in the "relational component [of structure

and agency to] the construction of identity" (p. x). Culture does not so much reproduce itself as it produces itself anew in response to human agents acting and speaking within particular situations (Willis, 1991). Indeed, because of activity and creativity, cultures cannot be reproduced; they can only be produced, transformed in degrees so minute that, as Wertsch notes, they appear natural or necessary. Ryne's trying out of representational speech, much like Bertha's son's reading, is a creative act that affects the situation and produces—and invariably reproduces—culture and transforms his consciousness. Eric's use of representational speech was creative and affected the situation in the ways he had intended. Not only did he demonstrate what he thought school should be like but he also got me to think about how I was teaching.

Willis suggests that to understand how cultures produce themselves we need to look beyond school at the dominant influence in human development: the home and community into which a person is born and spends his or her formative years. Thus, in the analysis that follows, the point of inquiry is the spaces in which we all live, those spaces between the structures—such as school, home, and other institutions—that help shape our existence and world view and our ability to act in the world, using the "tools," particularly language, that are available to us within these structures and across structures. As such, the excerpt and description that follow can be looked at as models for the way complex uses of mediational means might exist in other situations, suggesting the complexity of language use and cultural production that speaks to the necessity of always asking and understanding the question, "Who is doing the talking?"

Cultural Production and the Development of a Speaking Voice

Language Appropriation Within a Familiar Context

The following excerpt was recorded nearly five years ago while my son Ryne and I were doing yardwork. I was pulling weeds along a fence in our backyard, and Ryne was following along, mainly watching and recording with his tape recorder, something he had begun to do shortly before that time. He liked to record events throughout the day, including the times he was alone in his room, so seeing him with his tape recorder was neither surprising nor unusual, although it proved serendipitous. Hearing this conversation later piqued my interest in mediational means appropriation.

Ryne, six years old at the time the excerpt was recorded, was interested in nature and things scientific and knew a lot about plant, animal, and insect life. His class was part of a nature project called Mighty Acorns. They helped clear forest preserve land to make way for a prairie wildflower sanctuary. Most of Ryne's knowledge about nature and wildlife came from school activities and reading informational books on science and nature. At the same time, however, he continually asked me for information and stories about my youth in a rural area and along a river, where I had fished and trapped since I was his age.

The excerpt begins with Ryne seeing a spider on the fence. Not realizing I had seen it too, he ignored the particular spider and began a conversation about spiders in general. (/// indicates a break in the recorded interaction; italicized words indicate stressed or strongly intonated words.)

(1) Ryne: *You know*, if there wasn't spiders in the world, *insects* would take over the earth.

(2) Chris: (continuing to work) I didn't know that.

(3) Ryne: Yeah. (He paused.) *Spiders* eat more insects than anything else in the world.

(4) Chris: That's interesting.

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(I continued working, moving a couple of feet along the fence row, and Ryne stayed near the spider. A few minutes later, I uncovered an earthworm as a I pulled a clump of weeds up by the roots.)

(5) Chris: (Pointing) There's an earthworm.

(6) Ryne: Where? (He walked over and knelt beside me.)

(7) Chris: There. (I put my finger by the worm.)

(8) Ryne: Oh. (He bent down to get a closer look and then sat up.) Just like when you were a kid and you hunted worms. Remember? Remember the story about getting earthworms?

(9) Chris: Yeah. But that was at night after it rained, and the worms came out of the ground then.

(10) Ryne: I know. You'd pick them up before they went in the ground. (Without repeating the story, Ryne summarized what he remembered and pressed for more, but I continued working, saying that he already knew the story. We both were quiet for about 30 seconds.)

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(11) Ryne: Can I pick him (the worm) up?

(12) Chris: No. Just leave him there, so he can go back in the ground. He doesn't like being in the sun.
(13) Ryne: *I know*. The sun will dry him up. They don't like the sunlight. *That's why* they live under the ground.
(14) Chris: *I'll* put him in the grass over here. (I picked the worm up.)
(15) Ryne: Don't squish him. (He looked closely at the worm.) He looks dead.
(16) Chris: He's not.
(17) Ryne: I know.
(18) Chris: There.
(19) Ryne: I bet he goes under the ground now.

The factual statements, or comments about spiders and worms (lines 1, 3, and 13), were what Ryne learned either during Mighty Acorn activities or from reading and were embedded within particular situations that involved either his actual or vicarious participation. He had, however, taken this information and introduced it to a situation different from Mighty Acorn or reading contexts and attempted to decontextualize it as a way of appropriating it for his own purposes. It was decontextualized in that, as statements of fact, their meanings stand on their own and would be the same in any context. However, this is not enough to classify the statements as representational speech. Significant for being classified as this type of speech is that each statement was spoken to guide the conversation in ways Ryne wanted it to go. He did this by taking a stance as the sole bearer and sharer of this knowledge. In lines 1, 3, and 13, he stressed or strongly intonated words or phrases that conveyed his authority and the knowledge he held and shared. In line 1, he stressed *You know* and *insects*. In line 3, *Spiders* and *anything else*. In line 13, he stressed *I know* and *That's why*. Phrases such as *You know, I know*, and *That's why* are emphatic claims of authority that position the speaker to tell what he or she knows and that demand the listener's attention. The other words or phrases—*Spiders*, *anything else*, and *insects*—are the information to be conveyed, information that had been decontextualized by the speaker and that when stressed connoted a universality that minimized the significance of the context and the listener's experiences and maximized the speaker's authority as information knower and sharer.

Ryne made the first statement (line 1) after he saw the spider and believed I had not seen it. As such, although for him there was a context for making the statement (There was a spider on the fence, thus reason to talk about it.), the statement to me was decontextualized and not said to draw my

attention to the spider but to start a conversation in which Ryne assumed authority over and controlled knowledge transmission. My response of ignorance (line 2) validated Ryne's authoritative position as knowledge bearer and sharer. He followed my comment with another statement of fact (line 3), and again did not point out the spider to me. I again validated his statement with my response (line 4). At this point, I had moved a few feet beyond the place where the conversation had begun, while Ryne stayed near the spider. The distance between us facilitated the ending of the conversation.

Ryne and I often talked about past experiences when we were together doing yardwork or other things. Stories from my childhood or my memories of when Ryne was younger were often part of the conversations. Ryne returned to this more familiar mediational means (line 8) after I unearthed the worm because it triggered his memory of a story I had recently told him. However, my unwillingness to repeat the story or to allow him to pick up the worm led Ryne to clarify or trump my statement in line 12. In line 13, he pointed out that not only does he already know that worms do not like the sun, but he also knows why and what they do to avoid the sun. His cause and effect statement reasserted his authority about nature.

In the excerpt, Ryne demonstrated an ability to move between mediational means, both by initiating them and responding to my utterances in ways that directed or guided the conversation. He transformed the situation by introducing a way of talking and thinking that had been absent from similar situations before then. He used representational speech effectively. He demonstrated in his use of such speech that he understood its decontextualized nature and the authority it presupposes by easily appropriating and demonstrating these aspects of the language.

Distinctions Between In-School and Out-of-School Structures

The following descriptions are of Ryne's music experiences over the three years following the excerpt in the previous subsection. Ryne began taking flute lessons at the beginning of fourth grade, which was less than a month after he turned nine. After his first lesson, he came home and practiced and then, later that evening, explained the design and function of the flute to his mother and me. After we were seated, he sat in front of us and proceeded to explain the parts of the flute and to show how they fit together. He held up each piece, said its name, and then asked us to repeat the name, nodding his approval when we were correct and repeating what he had said when we were wrong. He then showed us how the notes are produced, taking care to point out a

number of times that the pressing of different pads produces different notes. He then played for us the few notes he had learned, showing us after each one what the note looked like in his music book. After that, he quizzed us, asking questions and telling us to raise our hand if we knew the answer. I assumed that this structured and one-sided presentation was similar to the one he had gotten earlier in school.

Although this was his first experience with the flute, it was not Ryne's first experience with music. His interest in music went back three years to when he was introduced to the xylophone in school. There were no lessons involved or even efforts to reach students notes, but once a week they would sit in a circle and learn simple songs by ear and sight as the music teacher demonstrated. During free time, Ryne often played the xylophone on his own.

After much discussion, I bought Ryne a used xylophone when he was six, and he began playing it at home and writing his own music. Since he had not learned the script, or written notes, for music, he wrote the letters of the corresponding notes across a piece of paper. He also wrote the letters of the notes on the keys of the xylophone. His songs, in effect, were strings of letters from A to G written across lined notebook paper.

A year later when he was given a recorder and his first music book in school, he began to learn the note symbols, but continued to write his own music in alphabetic script, going so far as to write four songs in script that he performed at his school's recorder recital at the end of third grade. One day, I looked in Ryne's recorder music book and noticed he had written the letter for each note above its symbol, suggesting to me that he had yet to appropriate fully the language of music into his repertoire of mediational means, although he had been learning it for nine months.

Beginning with his flute lessons and band practice in fourth grade, Ryne started using the note symbols in school contexts. He began having private lessons at school and having band rehearsal twice a week, including solo performances and written homework and practice. For example, as part of his formal instruction, he had two exercises early on that required him to demonstrate his proficiency in writing notes. In the first, he completed the last one or two stanzas of a known song based on the earlier stanzas, and in the second, he wrote his own music incorporating the notes he was learning that week with the notes he already knew. These exercises were short-lived but, even with that, Ryne was immersed in the language of music and no longer used alphabetic script in his reading or playing of music.

Four months after he started playing the flute, however, I saw Ryne writing on the inside cover of his music book and asked what he was doing. He

said he was writing a song. When I looked at it, I noticed that it was a grouping of alphabetic letters across the page. I asked him why he was doing it that way when he knew the note symbols. He shrugged his shoulders and said, "Well, this isn't for school. I'm just doing this for fun."

Ryne made a distinction here that is significant: He compared how things were done in school with how they were done in other contexts. Like in the garden excerpt, he knew when and how to appropriate mediational means for specific purposes, and he did so in this second example consciously, noting that one way is for school and the other is not. More significant, however, was the dynamic nature in which Ryne appropriated mediational means depending on the situation. When interacting with his mother and me after his first flute lesson, he used representational speech, which included the note symbols, knowing we were unfamiliar with the information and that the language use provided him authority over the information. Although the information was new to him, he presented it as sole arbitrator or knower, as if the information were borne of him. Whenever we discussed his flute lessons or talked about a song he was learning, he enjoyed pointing out the patterns of notes and what they meant. During practice time, he played songs and asked if we knew the titles, often showing us the song and then replaying it. Again, Ryne was creatively shaping the situation with the mediational means he appropriated, taking an active part in the production of culture while appropriating the authority that was implicit in the language of representational speech even as his knowledge of what he said was new to him.

Getting a Grip on Mediational Means

With a question such as "Who is doing the talking?" the answer is both the speaker and the sociocultural influences on the speaker. Wertsch (1991) provides excerpts demonstrating the Vygotskian theory of internalization, wherein what formerly occurs on the intermental plane, in the interaction of individuals, moves to the intramental, or conscious, plane. Wertsch's excerpts show that what was once a conversation between a mother and child on how to put a puzzle together was transformed in later situations to the child doing the same task, appropriating the voice of his mother in asking himself the same type of questions she had asked during previous activities. It is not surprising then, that within settings such as school, students often learn representational speech and make it part of their repertoire and, to varying degrees, appropriate it in other situations.

Although the information they tried to convey may have been new to them, Ryne and Eric learned and used representational speech well. They also learned how to present knowledge through the use of this speech even as that knowledge was still rudimentary and suspect to them. Saljo and Wyndhamn (1993) suggest that students recognize the importance of context in decision-making and act accordingly, using different strategies to solve the same problem presented in different contexts. Both Ryne and Eric knew that mediational means are dynamic language styles that can be applied to different situations. Ryne did this when he distinguished between in- and out-of-school contexts and the form his music writing took. Even if we grant that the processes by which he read and wrote music were part of the larger process of learning the language of music, the nature in which he appropriated the different processes suggests his effort at "assessment management," or securing his place within a particular situation. Eric, like many students, knew representational speech's function in society as a language style that embodies authority and distinction, separating the knowing from the unknowing (Levinson, 1996). I suggest that he appropriated this language for its affect in certain situations, seeing it as important in contexts such as school but possibly irrelevant or even detrimental in other situations (Fox, 1990).

Both Ryne and Eric contested the situations in which they found themselves, actively and creatively working on them to transform the contexts and their places in them. Ryne's use of representational speech accelerated the reproduction of dominant culture. By this, I mean that, although he creatively appropriated this speech, his reasoning for doing so was based on an assumption he had about the language: He believed it purported a certain authority, making him the arbitrator of the information he shared. Eric's pointing to the text to note from where his answers came suggests the same assumption. With Ryne, such an assumption may never cause confusion or doubt. His position in mainstream society is not as precarious as Eric's may be because he is already, for the most part, of the mainstream. Eric, however, in many ways is not and must weigh the benefits and disadvantages of mainstream society against a background that has not been well served or honored by mainstream institutions such as school. My concern, in this case, is not with Ryne's future but with his role in society. He, like all students, was learning to be a member of a society, and how and why he appropriated language styles was part of that learning.

The contradiction evident in saying that Eric and Ryne both contested—thus produced—and reproduced culture (Levinson & Holland, 1996) is a result of the dynamic interaction of structures and agents, and of how struc-

tures define and are defined by agents. Understanding this contradiction, and examining it in particular situations, is paramount to beginning a worthwhile and meaningful discussion of agency, opportunity, and equity for all students.

Levinson and Holland (1996) claim that "people creatively occupy the space of education and schooling" (p. 14), going on to say that "this creative practice generates understandings and strategies which may in fact move beyond the school, transforming aspirations, household relations, local knowledges, and structures of power" (p. 14). Ryne took what he learned in school and appropriated it outside of school in ways that challenge existing structure relationships. He creatively asserted himself in household situations in ways he had not done so before. He also challenged existing knowledge in that he introduced a competing mediational means as a way of presenting new information in already established structures. Ryne, in effect, used existing structures to develop creatively and assert his own agency. He created a public image, or as Rival (1996) writes, reformed "ordinary practices, particularly those centered around the body and the domestic space," to reorganize social practices and reshape his social identity (p. 160). Yet, the social identity he created fit easily within the existing social structure, reproducing existing social hierarchies and all the inherent inequalities borne of negating the experiences of others in favor of the objectified, narrowly defined knowledge that is representational speech. Unless Ryne understands representational speech as only one of many mediational means and why and when he uses it, his appropriation is problematic in that it has the potential to marginalize others' ways of knowing and understanding. As Ryne's father, I consider the possibility of this outcome to be the miseducation of Ryne, and I wonder how many other students, particularly students in well funded, middle and upper class public and private schools, are being miseducated in the same ways.

For Eric, the assumption that representational speech inherently affords him or others authority is just as problematic. Although he may succeed in a society that makes representational speech indicative of knowledge and culture (He has gone on to one of the better private high schools in the city), the price of consciously or unconsciously "buying into" the beliefs and practices of such a society may come at a high cost, one that low socioeconomic status students may neither be able to afford nor willing to pay (Fox, 1990).

To argue against teaching students to appropriate and use representational speech because of the authority it implies is absurd, however. I agree with Eric that there is something wrong with a teacher who withholds language skills and styles that can help students, particularly students from low socioeconomic backgrounds, enter and challenge mainstream society. How these styles are

taught is my concern because both Eric's presentation in my class and Ryne's appropriation of representational speech outside of school were chilling for their Orwellian hue. Ryne and Eric need to know about representational speech, but they need to know that it is only one mediational means among many. In other words, we, as teachers, need to be explicit about not only the information we teach but also the mediational means we use and why we use them. We also need to open our classrooms to other mediational means. Many teachers and researchers already are doing this (Gallis et al., 1996; Heath, 1983; Moll, 1990, 1992). We would be remiss, however, as Delpit (1992) notes, in going too far and thinking that representational speech cannot serve these students. We as teachers need to teach the language as only a tool, and not as the essence of formal education, making explicit why it is valued and showing its limitations and its ability to exclude the knowledge and experience of others. Classrooms, whether they are in wealthy, middle class, or poor school districts, should be places where different language styles and ways of knowing are valued and investigated, where language itself is explored and different ways of expressing or sharing information are promoted.

Teachers can begin the process of exploring mediational means by making the classroom a place where student experience is valued and used as an entry point into classroom content. This means beginning with student stories and moving outward to bring in the curriculum content. It means finding ways that students can use this content in their lives. For example, to teach about plants and botany, teachers could begin with not only what students already know but also with probing questions that get them to talk about plant life and their relationships to that life without any "objective" or content information being presented. These conversations make students receptive to new information, even information that challenges what they already know. Indeed, the content becomes part of the conversation, appropriated by students in their talk about their lives and the lives of others. As such, students can figuratively, as one of my undergraduates recently said, "wrap their minds around an idea," (M. Luellen, personal communication, October 19, 1999) which I took to mean that a student can make it her own within a plethora of knowledge and experience that his uniquely hers.

Exploring mediational means would also include making the classroom texts that often foster representational speech, such as textbooks and lecture formats, problematic. Teachers could do this by noting that these texts are perspectival and often represent only one way of looking at things, and by asking students to respond to what is presented in these texts, again drawing on their own experiences. It might mean pointing out where information in the text

has changed. For example, students immersed in whole language classrooms are quick to respond when told that students in other classrooms are often taught differently. My students were always somewhat incredulous when I would describe the formulaic Dick and Jane texts with which I learned to read, although with discussion they easily understood the principle behind controlled vocabulary and repetitive texts. Supplemental texts, such as fiction and student-generated texts, can also offer other perspectives. As students become more mature, conversations around mediational means, like why some texts are written or sound differently than others or why we talk differently to our parents than to our friends, to a stranger than to a sibling, can begin the process of analyzing and naming mediational means and can practice using them in different contexts for different audiences.

Conclusions

In this article, I demonstrated how Ryne appropriated the language of formal instruction and considered why he did so and to what ends. Juxtaposed with this analysis, I introduced Eric and his use of representational speech. By looking at specific situations and the mediational means used, I show language use to be a part of a complex and dynamic interaction that arises based not only on the situation but also on the sociocultural backgrounds, interests, and mediational means available to the participants. Awareness of these three factors and their degrees of influence in particular situations is key to understanding who is doing the talking and why what is said comes out the way it does. This awareness may be the teachers'—and at this point I would say parents', neighbors', co-workers', employers', and everyone else's—responsibility: listen and respond knowing that any utterance is not indifferent to the utterances that came before it but is a response full of intentionality and precedence. We should support students in their contesting of culture in all situations, but we need to be aware of the nature of the interaction and where ultimately that interaction may lead. Helping students recognize mediational means and why they are used in particular situations may lead to real and positive change, change that allows room for multiple perspectives and voices, in the structures of school and society.

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Biography

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Case Studies of the Writing and Thinking of Three African American Second Graders in a Whole Language Classroom

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Abstract

This investigation contributes to research on urban, at-risk, low-income children in the U.S. It accounted for several factors that influence children's literacy learning, including grade level, socio-economic status, cultural/racial group, individual differences, and instructional context. The case study focused on three African American children who varied in writing proficiency and were students in a constructivist-based second grade. The individual processes of each child's writing and ways of thinking about writing, within the context of a specific kind of instruction identified as whole language were investigated. Multiple data sources and a qualitative design provided findings on: (a) the children's fall and spring writing, (b) their fall and spring writing interviews, and (c) parents' views of the child's writing proficiencies and interest in writing independently. Based on a synthesis of the data, inferences were made regarding the children's literate thinking, writing as a source of their intellectual stimulation, and their development of a disposition for learning. Findings indicated that all three children became better writers, and that they held positive and accurate views regarding the nature of writing and themselves as writers.

Written communication is a powerful instrument in the development of the human intellect (Goody, 1977). Throughout recent history and in current research, students' ability to act as both author and audience is seen as a strong indicator of their intellectual development in literate responses (Calhoun, 1970). In the case of young children, this kind of ability is not likely to be tapped by norm-referenced testing or by typical informal assessments. Because

of the complexities in young children's learning, research using qualitative, case-study designs can be useful to explore their development in this area.

The construction of knowledge about writing is a major aim of education, and learning theorists and researchers such as Britton (1970, 1975, 1982), Emig (1981), Fulwiler (1987), Luria (1971), and Vygotsky (1962) have shown that writing is critical to learning. Indeed, Heath (1983, 1986) described children's affective and cognitive responses to classroom reading and writing as key in the development of literate thinking. Such thinking is expressed through written artifacts, in what children say about writing and about themselves as writers, and in doing writing in the classroom and outside of it. The design and production of written language requires an intellectual force, especially when writing is sustained. A study of young children's writing, their thinking about writing and themselves as writers, and their classroom and home behaviors can serve to document both literate thinking and the essence of what it may be like for young children to have intellectual lives.

In addition, literacy researchers, teachers, and policy makers have long been concerned with student populations who do not succeed commensurate with their potential. With the increasing political pressure on the research and school communities for performance and accountability, information on diverse children's academic success and initiative, situated in daily instruction, is essential (Daiute, 1993; Langer & Applebee, 1986). This study, which focuses on three, low-income African American children's writing in an urban classroom, contributes insightful information to the body of literature on this subject. The participating children were part of a larger study that compared children in a constructivist-based classroom to children in a skills-based classroom (Freppon, 1995). Although the children in both groups were similar in reading proficiency, age, educational background, and socio-economic status, one of the interesting findings from the larger, comparative study was that that the second graders participating in constructivist-based instruction wrote in higher volume and produced more complex text structures in their written products.

Such a finding prompted further exploration toward a better understanding of early literacy development and concomitant characteristics of learners and instructional settings; the current case study aims to do so through the interpretations of three culturally diverse child writers in a specific instructional setting, a whole language classroom. Since the previous, larger study had shown that the children became productive writers during second grade, the purpose of this study was to explore how their writing changed during the school year and the kinds of writing they produced, and to describe in some

detail their attitudes toward writing and their thinking about themselves as writers. To study the children's interpretations as they were evidenced in writing and thinking about writing, I used the artifacts they produced and their individual interviews, which I checked against their parents' perceptions regarding writing done at home.

Based on a synthesis of the data collected by these means, I explored the topic of literate thinking and the experiencing of an intellectual life from the perspective of young, diverse learners who were also low income and thus "at risk" in our society.

Since this research was conducted in a constructivist classroom with a teacher who identified herself as espousing a whole language philosophy, I was able to describe some essential aspects of becoming a writer in such an instructional context. In light of the interest and debate on whole language and diverse populations, data on the research questions stated above provided needed information to contribute to the research on various kinds of learning in such classrooms (Edelsky, 1991; Lyon & Alexander, 1996; Routman, 1996; Strickland, 1998).

The study did not include a focus on word identification, spelling, and related skills. Although these attributes are critical in early literacy development, research should also address other aspects of written language learning. For example, attributes such as children's disposition to engage in writing and the willingness to struggle and produce it are required to learn to write. In addition, writing calls for diverse knowledge such as a familiarity with the language of books, and a sense of audience.

Finally, this study addresses the issue of children's successful experiences in classroom contexts. It has been said that young children of diverse backgrounds can be successful when they find personal meaning and purpose in their school literacy activities (Au, Carroll, & Scheu, 1998). Diverse, low-income children are successful when their teachers "...allow them to be who they are ..." (Ladson-Billings, 1998, p. 62) and are focused on their academic achievement. Children's learning is influenced by many complex factors (e.g., grade level, social-economic background, individual development, and instruction). A particular strength of this study is that it accounted for these factors. A synthesis of the multiple data sources, the length of the study, and a case study approach provided grounding for the conclusions drawn.

Background and Literature Base

The current study draws heavily on the view of literate thinking held by Wells, Chang, and Maher (1990) and Heath (1986, 1991). This view holds that literate capacity and processing (thinking) are evidenced by: (a) the conscious exploitation of written language as an instrument for thinking, and (b) engagement in and persistence with writing. To exploit writing as an instrument for thinking, the writer persists, uses varied forms, and expresses thinking that lends itself to greater communication and personal voice. Adults make use of writing to reveal their voice and make sense of the world (Greene, 1978; 1982). Children may engage with writing in much the same ways. An intellectual life is built as writers develop a "working relationship" between language and their own lived experiences (Britton, 1982, p. 97). Too, Clay (1991) defines "inner-control" in reading as the development of a self-extending, self-improving system whereby children use multiple resources and are rewarded by the process itself. In this study of writing, literate thinking and an intellectual life are characterized by developing voice, a working relationship, and inner-control. These characteristics are evidenced by what children actually do and what they say about writing.

In a personal interview (June, 1997), and in her book (Au, Carroll, & Scheu, 1998), Katherine Au clarified why the characteristics of literate thinking and an intellectual life are important for children of diverse linguistic backgrounds. Au argues...

> I'm convinced that we cannot be successful with these children if they do not first see the reason for becoming literate ... . They must, as Lucy Calkins puts it, write from the heart.

According to these researchers and my own work (Freppon & McIntyre, 1998), the value children place on their written language, the feelings they have about it, and the level at which they will work on writing are critical in the development of inner control (Clay, 1991) and a *disposition for learning* (Freppon & McIntyre, 1999; Freppon, 1995b). Heath and Mangiola's *Children of Promise* (1991), the work of Luis Moll (Moll & Gonzalez, 1995) and Taylor and Dorsey-Gaines (1983) further the argument that low-income, culturally diverse children and their families strongly value academic achievement and personal expression. Recent research by Fitzerald and Nobilt (1999) documents that high and lower achieving second-language learners' parents become very active in their children's education with a supportive constructivist-based teacher.

This argument is also supported by Ladson-Billings work (1994) and that of Irvine (1990). Irvine's description of the conceptual grounding for interpersonal contexts among teachers and successful African American students includes acceptance of children's communication patterns and other mores such as responsibility (see also King & Mitchell, 1990). Clearly, we need research on aspects of becoming a writer, such as structuring texts and engaging in and thinking deeply about writing.

Newkirk's longitudinal study (1989) of the writing of middle-class children from highly literate homes and progressive classrooms helped demonstrate that environment or context has a strong influence on text structure and quality. Newkirk's work also demonstrated that having opportunities to produce different kinds of text structures is important to children's development. It is through such early writing experiences that children are believed to learn how to write the persuasive and analytical texts needed in the upper grades (Newkirk, 1989). The classroom context in the current study incorporated instructional experiences similar to those described by Newkirk. The complexities and internal organization required by the act of symbolizing thought in writing is fundamental to literate development. This development does not occur in context-free situations. Rather, children learn about written language and write about particular things, in particular ways, in particular instructional settings. In this case of low-income, at-risk children, I studied their learning in the context in which it took place.

The work of Cope and Kalantizis (1993), Delpit (1988, 1991), Ladson-Billings (1994), and Reyes (1992) raised the field's consciousness regarding children from racial and cultural groups and their instruction. This research fostered a move away from the learner-deficit model toward clearer descriptions of successful pedagogy. In this context, Delpit (1991) discussed children's learning in constructivist-based (process writing and whole language) classrooms. While the current study was not designed for the purpose of investigating possible outcomes due to race or cultural factors, it took place in a setting in which a middle-class, white teacher taught low-income, African American children. This teacher identified herself as having a whole language pedagogical philosophy. The population of children and the teacher's race and background were present in a line of research focused on children typically considered "at risk." The current study is one of the few that provides information on issues concerning what children from a diverse background learn and how they respond to constructivist-based instruction.

In the past, writing research contributed much to our understanding of young children's development in relation to orthography (Clay, 1975; Ferriero

& Teberosky, 1983) and phonology and spelling development (Gentry, 1987; Read, 1971). Other research focused on young children's writing (Sulzby, 1992) and aimed at "untangling" the puzzle of what they know about writing. Many factors, including linguistic, social, and psychological, transact as children become writers. Dyson's (1991) work highlights the complexities of learning to write and the influence of social contexts. In a 1995 study, Dyson noted that young children need, among other things, the courage to write. Having the courage to take on the task of writing is supported by a positive view-of-self, by an understanding of what it takes to get writing done, and by a "can do" attitude.

The sociocultural research of Britton (1970), Green (1982), and Heath (1983) demonstrated that writing is a way into an intellectual life. Writing is the creation of meaningful communication; it is clearly value-laden and encompasses more than technical competency. Writing carries social relationships and is a way to construct academic and cultural knowledge. As Bruner (1986) states:

> ... our stories, by virtue of their range of characters, actions, and settings provide a map of possible roles and possible worlds in which action, thought, and self determination are permissible or desirable. (p. 66)

Classroom instruction must play a role in the development of children's self-determination and critical literacy. It is not enough that children learn minimal competency in writing skills (Freire & Macedo, 1987; Giroux, 1983; Katz, 1975). They must learn to use written language as a source of intellectual expression and stimulation.

Of interest in this study were the texts written by and the perceptions of at-risk children who had since kindergarten experienced constructivist-based instruction with teachers who espoused a whole language philosophy. Through examination of written artifacts and interviews about writing, I conducted a study of three children's writing and thinking about writing as they participated in their instructional context. Specifically, this study explored how their writing changed during the school year and the kinds of writing they produced. It provided details on their thinking about writing, and reviewed parents' perspectives on the children's writing completed outside of school. Based on a synthesis of the research data, I explored the topic of literate thinking and the experiencing of an intellectual life from the perspectives of three low socio-economic, African American second graders. In the section below I describe the second-grade classroom and the multiple data sources.

Method

The Participants and the Context

The classroom observations for this study took place twice monthly from September to June in a second-grade classroom. Observations involved the use of field notes, artifact collection, teacher interviews, and the collection of audio and video tapes.

The case study children. Participating in this study were African American second-graders Schemeka, Isaac, and Willie, all who lived in an urban, low-income community. I knew these children well because I had studied their learning in kindergarten and first grade and had personal contact with their parents through home visits (Freppon 1995a, 1995b). Literacy instruction during these first two years of school was consistent with that of the second-grade instruction.

The children were originally selected at random from a pool of children on the federally assisted lunch program. Of the original group of six focal learners, two had moved away before the start of second grade. The original group was randomly selected for the previous comparative study (Freppon, 1995). In the current project, one non-conventional writer was excluded at the beginning of the school year because participation in the study required "conventional" writing, that is, writing that is connected and can be read by an adult (Sulzby, 1992). The three participating children were representative of average and above average readers in their classroom. Information regarding their reading proficiencies was derived from oral reading assessment procedures (Clay, 1979) and the teacher's judgment (documented in field notes). In addition, their oral reading samples were analyzed by an outside expert using Clay's (1979) procedures; the expert was unaware of the purposes of the study and did not know the children.

The following information describes the participating children primarily as they appeared in the final quarter of the school year. Although there had been no significant changes in the children's persona during the school year, they did become more confident and outgoing as their literacy grew.

Schemeka, the only female in the study, was physically a bit shorter than many of the other girls in her class. With an inviting, open face and frequent smile, Schemeka was a serious student who did not hesitate to tell a peer who asked for help, "Wait until I finish writing my story and then I'll help you—I can't do it now." In this particular example incident Schemeka continued to

write and reread her writing on large chart paper for over five minutes before stopping to talk with her peer.

Isaac became a leader among the males in his class. He was physically tall and graceful. Isaac often stopped his own writing to help classmates write or spell, and engaged others in group projects. He seemed to return to his own writing or reading easily after an interruption. Isaac was very proud of his writing and reading. He asked peers and the teacher to listen to him read (often in an excited and sometimes humorous manner). It was clear that he liked literature and liked responding to it. He wrote consistently, and I observed him taking writing from his cubby to look through his collection, or just to read and return a piece to its storage place.

Willie was somewhat smaller than his classmates. He was quick and energetic and seldom still in the classroom. Willie deliberately sat with and worked with Isaac or other selected male children, but sometimes worked with females. Like Schemeka and Isaac, Willie responded ably when his teacher called on him, and he volunteered his thoughts and views. He asked for his teacher's help when he needed it, and waited his turn if she was busy with another child. Willie had several favorite books that he read repeatedly, he tried new books on his own, and read and responded to books his teacher introduced.

Schemeka and Isaac wrote with ease independently as well as with others, while Willie clearly preferred the support of peer or group interactions. All three children were persistent, highly engaged, and showed a keen interest in accuracy. For example, from the beginning of the year they expressed considerable concern about accurate spelling and later on about their writing making sense.

The teacher and the classroom context. The teacher who participated in the study had been teaching for over ten years, had completed a Master's Degree and Reading Recovery (Clay, 1979) teacher training, and worked hard for the success of the children in her charge. Mrs. L. was working in a building with a supportive administration and, relevant to the nature of this study, Mrs. L. was a representative of a white, middle class community. She explicitly taught skills and strategies iden'fied through children's needs and her expertise on writing. Evaluation in this classroom was primarily carried out through the use of observations, anecdotal notes, and reading and writing samples.

The participating teacher identified herself as a whole language teacher. I also identified her theoretical perspectives and everyday instruction as constructivist-based /whole language through multiple data sources, including a teacher interview (Burke, 1980) and self-identification, classroom observa-

tions, results of the Theoretical Orientations to Reading Profile (DeFord, 1985), and an administrator's recommendation. Because the study was limited to one teacher, this classroom represented an instantiation of whole language curriculum. The instruction, as evident in the teacher's proclaimed philosophy, the reading materials, the classroom organization, and the teaching techniques, remained consistent throughout the school year. Ms. L. frequently discussed her instruction in terms of "being whole language," and her descriptions and actual practice fit those associated with its principles (Dudley-Marling, 1995).

The classroom environment reflected a view of literacy learning as a social and developmental process. It supported children in legitimate peripheral participation in a community of practice (Lave & Wenger, 1991). In their work on the nature of learning Lave and Wenger emphasize its "situatedness." Namely, they hold that "...learning takes place through the process of becoming a full participant in a sociocultural practice" (p. 29). In such a classroom community, learners' approximations and change over time, and their "being and becoming" are transformed in deeply adaptive ways. The writing process situated in such socially construed events is where learning occurs.

In this classroom, community practice included student self-selection, teacher intervention, planning, explicit teaching, and the support of more experienced peers. Ms. L. accepted the children's communication patterns, made provisions for their rights as learners, required responsible actions, and closely monitored academic achievement. Classroom reading materials consisted of children's literature, trade books, information books, a variety of print sources from the community, and children's writings. The areas of study and ways of learning arose from the needs, interests, expertise of other students, and especially the expertise of the teacher. Curriculum was also influenced by the school district. However, it appeared that this teacher had a great deal of freedom to shape the curriculum in ways she thought best.

A typical day in the classroom. The following is a description of classroom interactions in this second-grade room.

The children began by working independently or in small groups for the first hour. Students were expected to read or write. At times, one child or a small group of children worked on a writing task. However, most children chose reading for this time period. A low noise level was maintained as many children read orally or talked as they wrote. The teacher circulated among the children, observed and interacted, and wrote notes on the children's materials. When the teacher observed a child, she nearly always took the opportunity to teach reading or writing strategies and skills. For example, she pointed out the

need to reread, predict, and pay attention to beginning letter sounds if a word was misread. The teacher also taught spelling (discussed correct or incorrect words and word patterns), punctuation, grammar, and use of capital letters. Writing strategies such as how to "think like a writer" were stressed. For example, children were asked about their desire to improve and publish a particular piece, and about whether their writing made sense and had adequate details. They were given support in getting writing started when they needed it. Conversations about why a child was writing and what he or she wanted to say were frequent. The teacher made notes about individual children's strengths and needs.

As the school year progressed, the children continued to read individually or together. Some small reading groups were begun by the children themselves, and some were initiated by the teacher, who asked specific children to read together so that she could work on needed skills and strategies. Writing was often a group event; however, some children also moved to private places and asked peers not to bother them when they wrote. Learners were expected to use this hour to gain fluency by working on writing or reading; under the teacher's guidance there was a great deal of self-selection and self-monitoring.

This first hour of instruction was followed by a "whole group time" in which the children gathered on the rug and the teacher read aloud. Readings included songs, chants, stories, and poetry. Discussion was in a conversational mode with clear expectations that children would participate. During this group period, the teacher often focused on what "hooked" readers on stories. That is, children discussed what they liked and considered interesting. Writing was also discussed. For example, children and the teacher critiqued what writers said and what they thought made good sense or was a good story. Specifics such as plot, character, inferences, and good endings and beginnings were frequent topics.

Following the morning whole group time, the teacher often introduced one or more planned activities such as writing a big book, creating a mural, or writing a letter. Throughout the year these activities involved particular themes such as author studies or science projects. Children could choose a teacher-planned activity or any other reading or writing work during this period. Some participated in several activities and some read only one book or worked on a single piece the entire period. Some children chose to participate in self-selected reading or writing and some chose to participate in the teacher-provided activity. They read, wrote, and talked with each other and the teacher about reading and writing content and about how to accomplish reading and writing. Again, the teacher helped individual children and worked

with small groups. In writing conferences, skills were taught and presentations of children's writings to the class were discussed. For example, the child and the teacher might work on spelling, sentence structure, capital letters, and story details. They also made decisions about options such as publishing, reading the piece aloud to the class, or making a poster.

During this time, teacher-children oral discourse was rich (Tharp & Gallimore, 1991) and nearly always specific skill and strategy teaching matched to the children's needs. The teacher also held "Book Talks." In these small groups, she read books of similar themes and writing style and encouraged children to discuss these elements. The modeling, demonstration, and practice of reading and writing were a focus throughout the day. An afternoon whole-group period also included the teaching of skills such as using reading strategies, syntax, and letter/sound cues, spelling with word patterns, editing, and revising. Children's writing was often shared with the class at this time. Instructional materials usually consisted of children's actual writing or reading.

Study Design, Data Sources, and Analysis

This case study was conducted using a qualitative research design and data collection method (Goetz & LeCompte, 1984; Yin, 1984). Data were gathered over time and synthesis of those data supported the findings. The holistic analysis of writing helped capture, in a flexible and economical way, the quality of the three children's writing. For example, the collection of writing products over time allowed for tracking of text structure (see Appendix A), evidence of sense of audience, written language use, and purpose, as described in Appendix B (Raphael, Englert, & Kirschner, 1989; Tierney & Shanahan, 1991).

Journal writing from September to December, and all the writing collected in April (over 100 artifacts in all) were selected for analysis. (These two data sources are hereafter referred to as fall and spring writing.) The teacher helped collect the writing. Thus, the data represented writing as it occurred in the classroom on a daily basis with some completed by the children alone, some in collaboration with peers, and some with teacher support. The artifacts included in the current study were exclusively in Willie's, Schemeka's, or Isaac's handwriting and were complete in form (i.e., no writing that was begun and then abandoned was included).

I repeatedly reviewed the children's writing and decided on tentative ways to analyze the written products (Glaser, 1978). Newkirk's work (1989) on the range, forms, and complexities of children's writing, Purcell-Gates' (1988)

study of children's knowledge of written register, and previous writing research (Britton, Burgess, Martin, McLeod, & Rosen, 1975; Calkins, 1986; Graves, 1983) contributed to development of the rubrics I generated (see Appendices A and B). Since some of the writing elements overlapped, conservative judgment was utilized in a conscious effort to do justice to the writing. I took care to code for the characteristic and the text structure that was *most evident*. An example of written language coding follows: A piece about bike riding with friends that had (a) a title and ending, and (b) written words or phrases, was given a rating of two points. I also identified the writing topic and wrote memos about literary features such as conflict, sense of audience, evidence of character, personal meaning, and use of detail (Lukens, 1976). I consolidated information by writing global hypotheses substantiated with raw data. For each child I constructed grids (Miles & Huberman, 1984) to compare fall and spring writing.

Writing interviews conducted in the fall and spring provided information on the children's knowledge of writing and perceptions of themselves as writers. The same questions were used each time, and prompts were limited (see Appendix C for focus questions in this study). The interview design drew upon previous research (Freppon, 1991, 1995; van Kraayenoord, Elkins, & Ashman, 1989). I used repeated readings and organized data into units, for example, a view of the nature of writing, knowledge of good-writer characteristics, and the problems and strategies of good writers. I coded responses (e.g., "I like writing." was labeled PR for positive response), wrote memos, and organized fall and spring data into grids for each child (Miles & Huberman, 1984). Finally, I used direct quotes to summarize and illustrate interview findings. A few words were added parenthetically to make the oral responses more accessible in this article (Cleary, 1991).

Home visits were conducted at the end of the school year. Parents were asked how they thought the children were doing in school and what kinds of writing behaviors they witnessed at home; we also discussed reading. The same questions specific to these inquires were asked of each parent, and all visits included conversations about anything else the parents wanted to discuss. On parent interviews, I jotted down notes during the home visits and elaborated on these notes immediately after leaving. Parent interviews were recorded in writing as close to verbatim as possible, and I used repeated review and descriptive quotes and summaries to illustrate the findings.

Finally, I reread field notes and wrote memos on how the child interacted with writing in the classroom. I wrote up instances that showed patterns of persistent engagement with writing, it's conscious use to make sense of the

world, and comments reflective of "self-as-writer." These data also served to document literate thinking and a "working relationship" with written language. Further they provided a systematic check on the artifact and interview findings, kept individual differences in view, and helped in the search for disconfirming evidence.

Results

Analysis of Writing Artifacts

The analysis of written data documented writing growth in all three children as well as illustrated some individual differences. All the children evidenced increased voice and audience awareness. They produced more writing and longer pieces, and demonstrated an expanding knowledge of genre. Individual differences were found in a variety of areas (e.g., writing growth in a child who began the year with less sophisticated text structures). A discussion of each child and representative samples of his or her writing follow. (In all of the children's writing presented below, examples are presented in conventional form and names of peers have been changed.)

Willie. Willie grew as a writer in several ways. He engaged with writing more, producing nearly as many pieces in his spring writing (a one-month period) as in his fall writing (a three-month period). In both fall and spring, Willie's text structures consisted primarily of initial paragraphs. However, he wrote more complex texts in the spring, producing actual stories and fewer story fragments than in the fall. Examples of Willie's writing follow.

Fall Writing
My Bike

My bike is so fast. My friends is too. My friends got a bike too. My friend is David his bike is named SR1. Jim (word illegible) bike and mine is blue. THE END.

Spring Writing
To Washington

One day I went to Washington. And I went to the president and said, What is going on? The policemen beat up black people and you got to stop this. OK. I got an airplane to take us there and everywhere something is on the news. See some police man beating up a

black person. We are there and they meet the president. Let's stop them before they hit him. His is poor he can't afford to go to a hospital.

Willie's most frequently used written-language feature was a format that included a title and formalized beginning and ending in both sets of writing. Although, as shown in the example above, his fall writing showed little if any use of literary words and phrases or lively and engaging language, Willie's spring writing included these characteristics. Moreover, topic, theme, and content differed in the spring writing. For example, Willie incorporated literary elements such as conflict and character representation, and his spring writing evoked an emotional response.

Schemeka. Schemeka's writing developed over the year in similar ways. For example, she wrote more, producing over half again as many pieces in the spring (one month) collection than she did in the fall (three month) collection. In addition, she produced more stories and generated fewer initial-paragraph products and story fragments. Analyses of both fall and spring writing indicated that Schemeka wrote about topics that held personal meaning, and her writing contained literary elements such as conflict. However, Schemeka increased the number and quality of these elements and began writing true fiction later in the year. Her writing became more and more decontextualized as the second example below demonstrates.

Fall Writing
My Family

I love my family. We go everywhere together. We play games together. We love each other. Just because sometimes we fight doesn't mean that we don't love each other any more. We will still love each other no matter how big we get, or how little we get. We will still love each other. THE END

Spring Writing
Jump Roping

One day I was jump roping with my friends. I jumped so high that I touched the clouds. Then I tried to get down but I couldn't. I was stuck. Then I began to cry. Then I look to the right and I saw a woman. She said " Who are you?" I am Schemeka Who are you?" "I am Mailpa. I live here." "You do?" " Yes." "Do you eat?" "Yes I eat

apples from the apple tree." "How do you sleep?" "I sleep on the clouds." "Do you have ..." "Don't bother me kid!" "All I want to say is can you help me?" "I help you what?" "Go back jump roping with my friends at school?" "Sure tap your feet three times and say there's no place like school, there's no place like school. Then I was still jump roping and I never went that jump—that high again. THE END.

In the spring Schemeka engaged in expository writing (about dinosaurs) and persuasive writing (about the environment), and her use of lively, engaging language, voice, and literary and text-like words and phrases increased. Similar to Willie and Isaac, she incorporated dialogue with increased skill.

Isaac. Isaac produced more writing in his fall and spring collections than Willie or Schemeka. Although he wrote a number of stories in the fall, Isaac produced more in the one-month spring collection than he had in the previous three-month fall collection.

Fall Writing
Halloween Hunt

I had a hunt on Halloween. It was about pumpkins. I wanted a pumpkin so bad I could see one. So I got a hunt to get me a pumpkin When they came back with no pumpkins, "Were is my pumpkin?" "We did not find a pumpkin." "Go ger me a pumpkin now or I am going to make you (words illegible). OK." Soon they came back with my pumpkin and I ate my pie.

Spring Writing
The 3 Boys

Once there was a boy and he work in a factory. He had a wife and 3 kids and a nice house and car. He works till 9:00 in the morning. He sleeps in the daytime. But there was a problem. The boss was out of town and who was going to run the factory? So he decided he was going to run the factory. It will be his first time. So the next day he got the plans done and went to work. "Let's get to work cleaning this place up." So everybody went to work. And when they was done that place was the cleanest work shop in town. It went good at first, but then it was lunch time. Then (words illegible) a food fight. Food was everywhere and they had to clean every last piece of food. Then the

boss came in and showed what they where doing. They got fired.
THE END

Isaac's spring writing demonstrated increased written-language characteristics. He also wrote some persuasive genre pieces (on recycling, the rain forest, and littering) in this period.

A ***summary.*** A summary of the children's writing development follows.

- *Willie:* In the category of text structures, Willie progressed from writing primarily initial paragraphs to story writing and he produced more written pieces. His use of written language characteristics increased in the spring to include dialogue, emotional center, and more text words and phrases.
- *Schemeka:* Demonstrating growth in the text structures category, Schemeka's spring writing included the new genre of fiction. Change in written language characteristics was illustrated by more lively language, and text words and phrases, and she wrote in increased volume.
- *Isaac:* With respect to text structures, Isaac utilized story form in fall and spring; however, he increased the complexity of his stories, wrote more, and began using new genre. Written language characteristics showed development in emotional center, engaging language, and text words and phrases.

Analysis of Writing Interviews

The findings from the analyses of the writing interviews indicated that the children began the school year with positive views about writing, and they maintained them. Their discussions revealed breadth in thinking about writing and an ability to consider themselves critically as writers. Importantly, after experiencing their second-grade year and (presumably) the two previous years' constructivist-based classrooms, these low-income, African American children demonstrated that they thought about writing in sophisticated and motivated ways. The following excerpts are representative of the interview results.

Willie (Fall Interview)
It's (writing) not hard because the teacher says go to work, and I do. Like me and my friends we all write together. That's why I write a lot. I just want to keep writing and writing until it is time to stop. Make it different, fix it, change it a little. When you are tired sometimes you mess up. It's fun and you can draw pictures if you want to. If you can't read, you ain't gonna write no better.

Willie (Spring Interview)

I like any kind of writing except long words. You can write about things you did, like going to Chucky Ch-ese or your birthday, or getting a bike and riding to your grandma's. With friends, like with friends you get to do more pages and draw more. I don't like it by myself, it's harder, but sometimes you concentrate better by yourself. I can write and spell. I try to do my best. I make it long so I can publish it. That first story be still in my mind. I am still thinking about it.

Willie's interviews helped confirm his classroom preferences for writing with others. He seemed to be self-aware and comfortable in understanding that he worked better this way. Willie's peripheral participation was supported in a community of practice (Lave and Wenger, 1991). Ongoing collaboration helped him "write a lot... make it long ... so (he could) publish." Willie verbalized the confidence that was demonstrated in classroom action. For example, he consistently asked others to write with him or joined a peer in writing events. His organization of peer support nearly always supported his writing and seemed mutually enjoyable. Willie's topic choices also illustrated his knowledge of writing as a personally meaningful, communicative act.

Schemeka's and Isaac's interview examples demonstrated similar literate thinking (i.e., ownership and a working relationship with writing).

Schemeka (Fall Interview)

I like to write because I be writing at home. I be reading some books and then I get some paper and write. People get writing ideas from reading stories, or from their mother or father telling them things they want to know about. Then they get to be another good writer. Well, if I don't know what to write about, I just write and write until I can find something to write about. I like to write stories, I feel happy. Because I like to do things that I like to do and read things different. I read things that I never heard of and I want to write about it. Then I write.

Schemeka (Spring Interview)

Writing helps me read better, it helps me understand what I'm writing. I can write mostly everything in this room. Writing is fun. I like it a lot. I have to write until it is time to clean up. But sometimes I don't feel like writing. I been writing some bad stories lately. Some words are hard for me to spell. It's a good thing we have dictionaries!

> I like both (writing with others or alone). With myself I don't get into trouble. With my friend, she writes, I just draw, and I get myself into trouble. Sometimes my friend helps me draw. We both have to do something (writing) or we get into trouble. You write better when you read books and you read better when you write.

Schemeka's interviews also provided evidence of concepts we want all children to acquire in school. "Because I like to do things that I like to do and read things different. I read things that I never heard of and I want to write about it. Then I write." Schemeka provided an almost painful critique of her work, but did not dwell on the negative. She gained satisfaction from sustained writing and had an understanding of the reading /writing relationship. Also shown was that Schemeka consistently participated in the classroom on her own and with others. She voiced the teacher's expectations and understood her role as learner.

Isaac's interpretations were similar.

> *Isaac (Fall Interview)*
> It (writing) helps you. When you go to college and you have to go to the board and you can spell cause you used to write all the time. I been writing since I was in Head Start. Cause I got all these stories done and took them home. I got a big stack. If I'm in a bad mood, I don't want to write long stories. Like the first day of school it was a disaster; everybody was just playing with their (lunch) money. I get good ideas when the teacher reads books. I think it's a good idea and I write about that stuff. I really feel good! I think about a story, like what I said when I go to bed. When authors go to sleep they wake up in the morning and then they write about it.

> *Isaac (Spring Interview)*
> Writing is real fun. It has adventures in it. I do it all the time. I'm a very good writer, because every day people come up to me and say, how do you spell this and that. If it's a real good story and the teacher is proud of me, I want to write it all over again! Keep trying, don't be a quitter. Authors do have problems and I do, too. It takes them one year to make one story. Like what to think of. Decide where the story is going to take place. Like learn about the animal they are going to write about. Sound the word out, or get a book to find it. Sometimes I write by myself and sometimes with friends.

Isaac's talk was consistent with his action. He understood his role as writer and was productive both individually and with peers. His interviews served to substantiate classroom observations (e.g., that he understood the importance of setting and purpose, that writing is hard work, and that he valued writing skills). Isaac's interviews reveal his passion, "I get good ideas when the teacher reads books. I think it's a good idea and I write about that stuff. I really feel good!"

In sum, from the interviews, it is clear these three children were similar in their literate thinking as evidenced by the conscious exploitation of written language as a thinking instrument, by their sense of ownership, and by engagement and persistence in writing (Heath, 1991; Wells, Chang, & Maher 1990). These average to above average readers became writers who had a "working relationship" with their craft (Britton, 1982). Schemeka, Willie, and Isaac demonstrated courage (Dyson, 1995). They knew *what it takes to write*, and they strategically undertook the challenge.

Analyses of Home Visits with Parents

Information from the home visits with Schemeka's, Willie's, and Isaac's parents illustrated that they held positive views about their children and learning at school. Schemeka's father and Isaac's father especially emphasized how pleased they were. For example, Isaac's father said that his son was "always writing," and he laughed (noting that he had a "good frustration") in discussing how repeatedly Isaac asked family members to listen to his writing. Schemeka's father said that his daughter ..."couldn't write enough!" (parent's emphasis). This father asked me how he could help her sustain her positive attitude toward school; he said his only wish was to "...see it continue." Willie's mother was also very positive. She discussed her son's writing about things the family had done together (e.g., a time when Willie's family came home from a restaurant and he sat down wrote about it).

Limitations and Trustworthiness

The results of this study are not generalizable in the traditional sense. The findings · limited to the population studied in one particular classroom via a case study design. Because this particular study was limited to average and above average learners, it cannot demonstrate what may or may not have occurred with diverse learners who struggle. However, the use of multiple data sources and triangulation procedures, as well as the analysis of artifact, interview, and observation data contributed to the soundness of the research. A

degree of intuitive information was involved in gaining insights into the literate thinking of these children. Although there is a general difficulty in uncovering these aspects of literacy, the method and analysis were appropriate.

Discussion

This investigation of writing provides information on the success of children from a racial/cultural group that historically does not adequately succeed in public education (Smith-Burke, 1989; Strickland, 1994). The children in this study exhibited (a) a relationship between their own experiences and written language, and (b) development toward achieving "inner-control" (Britton, 1982, p. 97; Clay, 1991). Based on this investigation's analysis of the children's writing, the quality of their demonstrated writing growth, and their interpretations about writing and themselves as writers, the findings clearly suggest that writing was a source of intellectual stimulation for Schemeka, Isaac, and Willie.

These conclusions contribute to and are supported by findings from previous research (Fulwiler, 1987; Green, 1982; Heath, 1983; Wells, Chang, & Maher, 1990). I argue that children's literate thinking is not unlike that of mature, adult writers. Personal conflict, longing, engagement in family and community experiences, and experimentation with genre become part of the process of producing written language and using writing as a way of making sense for oneself, the world, and others.

Delpit (1988, 1991), Cope and Kalantzis, (1993), and Reyes, (1992) have raised concerns about the success of various racial and cultural groups in constructivist-based/whole language classrooms. This is a critical issue that must be addressed in studies that not only show the need for more and better support, but also for research that documents the children's success and individual differences. The current study contributes to this goal.

While there is no doubt that racial, cultural, and linguistic differences between children and their teachers are of critical concern, this study indicates that these differences can be successfully negotiated. Delpit (1988), Ladson-Billings (1998), and others point out the importance of teachers' knowing children well. This "knowing" can occur in classrooms with teachers and children of different cultural backgrounds, and it can occur in constructivist-based classrooms. While it is true that no one kind of instruction will ensure success for every child, it is also true that writing-process and whole language teachers are successful with many children. In this particular case, Ms. L's pedagogy provided the acceptance and high expectations that led to academic success.

Complete with their individual differences intact, Willie, Schemeka, and Isaac were children who not only wrote productively by the end of the school year, but who also acquired voice and confidence in themselves as writers. And they had parents who were pleased with and supportive of their progress and attitudes.

Instructional Implications and Suggestions for Research

As explained earlier, the teacher in this study had completed a Master's Degree and Reading Recovery teacher (Clay, 1979) training, and she read professional journals to contribute to her ongoing learning. She explicitly taught skills and strategies, had over a decade of experience, and worked in a building with a supportive administration. Mrs. L. was a representative of a white, middle class community. These variables may not exist nor interact in the same ways in similar classrooms. This teacher modeled how writers think by writing and talking about her thinking with the whole class and small groups. She engaged the children in several conversations daily in which their own writing was shared and discussed. These exchanges were exemplars of "instructional conversations" (Tharp & Gallimore, 1991) that support cognitive and affective growth and help children acquire a disposition for learning (Dahl & Freppon, 1995). The teacher provided the children with consistent, concrete examples of quality writing (e.g., "I like the way Willie put details in his story; he told us how he felt and what the picnic was like."). During whole class, small group, and one-on-one teaching, Ms. L. worked at teaching spelling, using letter/sound relationships to sound out words, punctuation, and grammar and word usage (making it sound like good writing). Importantly, Ms. L. showed respect for each child and an awareness of individual strengths and needs. She valued their preferences, provided for self-selection, and gave them expert direction. The children had responsibilities and support as they participated in a community of practice (Lave & Wenger, 1991).

Cultural mismatches between children's background and instructional contexts are real. However, a successful learning community can be achieved when cultural differences are bridged with well-informed, hard working, and caring teachers (Noddings, 1984). It is critical for teachers to learn all they can about the children in their charge and to build on this knowledge. The teacher in this study provided for universal human needs (e.g., a feeling of emotional safety in the classroom, challenging work in which they had a voice, and a bit of pushing when they needed it). Importantly, the children's

interpretations of their instruction, as evidenced in their writing and interviews, demonstrated the early literacy knowledge needed for school success. We need research that focuses on diverse populations, their successes and the instruction that supports them. In today's multi-cultural society the classroom milieu and teacher-student discourse should be studied and well-documented. Further, we need to explore the support needed within schools, the home, and in the community. Although the current study's home information was limited, the data were telling. Further research is needed on the relationship between school and a literate life outside the classroom.

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Biography

Penny Freppon teaches courses in literacy education at the University of Cincinnati. She has supervised a clinical practicum and taught a three-quarter graduate sequence there on reading diagnosis and remediation for the past eight years in the Literacy Program. Her research interests include early and beginning reading and writing and teachers' professional development.

Dr. Freppon has published articles dealing with research on whole language and literature-based classrooms. Her publications appear in a range of journals including *Reading Research Quarterly*, *Language Arts*, *Research in the Teaching of English*, and the *Journal of Literacy Research*.

Appendix A

Text Structures

Early Exposition	Writing is focused on a category or topic such as family and consists of an assertion and related sentence or clause (e.g., "My brother is fun. He always plays with me.").
Initial Paragraphs	There are clusters of sentences or clauses including at least three that are closely associated or thematic (e.g., "If I was a witch, I might be ugly ...I wouldn't like it at all.").
Story Fragment	Writing is organized in story form, has episodic characteristics, but is "transitional" (i.e., combines story characteristics with elaborated narrative-like lists, lacks all story features).
Story	Writing is structured in story form, is episodic and includes other story characteristics such as problem/solution or theme. The piece contains an initiating event and closure.
Genre	Writing is organized in story, persuasive form, has non-fiction qualities.

Appendix B

Written Language Characteristics

Language uses devices associated with written language

Titles and Formalized Beginnings and Endings	"Jumping Rope" "The End" "Once upon a time..."
Dialogue	"She said, Who are you?"
Emotional Center or Voice Sense of Audience/Purpose	The individual writer's voice comes through " ...he is poor and can't afford to go to the hospital." Shows awareness of audience, and has a purpose.
Lively, Engaging or Poetic Language (writing evidence: building excitement or suspense)	"It just grew, and grew, and grew." "He was so, so, so scary."
Literary or Text Words and Phrases and Word Order	"I have the key that opens the door to the future." "I'm going, just for fun, to play Arcade Games."

Appendix C

Writing interview: Questions were asked in both the fall and spring interview; some questions tapped similar information.

1. Are there some things you like about writing?
2. Is writing like reading?
3. Do you like to write with friends or by yourself?
4. Can writing help someone learn to read better?
5. Is writing a hard thing for you to do?
6. How can someone get to be a good writer?
7. Do good writers ever have problems?
8. Do you ever go back and write more on a story or make it different the next time you write?
9. When a writer is stuck, what can she/he do about it?
10. Are you a good writer?
11. What do you do if you don't know what to write?
12. After you write, do you ever think about it later in the day?
13. What makes someone a really good writer?

The Effects of Reading Recovery on Children's Home Literacy Experiences

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Abstract

One hundred thirty parents completed a literacy survey in the fall of the school year and again in the spring as their children completed first grade. At both times, parents were asked about the type and frequency of literacy activities in which the children engaged at home. Responses in the spring were compared across three groups of parents representing children who had been (a) enrolled in Reading Recovery, (b) identified in the fall as experiencing reading difficulties but received no special reading instruction, and (c) identified as having grade-level reading skills at the start of first grade. Responses provided by parents in the spring were compared to responses they gave to the same questions as their children began first grade the previous fall.

All children showed growth in literacy skills at home over the course of the year. Children who participated in Reading Recovery made significant changes in the frequency with which they read aloud to adults and with which they read independently at home. Furthermore, parents reported more frequent writing of words and simple sentences at home by the Reading Recovery children as the year progressed. Results are discussed relative to the role home literacy experiences play in early reading and writing and the reciprocal influences that home and school literacy experiences may have on each other.

All parents expect that their children will learn to read and write once they begin school. For some parents, however, this expectation is not fulfilled. Some children finish their primary school years without satisfactory achievement in reading and writing (Juel, 1988). Recent research on the home environments of young children has suggested that significant limitations in some

children's exposure to functional reading and writing materials and activities at home during the preschool years may contribute to these difficulties. The cause of such limited experiences, however, is not always clear.

For example, some children from economically disadvantaged homes have often been described as lacking access to reading and writing materials, to shared book-reading with competent adult readers, and to family members whose own reading and writing skills model or promote reading and writing as functional skills in everyday life (Heath, 1983; Marvin & Mirenda, 1993; Purcell-Gates, 1996; Sonnenschein, Brody, & Munsterman, 1996; Teale, 1986). In addition, preschool children who demonstrate cognitive abilities appropriate for their age, but show delays or impairments in speech-language skills, reportedly have fewer experiences with nursery rhymes, poems, interactive book reading, and writing and drawing activities at home than do children without disabilities or even children from economically disadvantaged homes (Katims, 1991; Light & Kelford-Smith, 1993; Marvin, 1994; Marvin & Mirenda, 1993; Marvin & Wright, 1997). These data suggest that family socioeconomic status and children's biological make-up could independently or collectively interact to affect not only the literacy opportunities provided to young children at home but also the children's preparedness for formal instruction in reading and writing once they begin school.

Clearly, some children may require greater support at home in the form of more frequent exposure to print with supportive family members, while others, already rich in their home experiences may need direct intervention at school to increase skills in generating meaning from print. For some children, both are needed if reading and writing skills are to improve quickly enough to be useful in academic endeavors in the primary grades. The Reading Recovery program proposes to improve children's reading abilities, despite limited ability and/or experience with print as the children begin first grade. This study was designed to examine what changes occur in children's home literacy activities and behaviors as a result of participation in Reading Recovery during first grade.

Reading Recovery

Reading Recovery is a school-based, early intervention program that is designed to teach first-grade children who are experiencing literacy difficulties how to read and write early in their school careers (Clay, 1993). Children are individually taught for 30 minutes per day by a specially trained teacher. The

teaching goal is to assist the lowest-achieving children in quickly developing competency in reading and writing so that they can "catch up" to their peers.

Teachers are encouraged to elicit the parents' support for their children's consistent school attendance, to invite parents to observe lessons, if possible, and to share their insights about their children's interests and strengths. During the Reading Recovery program, teachers will send home "little books" the children enjoy and can read with ease. Children benefit from the additional opportunities to read books on which they have demonstrated success, and parents have a "window" for viewing their children's reading progress across the weeks the children participate in the program. Also, children will often bring home a message (one or two sentences) that they wrote with the teacher's support during a lesson at school. The teachers cut the printed message into phrases, words, or word parts for the children to remake in class and again at home. The teachers write the complete message on the outside of an envelope so that the children have a model and a way to check the story arrangement at home. The transfer of these literacy materials between school and home on a daily basis serves both as a vehicle for communication between the parents and teachers and for the children's skill transfer and generalization; the children have the opportunity to read familiar text in different contexts and with different audiences.

Literacy Socialization

It is generally accepted that the development of literacy begins long before young children participate in formal school instruction. Adult-child interactions at home and exposure to printed materials can provide young children with the opportunity to see the various forms in which messages can be conveyed. Home environments in which children (a) are read to regularly, (b) frequently see others reading for pleasure or to complete daily tasks, (c) have easy access to reading and writing materials, and (d) are encouraged to interact during reading and writing activities are considered fundamental to the development of reading and writing skills (Anderson & Stokes, 1984; Bissex, 1980; Cochran-Smith, 1984; Heath, 1983; Purcell-Gates, 1996; Scarborough & Dobrich, 1994; Snow, 1983; Teale & Sulzby, 1987, 1989; Thomas, 1985; van Kleeck, 1990; Wells, 1985; Westby, 1985). This philosophy of literacy socialization (Sulzby & Teale, 1991; van Kleeck & Schuele, 1987) has been promoted as important to all young children, including those with high risk factors such as poverty, developmental disabilities, or unspecified delays.

Specific home-related factors that appear to be critical for literacy socialization and are positively correlated with children's ability to be successful in using print for communicating ideas and learning new information include: (a) availability of printed materials and writing utensils in the home and/or child care facility (Cochran-Smith, 1984; Dunn, Beach, & Kontos, 1994; Goelman & Pence, 1987; Thorndike, 1976), (b) guided television watching (Mason, 1980), (c) frequency of book reading at home (Goldfield & Snow, 1985; Wells, 1985), (d) interactive book reading (Bus, van IJzendoorn, & Pellegrini, 1995; Heath, 1983; Snow, 1983; Teale, 1984; Thomas, 1985; Wells, 1985), (e) functional drawing and writing tasks (McLane & McNamee, 1990; Purcell-Gates, 1996), and (f) adult-child interactions with literacy materials prior to school age (Anderson & Stokes, 1984; Bissex, 1980; Cochrane-Smith, 1984; Purcell-Gates, 1996; Teale, 1986; van Kleeck, 1990). Furthermore, non-print activities that foster metalinguistic awareness of words and sounds such as nursery rhymes, finger plays, songs, poems, or stories that contain rhymes, alliterations, or nonsense sound-sequences have been correlated with children's reading competency and success with early reading instruction (Adams, 1990; Catts, 1991; Chaney, 1992; Jusczyk, 1977; van Kleeck, 1994). Finally, parental attitudes toward and aspirations for education have been considered instrumental in fostering a home environment that can support early literacy activities and experiences (Hiebert & Adams, 1987; Marvin & Mirenda, 1993; Sonneschein, Brody, & Munsterman, 1996; White, 1982).

The relationship between these environmental factors and biological factors associated with literacy socialization at home was explored by Marvin and colleagues for various groups of preschool children (Marvin & Mirenda, 1993; Marvin, 1994; Marvin & Wright, 1997). Distinct differences were found in the home experiences of children who presented known disabilities and those from high- and low-risk families. Children enrolled in Head Start programs (without disabilities) and typically developing children from middle class families had far more frequent and more positive literacy experiences at home than did the preschool children with identified special education needs. Parents of children with disabilities placed far less importance on literacy at home for these children, interacted less and qualitatively less effectively during reading or writing/drawing activities with their children, and held lower expectations for their children's development of literacy skills in the future. The authors ruled out SES factors and frequency of reading aloud to children as contributing to these differences. The authors highlighted concern for their findings in light of research that reports positive correlations between parental attitudes and aspirations for educational outcomes and young children's eventual acquisition of

reading skills (Auerbach, 1989; Hiebert & Adams, 1987; Koppenhaver, Evans, & Yoder, 1991; White, 1982).

Marvin and Mirenda (1993) noted, however, a high incidence of speech and language impairments (not severe physical, sensory, or cognitive impairments) among the population of disabled children studied. Further analyses of home literacy experiences for the children with speech-language impairments and children with other disabilities suggested differences in key qualities of parent-child interaction during reading and writing activities. There were fewer reports of questions and answers being exchanged between partners during reading and drawing, less mention of fingerplays, songs, and rhymes with the children, and fewer reports of children's "pretend" reading or independent reading to adults at home for the group of children with speech-language impairments. These data suggest possible child-based biological factors that may influence parents' efforts to pursue literacy activities at home. The better able children are at relating to words meaningfully (oral or in print), the greater the variety of literacy experiences at home. Marvin and colleagues, however, did not follow these children into the primary grades to explore how the preschool home literacy experiences, risk factors, and disabilities influenced the children's ability to read and write at grade level.

Home Literacy Practices in Reading Intervention Programs

A number of programs have demonstrated positive influences on young children's literacy socialization by focusing on home environments as part of their early intervention efforts (Arnold & Whitehurst, 1994; McCormick & Mason, 1986; Toomey & Sloane, 1994). For example, Little Books (McCormick & Mason, 1990) were sent home with preschool age children and kindergarten children in a series of intervention studies aimed at encouraging parent-child reading activities at home and providing an introduction to meaningful, context-supported print for children considered at-risk for reading failure. Consistently, the children who had access to Little Books at home subsequently scored better than control subjects on tests of reading readiness, story comprehension, letter and word recognition, and spelling and emerging literacy concepts (Mason, Kerr, Sinha, & McCormick, 1990; McCormick & Mason, 1986; McCormick & Mason, 1989; Phillips, Norris, Mason, & Kerr, 1990).

Whitehurst and his colleagues also demonstrated positive outcomes in a series of studies in which they used "dialogic reading" programs with parents or adult care-providers and their young children. Children from high-risk envi-

ronments as well as low-risk (high SES) populations showed notable advances in language development, particularly in the areas of vocabulary, compared to controls following the implementation of this shared book-reading program that emphasized active involvement of the children, parental feedback to expand and praise the children's contributions to the story, and progressive adjustments in parental expectations and prompts for what the children could contribute over time (Arnold & Whitehurst, 1994; Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994; Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994; Whitehurst, Falco, Lonigan, Fischel, Valdez-Menchaca, & Caulfield, 1988; Valdez-Menchaca & Whitehurst, 1992). Whitehurst and colleagues suggest that the positive influence dialogic reading can have on children's language development is important not only for the children's overall communication skills through the preschool period but well into the primary grades as well. Receptive language abilities at kindergarten age have repeatedly been associated with reading ability at the end of first grade (Pikulski & Tobin, 1989) and expressive language abilities are highly correlated with children's reading ability in second grade (Scarborough, 1989).

The effects of home-based extensions to school-based reading instruction programs for first-grade children have been described in only a few studies. Blum and her colleagues (Blum, Koskinen, Tennant, Parker, Straub, & Curry, 1995) provided nine second-language learners (ages 6 to 7.5 years) with books to take home each day after the students had heard the book read aloud at school and had the opportunity to read the book along with a teacher. Five of the students were provided an accompanying audio-tape of the story and were encouraged to "read along" with the tape at home at least three times before returning the book and tape. Improvements in oral reading fluency as well as letter and word identification skills were documented for all children using the audio-tapes. In addition, the authors reported positive changes in students' attitudes toward reading, more independent reading at home, and an increase in the number of books in English available to the students at home following the nine-week intervention and a nineteen-week follow-up.

Taking a slightly different perspective on the benefits of home-based reading programs, Rubert (1994) described the effects of a three-month, parent-facilitated, home-based reading program for first-grade children on the home literacy environment and reading strategies parents provided for three children. As a complement to a school-based, reading intervention program, Project Prevent staff trained parents to facilitate (a) children's echo-reading after each sentence a parent reads, (b) partner reading, alternating parent-read and child-read sentences, and (c) independent child reading of both parent-

selected and teacher-selected story books. Quantitative as well as qualitative data were used to describe two of the three parents' shifts away from an emphasis on phonics and word identification with their children, to the use of contextually based facilitation strategies for oral reading and comprehension of text during the children's reading over the course of the program. Furthermore, the children in these two families demonstrated an increase in independent and shared reading time at home with siblings and parents, reportedly joined siblings in doing homework, and benefited from the family's purchase of more easy-to-read books for the children to read at home.

Home Literacy and Reading Recovery

Holland (1991) pursued an analyses of the effects of Reading Recovery on the home literacy experiences of first-grade children. She interviewed 13 parents of first-grade children prior to and during the year of the children's enrollment in Reading Recovery. As the children progressed in their Reading Recovery programs, the home environments took on changes that complemented the skills and interests of the first graders. As children became readers, older and younger siblings, as well as parents, surrendered their roles as readers and became listeners. Children began to read independently the cut-up sentences and selected books sent home each day. Children initiated independent and shared reading sessions with family members and often demanded an audience. Children also began copying the cut-up sentences in an effort to improve their writing skills and began writing (without copying) short sentences as messages to family and friends. Once the children began Reading Recovery, parents appeared to increase their time (a) reading with children, (b) having children read aloud and practice writing, and (c) completing schoolwork with children.

Holland's report of school-related literacy activities in the homes of beginning first graders was similar to those reported by Purcell-Gates (1996) in that introduction to reading and writing assignments at school boosted family literacy activities at home. As the children enrolled in kindergarten and first grade, the home environments included four times as many literacy-related events focused on teaching reading and writing as compared to homes with children still of preschool age. This parental focus on print for the sake of learning to read and write appeared to be prompted by children's homework assignments, but generalized to other print-related interactions with parents as the year progressed.

The tendency for families of *all* children to shift their emphasis to more

advanced literacy activities at home once their children begin reading instruction has not been explored. Holland did not have control subjects (i.e., high-risk readers not enrolled in Reading Recovery) with whom to compare her findings. Nor did Holland have a standard of typical home literacy activities for first-grade students with whom to compare the end of the year accomplishments of her Reading Recovery students. Such studies could offer insight into the secondary benefits of Reading Recovery and help explain the transactional nature of home-school literacy development.

The purpose of the present study was to examine the change in home literacy activities and behaviors of children who had participated in Reading Recovery during their first-grade year at school. This study builds on the findings of Holland (1991) for children enrolled in Reading Recovery, but offers a comparative view of children's experiences at home before and after instruction for three groups of different ability-level readers and for a larger number of families than was reported by Holland. The study also builds on the work of Marvin and colleagues (1993, 1994, 1997) regarding home literacy experiences of preschool children with varying degrees of risk for reading failure; the study compares the home experiences of first-grade children, some of whom had reportedly begun to read and some who had not or were at high risk for not learning to read. The present study used a parent report methodology to survey families at the near-beginning (October) and near-end of the school year (late April). Comparisons of parent-reported home literacy experiences were made for children reading at grade level, for poor readers at risk for reading failure but never enrolled in special reading programs, and for the poorest readers at the beginning of first grade who enrolled in and completed at least sixty sessions of Reading Recovery.

Method

Instrument

A six-page survey was used to collect information concerning family demographics, child characteristics, and the home-based opportunities provided to young children relative to early reading and writing/drawing activities (see Appendix). The 32-question survey was an adaptation of one used to survey parents of preschool children by the first author (Marvin & Mirenda, 1993; Marvin, 1994; Marvin & Wright, 1997). A simple multiple choice ("Check one" [n = 24 questions]) or checklist format ("Check all that apply" [n =8 questions]) was used so that respondents with limited reading and writ-

ing skills could easily complete and return the surveys. In addition, respondents were invited to call the primary investigator and complete the survey by phone rather than responding in a written form if they so chose.

Twelve of the survey questions were related to characteristics of the children and families. Two questions addressed the respondents' current goals for their children and future expectations regarding their children's reading and writing abilities. Six questions focused on the children's access to printed materials, writing tools, and non-print literacy activities in the home. Four questions addressed the adults' behaviors during reading and writing activities with their children. The remaining eight questions pursued a description of the children's behaviors during independent and cooperative reading and writing activities at home.

Procedure

Forty-nine first-grade teachers, employed in 18 different elementary schools in a large midwestern school district were approached in the early fall of the school year and asked to submit the names of the children in their classrooms who (a) were enrolled in Reading Recovery (n = 117), (b) were poor readers who had been referred for assistance with reading but were not currently enrolled in a special reading program (n = 128), and (c) were randomly selected (n = 4 per class) from the remaining class list and who demonstrated grade-level reading abilities (n = 166). Children enrolled in Reading Recovery in the district were selected for participation in that program during the first month of school, based on their poor performance on screening tasks and their bottom ranking from the pool of all children referred and screened for possible reading difficulties from each first-grade classroom.

Survey packets were sent home to the families of these 411 identified first-grade children in October of the fall term. A letter explaining the purpose of the survey, and a stamped, self-addressed envelope were included with the survey. These packets were carried home from school by the children. Three weeks after the initial distribution, follow-up letters and new survey packets were sent home to all the families who failed to respond to the first survey. A final effort was made to increase the return rate by making phone contacts with the families who had failed to return the survey at the end of five weeks, and the survey was read to the parent over the phone (n =6). Overall, 216 surveys were completed in the fall term, for a return rate of 52%. This represented 58 surveys for children enrolled in Reading Recovery (50% return rate), 63 surveys for poor readers who were not currently enrolled in special reading pro-

grams (49% return rate), and 95 surveys for children who were reading at grade level (57% return rate).

The same survey was sent again in late April to all 216 families of first grade children who had completed the survey the previous October. A total of 21 families (10%) had moved out of the district sometime during the school year and were not available for the follow-up study. The available 195 families represented 56 children who had been enrolled in Reading Recovery. In addition, the surveys were sent home to 47 children who were considered poor readers in the fall term but who were never enrolled in a special reading instruction program. Finally, the follow-up survey was sent to the families of 92 children who demonstrated grade-level reading abilities at the start of first grade. If a child's status changed during the school year, the student's fall and spring data were categorized and analyzed according to their status in the spring of the first grade. For example, if a child was identified in the fall as being a poor reader and later in the year participated in Reading Recovery (n =11), the child's spring and fall data were analyzed with the Reading Recovery group.

Overall, 130 surveys were completed in the spring of the school year for a return rate of 66%. This represented 40 surveys from families associated with Reading Recovery (71%); thirty-five of these surveys represented children who had completed at least 60 Reading Recovery sessions; five students had completed less than 60 sessions at the time the spring survey was completed. Thirty surveys were from families of children who were considered poor readers throughout the school year (62%), and 60 surveys were from families of children who had demonstrated grade-level reading skills at the start of first grade (65%).

Data Analysis

A pre-post comparison was made of all data collected at the beginning of first grade with the data collected in the spring of the same school year. The samples were matched by the identification number for each respondent and the responses to each survey item were compared using the McNemar test for nonparametric, paired samples of nominal or ordinal data and a binomial distribution, $p = .05$ (Siegel & Castellan, 1988).

In addition, all completed surveys were coded and analyzed to compare responses across the three groups of children on a number of dimensions related to literacy activities that occurred at home in the spring of the school year. Three-way and two-way comparisons were made across the groups using Chi

square for k independent groups $a = .05$ (Siegel & Castellan, 1988). In order to control for possible Type I errors and keep the overall error rate at .05, an adjusted alpha (.05 / k tests) was calculated for sets of tests that were not orthogonal.

The SPSSx statistical package was used to analyze the data after each survey was coded and entered into a database by a graduate student in special education who was trained in the necessary protocols. To assure reliability of data entry, 40% of the surveys were selected for reentry by a second graduate student within one week of the initial data entry. Point-by-point reliability was 99.9% for data collected in the fall and spring; all of the data-entry errors were typographic in nature and were corrected before the data were analyzed.

Results

The results are organized in three sections to describe (a) the characteristics of the children and families in each of the three groups, (b) the significant changes in home literacy activities and behaviors reported for the children in Reading Recovery and their parents, and (c) home literacy experiences across the three groups of children as they completed their year in first grade.

Sample Characteristics

Families. The families of the children in the three groups were quite similar. The primary respondents for the children in each group both in the fall and spring of the school year were mothers. The majority of respondents and their spouses were employed in technical or professional settings; one-fourth of the respondents in each group were homemakers who did not work outside the home. English was the primary language spoken in all homes. Approximately one-fourth of each group were reportedly single-parent households. No significant differences were found in the respondents' education levels, with over 50% of the parents in each group reporting completion of college courses and degrees.

In the spring, the majority of respondents in the poor-reader and grade-level reading groups (67 and 78%, respectively) indicated that they expected their children to compete successfully in a college classroom when the children are 21 years of age. Only 50% of the families with a child in Reading Recovery reported such high expectations; forty-eight percent of these parents expected their children to be able to read at a high school level, X^2 (6, N = 130) = 13.57, p = .04. These springtime expectations for the parents of children in Reading Recovery were somewhat lower than had been reported by

these parents at the beginning of the children's enrollment in first grade when 77% of the parents expected their children to compete in college. These parents had established learning to read, write, and communicate effectively by the end of first grade as priority goals for their children, as did parents of the children in the other two groups. These goals remained priorities from fall through spring for most parents of children in Reading Recovery and the poor readers as well. In the fall of the year, over 84% of the parents in each group had prioritized reading goals for their children; however, significantly fewer parents of grade-level readers (65%) now held reading as the priority for their children, $X^2(2, N = 130) = 8.11, p = .02$. The parents in this group appeared to shift their priorities from reading, writing, and counting in the fall to having their children communicate effectively in the spring.

Children. There were no significant differences relative to age or gender across the three groups. The majority of the children turned seven years old during the school year; nearly half of the children in each group were girls and half were boys; a greater percentage of boys than girls, however made up the sample of children in Reading Recovery.

In the fall of the school year, significant differences were noted across the three groups relative to parent-reported reading and writing skills. Over one fifth of the children in Reading Recovery reportedly could not read at all at the start of first grade compared to only 10% of the poor readers and 1% of the children reading at grade level. More than two thirds of the poor readers and 72% of the children reading at grade level could reportedly read 5-25 words; approximately 20% in each of these groups could read simple text in picture books. In contrast, only one third of the children in Reading Recovery could read any words or text. The largest percentage of children in Reading Recovery were described as having the ability to recognize alphabet letters as their highest reading skill, X^2 (14, $N = 216$) = 38.04, $p = .000$. Similar differences were noted in the respondents' description of the children's writing abilities at the start of first grade. Significantly fewer children in Reading Recovery (5%) could do more than copy words, which was the most common writing ability across the three groups. However, more children in the other two groups (20-28%) reportedly could write simple notes or sentences, X^2 (12, $N = 216$) = 28.58 $p = .004$.

Summaries of the children's characteristics as reported by parents at the end of first grade are presented in Table 1. As was noted in the fall of the school year, children with special-education needs were represented in each group, but significantly more children with disabilities (27%) were participating in Reading Recovery. Speech and language disorders were the predominant

disability (73%) for the children in Reading Recovery, whereas behavior disorders, hearing impairments, and other unspecified disabilities were more notably represented (20% each) in the poor-reading group, X^2 (8, N = 130) = 16.05, p = .04. No children in any group were reported to have autism, mental retardation, or orthopedic, vision, or health-related impairments.

As their children were completing first grade, parents in all groups described their children's reading and writing skills as improved from the

Table 1. Characteristics of Children

	Respondent Groups			
Characteristics	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	X^2 (df) p
Gender				
Girls	.45	.43	.50	
Boys	.55	.57	.50	
Special Education Need*	.27	.13	.07	13.2(6) .04
Spring Reading Skills*[a]				24.56(12) .02
Recognizes letters	.03	.03	.00	
Reads 5-25 words	.05	.10	.03	
Reads 25-50 words	.15	.10	.03	
Reads text in picture books	.28	.20	.10	
Reads simple story books	.20	.03	.28	
Reads at 1st grade level	.28	.53	.55	
Comparison with Peers*				26.8(8) .00
Reading behind peers	.43	.37	.12	
Reading like his/her peers	.43	.43	.33	
Reading better than peers	.15	.20	.55	
Spring Writing Skills*[a]				27.18(10) .00
Writes ABC letters	.00	.03	.02	
Copies name/familiar words	.30	.17	.08	
Writes simple notes	.03	.20	.02	
Writes simple sentences	.40	.33	.40	
Writes simple stories/answers*	.25	.27	.48	
Comparison with Peers*				24.55(8) .00
Writing behind peers	.30	.26	.09	
Writing like his/her peers	.63	.63	.50	
Writing better than peers*	.08	.10	.42	

* Comparisons were made across groups using chi-square, $p < .05$

[a] These values suggest an improvement from skills reported at the beginning of first grade for all three groups ($p < .05$)

beginning of the year. Significant differences remained, however, between the children reading at grade level and the children in the other two groups. Two-way comparisons between the Reading Recovery and poor-reader populations however, revealed no significant differences in the parents' reports of reading or writing skills for their children at the end of the school year, despite significant differences in favor of the poor readers in the fall of the year. These data suggest notable improvements over the year for the children who had participated in Reading Recovery. Although more parents of grade-level readers reported that their children were reading at grade level at the end of first grade, over 75% of the parents of children in the Reading Recovery and poor-reader groups reported that their children were now reading text (picture books, story books, and first-grade stories). Only one third of the children in Reading Recovery and two thirds of the poor readers could read single words when the school year began. Over one half of the parents in these two groups reported that their children were now reading as well as or better than their peers in first grade; over one half of the parents of grade-level readers, however, reported that their children's reading skills exceeded that of their peers.

The children's writing skills were described by their parents as also improved from the beginning of the year. Again, significant differences existed between the grade-level readers and the Reading Recovery and poor-reader groups, but not between these latter two groups. Over 60% of the parents of children in the Reading Recovery and the poor-reader groups reported that their children could now write at least simple sentences, compared to 3% and 5% in each group who reported this level skill in the fall of the year. Nearly one half of the parents in the grade-level readers, however, reported that their children were able to write simple stories or answers to questions; nearly half (42%) of these parents felt their children's writing skills exceeded those of their peers.

Significant Changes in Reading Recovery Group

Despite the similarities across groups for age, gender, single parent dwellings, parental occupation and education, and parental expectations and goals, the children enrolled in Reading Recovery presented specific deficiencies in home literacy experiences that may have contributed to their having the poorest literacy skills as they began first grade. Table 2 summarizes the significant differences in the three groups in the fall of the school year (n = 216). Compared to other children identified as poor readers and to children reportedly reading at grade level, the children beginning Reading

Recovery had less frequent singing activities with adults, listened to books on tape less often, and were less likely to receive books as gifts. They were also less likely to look at photographs or notes, or recognize logos on game boxes, T-shirts or community signs. They were less apt to look at books independently or look for familiar words in print. Fewer of these children had adults spell out words for them to print or encourage them to sound out a word the children did not recognize in print. Furthermore, the children beginning Reading Recovery were less likely to begin first grade having practiced writing words or the alphabet letters.

Pre-Post comparisons were made for each group on the children's home literacy experiences as reported by their parents in the fall and spring of first grade. Statistically significant changes in the responses given by parents of the children in Reading Recovery are noted in the following sections. References to significant changes made by children in the poor- and grade-level reading

Table 2. Significantly Different Home Literacy Abilities and Activities for Three Groups of Children at the Beginning of First Grade (n = 216).

	Respondent Groups			
Characteristics	Reading Recovery Participants (n = 58)	Poor Readers (n = 63)	Grade-Level Readers (n = 95)	X^2 (df) p
Sings songs	.81	.94	.92	5.93(2) .05
Listens to books on tape	.71	.73	.86	6.59(2) .03
Looks at photos	.66	.87	.87	13.39(2) .00
Looks at notes	.64	.70	.82	6.82(2) .03
Recognizes logos on games	.59	.79	.77	8.02(2) .02
Recognizes logos on t-shirts	.57	.68	.77	6.71(2) .03
Recognizes community signs	.69	.87	.90	11.91(2) .00
Recognizes own name	.79	.91	.95	9.12(2) .01
Recognizes family names	.66	.81	.93	17.9(2) .00
Reads words or simple text*	.37	.56	.71	38.0(14) .00
Looks at books while alone	.88	.91	.98	6.44(2) .04
Received books as gift	.69	.86	.92	13.8(2) .00
Writes alphabet letters*	.88	.97	.97	6.41(2) .04
Writes words	.69	.78	.92	13.01(2) .00
Writes phrases or sentences*	.05	.20	.28	28.6(12) .00
Adult spells words out	.78	.94	.93	10.29(2) .00
Adult encourages "read the word"	.53	.57	.64	7.2(2) .03
Adult prompts "sound-it-out"	.76	.76	.90	6.49(2) .04

* Significant differences remain across the three groups for these items in the spring of first grade.

groups are made where appropriate.

Children's behaviors. Parents of children in Reading Recovery reported significant changes in their children's reading and writing behaviors between the fall and spring of the school year. Specifically, the parents reported significant increases in the frequency with which the children read independently and read aloud to adults at home ($p = .000$). Whereas 24% of the parents in this group reported in the fall that their children never read or looked at books independently, only 13% reported a lack of this activity in the spring; instead, nearly one half of the parents reported that their children read independently on a daily basis and over half reported this activity to be done at least weekly at home. Furthermore, reading aloud to adults at home had been a regular activity for less than one half of the children who participated in Reading Recovery at the beginning of first grade, but all of the children reportedly engaged in this activity at home at least weekly in the spring of the school year. These activities may have influenced the significant change in the parents' reports of their children's reading skills in the spring survey. As was noted previously, only 37% of the parents of children in Reading Recovery had reported that their children could read any words or text at the start of first grade; but over 75% reported this level of reading skill or better in the spring, with 48% reporting their children could now read storybooks and first-grade material. Increased read-aloud opportunities for children may have increased the parents' opportunities for observing their children's reading abilities.

The children who had participated in Reading Recovery also demonstrated significant changes in their at-home writing skills over the school year. Children in this group were noted to do significantly less drawing, scribbling, and copying of words at home in the spring ($p = .03$) and even less compared to their poor-reading peers ($p = .03$). This decrease in the more basic writing skills was accompanied by a significant increase in more advanced writing skills. Eighty-eight percent of the participants in Reading Recovery were, at a minimum, able to write words independently and 65% could write simple sentences and stories as the school year ended, comparable to that reported for their peers.

Parental behaviors. As the children in Reading Recovery developed more advanced reading and writing skills, the parents systematically made changes in how they read to their children. In the spring of the year, significantly fewer parents in this group reported pointing to pictures ($p = .001$), pointing to letters ($p = .02$), or asking children to point to pictures while reading books aloud at home ($p = .002$). The parents of children in Reading Recovery reported significant increases in their use of incorrect reading and

waiting for the children to supply the correct word ($p = .02$), and encouraging the children to sound out words they had difficulty reading ($p = .004$). No other group demonstrated significant changes in these adult reading behaviors. Furthermore, in the spring of the year, significantly fewer parents of children in Reading Recovery (compared to poor readers) reported having to write the children's names for them ($p = .02$).

Home Literacy Experiences Across Three Groups

Despite their progress in reading and writing, the children in Reading Recovery continued to experience literacy events at home that were notably different from those reported for children who were reading at grade level. Very few significant differences remained, however, between the poor-reader and Reading Recovery groups, suggesting notable advancements in home literacy experiences over the year for the latter group.

Materials used at home. In the fall of the school year, minor differences were noted across the three groups for the types of literacy-related materials that were available to the children at home. The children in Reading Recovery, however, reportedly *used* significantly fewer of these materials at home than even the poor readers (see Table 2). In Table 3, a rank ordering of the materials used at home in the spring of the school year is presented for the three groups. As the school year came to a close, children in Reading Recovery looked at picture books, photographs, their names on packages, and comic books as much as children in the poor-reader group. Furthermore, as many children in Reading Recovery reportedly received books as gifts in the spring of the year and took notice of community signs, logos on food boxes and t-shirts, and instructions on games as did children in the other two groups. Finally, the children in Reading Recovery had developed an interest in writing at home over the year and reportedly used pencils (100%), crayons (96%), and markers (88%) comparable to children in the poor- and grade-level reading groups.

Non-Print literacy activities. In the fall of first grade, over 80% in each group reported children singing songs, and reciting ABC's and nursery rhymes at home. By spring, fewer families in each group reported that their children engaged in these simple non-print literacy activities. And although more than one half of the families in each group reported that their children participated in reciting poems, rhyming words, telling jokes with puns, singing, and listening to audio-taped stories and oral stories near the end of first grade, significantly more of the poor readers were reportedly engaging in many of these

non-print activities. Children in Reading Recovery were more like their grade-level reading peers in their use of nursery rhymes and retelling stories by the spring of first grade. And although all the children increased their attention to compound words, children reading at grade level showed the most significant increase and use of this type of non-print activity at home. Table 4 summarizes the children's non-print activities at home in the spring of first grade.

Table 3. Rank Order [a] of Materials Looked at by Children at Home in the Spring of First Grade

	Respondent Groups			
Materials	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	X^2 (df) p
Reading Materials Used				
Story books	1.00	.97	.97	
Picture books*	.96	.93	.80 [b]	6.15(2) .04
Community signs	.83	.87	.90	
Magazines*	.70	.87	.90	7.18(2) .03
Letters to child	.70	.87	.82 [b]	
Child's name on packages*	.70	.90	.68 [b]	4.07(1) .04
Food boxes	.63	.67 [b]	.82	
Advertisements	.63	.73	.77 [b]	
Birthday cards	.65 [b]	.77	.70 [b]	
Digital clocks	.60	.73	.77	
Photographs	.60	.63 [b]	.75 [b]	
Notes	.60	.70 [b]	.72 [b]	
Books as gifts	.55	.73 [b]	.75 [b]	
Catalogs	.55	.70	.67 [b]	
Newspapers	.58 [b]	.60 [b]	.57 [b]	
Game boxes	.50 [b]	.63 [b]	.65 [b]	
Words/logos on T-shirts	.53	.60	.62 [b]	
Brand name logos	.40	.33	.53	
Comic Books*	.40	.47	.25	4.29(1) .04

*Comparisons were made across groups using chi-square, $p < .05$.

[a] Survey items reportedly used by less than 40% of the children in any group are not listed.

[b] This value is significantly less than the value reported for this group at the beginning of first grade ($p < .04$).

Children's reading activities/behaviors. More children in all three groups were reading aloud to others or independently at home on a daily or weekly basis by the end of first grade. Over 60% of the children in each group were reported to be finding familiar words in text, asking their parents, "What's this say?", and commenting on what they read. In Table 5, a listing is presented of children's reading behaviors and activities at home. The vast majority of children in each group could now recognize their own names and those of family members in text and select favorite videos or foods by their labels. Significantly fewer participants in Reading Recovery, however, could demonstrate the latter skill when compared to the poor and grade-level reading groups. And, whereas over 87% in each group attempted to read independently at home and over 70% of the children in the poor-reader group could now read familiar lines independently, significantly fewer children in the Reading Recovery group (63%) could do this at home. Furthermore, significantly fewer children in

Table 4. Non-Print Literacy Activities at Home in the Spring of First Grade

	Respondent Groups			
Activities	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	X^2 (df) p
Singing	.68 [b]	.73 [b]	.75 [b]	
Telling oral stories	.70	.70	.62	
Listening to taped stories	.65	.77	.63 [b]	
Telling jokes with puns	.60	.70	.68	
Reciting poems	.53	.70	.65	
Rhyming words	.58 [b]	.50	.65	
Saying nursery rhymes*	.35	.60 [a]	.48 [b]	4.31(1) .04
Retelling stories*	.53	.70	.47 [b]	4.39(1) .04
Discussing compound words*	.40	.53	.70 [a]	9.01(2) .01
Saying ABC's	.50 [b]	.50 [b]	.37 [b]	
Finding first letter in name	.43	.57	.42	
Doing finger plays	.28 [b]	.40	.33 [b]	

* Comparisons were made across groups using chi-square, $p < .05$

[a] This value is significantly larger than the value reported for this group at the beginning of first grade ($p = .03$).

[b] This value is significantly less than the value reported for this group at the beginning first grade ($p < .05$).

Note: Survey items reportedly used by less than 40% of the children in any group are not listed.

Table 5. Children's and Parents' Reading Behaviors at Home in the Spring of First Grade

Characteristics	Respondent Groups: Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	X^2 (df) p
Children's Behaviors				
Reads aloud to others weekly	1.00 a	.97 a	1.00 a	
Reads independently weekly	.87 a	1.00 a	1.00 a	
Recognizes his/her name	.93	1.00	.95	
Chooses books	.95	.97	.98	
Recognizes family names	.90	.97	.92	
Selects favorite foods at store*	.75	.97	.93	10.47(2) .005
Selects videos for rent	.85	.90	.83	
Listens quietly as adult reads*	.80	.67 b	.87	5.00(1) .03
Reads familiar lines*	.63	.73	.83	5.55(1) .02
Finds familiar words	.63	.73	.70	
Asks "What's this say?"	.63	.73	.60	
Asks questions/comments	.58	.63	.70	
Turns pages	.73	.60	.55 b	
Announces the title	.58	.57	.73	
Reads title page	.53	.60	.65 a	
Visits library*	.48	.60	.73	6.90(2) .03
Guesses what will happen	.60	.63	.43	
Answers adult questions	.48	.67	.57	
Points to words you read	.48	.63	.52	
Points to pictures*	.73	.57 b	.38 b	11.45(2) .003
Tells story in own words*	.40	.57	.35	3.84(1) .04
Labels pictures	.30	.47 b	.37 b	
Adults' Behaviors				
Reads words in book	.98	.97	.97	
Reads title page*	.65	.73	85	5.42(1) .02
Encourages "sound it out"	.93 a	.90 a	.90	
Encourages guessing words*	.55	.77	.85 a	11.34(2) .003
Points and reads words aloud	.68 b	.73	.73	
Asks child to read word	.68	.87	.70	
Supplies word as child hesitates*	.60	.80 a	.58	4.15(1) .04
Relates characters to child's life	.55	.57	.62	
Asks "What happened?"	.50	.67	.57	

Table 5. Continued

Characteristics	Respondent Groups: Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	X^2 (df) p
Asks child to "turn page"	.53	.70	.55 [b]	
Asks child to label pictures*	.55	.73	.33 [b]	13.57(2) .001
Asks child to point to pictures	.50 [b]	.63 [b]	.43 [b]	
Asks child to point to word	.55	.60	.43	
Asks "What will happen next?"	.50	.40	.53	
Points/Labels pictures	.35	.53	.43 [b]	
Reads incorrectly-waits	.30 [a]	.27	.30	
Points to ABC letters	.18 [b]	.33	.18 [b]	

* Comparisons were made across groups using chi-square, $p < .05$

[a] This value is significantly *higher* than values reported at the beginning of first grade ($p < .05$).

[b] This value is significantly *lower* than values reported at the beginning of first grade ($p < .05$).

Note: Survey items reportedly used by less than 50% of the children in any group are not listed.

Reading Recovery were visiting a public library with their families. However, when children from the three groups were compared in the spring of first grade, children in the Reading Recovery group were as likely as grade-level readers to have sat and listened quietly as adults read aloud to them.

Parents' reading behaviors. Almost all parents continued to read the precise words in a book rather than using their own words to tell a story in the spring of first grade, but fewer parents asked their children to point to or label pictures, turn the pages, or close the book when reading together. Table 5 provides a summary of the adult reading behaviors used with children at home as the children completed first grade. All parent groups reported an increase in asking children to read the words in a text; parents of children in Reading Recovery did this in the spring as often as the parents in the other groups. In addition, parents of children in Reading Recovery and poor-reader groups significantly increased their use of asking the children to sound out words while reading, matching levels comparable to the grade-level reading group. Finally, approximately 30% of all parents now read words incorrectly and waited for thei. children to correct them. Parents of children in Reading Recovery, however, were less likely than other parents to read the title page of a book or

encourage their children to guess at words. Significantly more parents of children in the poor-reader group reportedly still asked their children to label pictures and supplied words when their children hesitated in reading aloud.

Children's writing activities/behaviors. All the children were writing more at home as they approached the end of first grade than they were at the beginning of the school year. According to their parents, only 5% of the children in Reading Recovery "seldom or never" wrote at home; over 95% of the children in all three groups wrote daily at home, and over 80% were able to write their names and other words independently. Significantly more children in Reading Recovery, however, still engaged in pretend writing and wrote their ABCs at home; more children in the poor-reader group copied words that the adults at home wrote first. Grade-level readers, in contrast, were advancing to typing words independently. Table 6 is a ranked listing of the children's writing behaviors and activities at home in the spring of the school year. Although none of the groups reported statistically significant increases in particular writing skills for their children at home, children in Reading Recovery were now reportedly engaging in writing activities and behaviors like their peers in the poor and grade-level reading groups.

Parents' writing supports. As the children developed more competence in independent writing tasks at home, parents in all three groups were able to play a less active role in their children's writing efforts. In Table 6, a ranked list is displayed of the adult behaviors that were used to support their children's writing in the spring of first grade. Less than half of the parents of children in Reading Recovery and less than one third of the parents of children in the poor- and grade-level reading groups reported having to write their children's name for them. Over 80% of the parents in each group reported commenting on what the children wrote and asking or answering the children's questions. Parents of children in Reading Recovery were spelling words aloud for their children like the parents in the other two groups and showed a significant increase in the practice of sounding out words for their children to write. However, significantly more parents of children in Reading Recovery (35%) reported still having to position the writing utensils in their children's hands.

Discussion

The present study complements and extends the findings by Holland (1991). The 40 first-grade students in the present study demonstrated similar changes in their home literacy activities as did Holland's 13 students during enrollment in Reading Recovery. The children reportedly read more at home

Table 6. Children's and Parents' Writing Behaviors/Activities at Home in the Spring of First Grade

	Respondent Groups			
Writing Behaviors	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	X^2 (df) p
Children's Writing Behaviors				
Writes daily/weekly*	.95	1.00	1.00	11.65(2) .02
Prints his/her name	1.00	.97	.98	
Writes words independently	.88	.83	.95	
Draws with markers	.83 b	.97	.82 b	
Writes ABC letters*	.80	.67b	.60 b	4.41(1) .04
Copies words adult writes*	.63 b	.80	.57 b	4.75(1) .03
Makes signs to post on doors	.73	.63	.75	
Plays with drawing toy	.65	.53	.48	
Plays with calculator	.38	.47	.53	
Pretends to write under picture*	.68	.47 b	.43	5.62(1) .02
Dictates for others to write	.40	.40	.30 b	
Draws on computer	.35	.23	.38	
Scribbles left to right	.55 b	.37 b	.37 b	
Types words independently*	.25	.33	.50	6.71(2) .03
Adult Writing Behaviors				
Comments	.88	.90	.92	
Answers child's questions	.80	.83	.92	
Asks child to tell what they did	.83	.83	.85 b	
Spells words aloud	.75	.83	.88	
Encourages child to do more	.70	.73 b	.67 b	
Sits silently and watches	.75	.67	.68	
Writes words dictated	.53	.60 b	.50 b	
Sounds-out words for child	.43 a	.47	.32 b	
Writes child's name	.45 b	.27 b	.32 b	
Provides hand-over-hand	.35	.37	.08 b	
Positions writing utensil*	.35	.20 b	.07 b	12.86(2) .001

* Comparisons were made across groups using chi-square, $p < .05$

a This value is significantly *higher* than the values reported at the beginning of first grade ($p = .05$).

b This value is significantly *lower* than the values reported at the beginning of first grade ($p = .05$).

Note: Survey items reportedly used by less than 50% of the children in any group are not listed.

once they began the program and advanced their literacy activities to include reading aloud to others, reading independently, and writing names and words independently. The results of the study also demonstrate that the changes were in the direction of more mature reading and writing skills and approached the level of home activity reported at the end of first grade for grade-level readers. Although Reading Recovery may not be fully credited with the changes reported here, the association between Reading Recovery efforts and the children's improved home literacy activities and skills should be given some consideration.

As Purcell-Gates (1996) had reported for her kindergarten-1st grade families, the parents of children in the present study made appropriate adjustments in their reading and writing supports and expectations with children at home as the children initiated reading instruction at school and brought home "homework" to complete. The parents of children in Reading Recovery continued to read aloud to children through the year but significantly reduced pointing at words while reading aloud, pointing out letters, or asking children to point at named pictures. Instead, these parents in the spring of the school year were asking children to read the words, encouraging their children to "sound it out," and reading words aloud incorrectly to see if children would catch the mistakes. Without explicit instruction to do so, parents and children made changes in home literacy activities and behaviors that appeared responsive to the children's increased reading and writing abilities. Noteworthy is the fact that Reading Recovery does not purport to influence home literacy activities and, therefore, any positive effects are welcomed indirect outcomes of the program.

Furthermore, the reported shift in the type of parental behaviors used during shared reading and writing activities at home may explain the slight shift some parents in the Reading Recovery group reported in their expectations for their children's future literacy abilities at age 21. These parents may have had somewhat uninformed opinions about their children's abilities and potential for reading in the fall of the school year. Once they began to attend more closely and interact with their children during reading and writing activities, they may have come to recognize the challenges their children faced in learning to read. This new knowledge could explain their lowered, perhaps more realistic, expectation for their children.

Overall, the results of this yearlong investigation lend support to the transactional nature of the relationship between home and school reading environments. Children with greater home-based literacy experiences came to first grade as better readers. As all children increased their reading and writing

competencies during first grade, we saw a corresponding change in parents' reading and writing support behaviors and the children's literacy activities at home. This was most evident in the Reading Recovery group where the children had the greatest gains to make during first grade. The children selected for Reading Recovery exhibited the lowest level of literacy skills and had fewer opportunities than other students to use materials and engage in productive literacy-related interactions with adults at home. Evidence from this study indicates that implementation of Reading Recovery services may have had an impact on the activities and interactions these children experienced at home. Subsequently, whether a result of the direct instruction received through Reading Recovery at school, the first grade reading activities in the classroom, or the changed literacy experiences at home, the children enrolled in Reading Recovery reportedly demonstrated improvements over the year in reading and writing at home that were developmentally and often grade-level appropriate. Given the children's lack of skills as they began the school year, participation in Reading Recovery may have influenced both the children's role as reader at home (as active and capable) and the parent's perceptions and support of the children's reading and writing abilities.

The educators who welcome kindergartners and first graders to school know that they must be prepared to greet children with wide-ranging literacy experiences and skills. It is the responsibility of educators in each school to find ways to respond differentially to children with varying levels of competence such that all will have the opportunity to learn to read and write. The implementation of Reading Recovery is one way for schools to address the needs of children who do not arrive in first grade with literacy skills and experiences comparable to their peers. Reading Recovery offers a way for schools to respond to children experiencing difficulties in emerging literacy, extending support directly to the children and indirectly to the families, beyond that which may be provided by an individual first-grade teacher. This attention to children's skills, and indirectly to home literacy environments, makes Reading Recovery unique in its efforts to address the multifaceted factors associated with many children's failure to learn to read.

Future studies are needed to compare quantitative measures and qualitative reports of the children's home-based and school-based reading and writing behaviors at the beginning and end of the first grade. Such studies could confirm or refute the differences noted across groups in this present study and changes reported by parents in home literacy interactions and reading and writing skills for children who enrolled in Reading Recovery. Information about the home literacy environments of children who successfully discontinue

Reading Recovery and those who continue unsuccessfully through 60+ lessons would provide insight into the role children's abilities vs. the homework assignments play in changing home literacy environments. Finally, studies that differentially compare the reading and writing progress for Reading Recovery students who had rich home experiences prior to beginning school with those who had limited experiences would be insightful. The results of such studies might provide parents and teachers with additional information that would most likely benefit Reading Recovery efforts.

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The Success of Reading Recovery for English Language Learners and Descubriendo La Lectura for Bilingual Students in California

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Abstract

The purpose of this study was to determine if Reading Recovery and Descubriendo La Lectura interventions resulted in reading and writing success for two groups of bilingual children: (a) English language learners receiving Reading Recovery instruction (first-grade children acquiring English as a second language concomitantly with developing literacy in English through instruction provided in English-speaking classrooms); and (b) Spanish-speaking children receiving the Descubriendo La Lectura intervention who were in first-grade bilingual classrooms that provided primary language instruction.

Pre- and post-test data for the two target populations of first-grade children in California were compared with data for the total English-speaking population of children in Reading Recovery in California for three academic years, 1993-1996, and with end-of-year data from random samples of first-grade children.

Results of this study indicate that statistically significant progress was made by both target populations of children, indicating that the interventions enabled low-performing English language learners and Spanish-speaking children to improve their performance on selected indicators of literacy acquisition. The proportion of these children's success rates compared favorably with that of the total population involved in the interventions, and they achieved scores within the average range of a cohort of their peers drawn from a random sample of first graders.

Early intervention for arresting predicted reading failure of at-risk children is becoming an essential aspect of comprehensive literacy plans for elementary schools (California Department of Education, 1995; Hiebert & Taylor, 1994; Pikulski, 1994). The concept of *early intervention* is unique in American education in that it is neither a remedial program, a special education program, nor a classroom program, a combination of which has characterized the range of educational options for children in our schools over the past several decades. Intervention, unlike remediation, is not a "wait and see" approach that allows children to fail in order to obtain a two-year discrepancy between grade level and reading achievement. Rather, intervention is pro-active; it identifies children early who need supplemental assistance in order to learn to read and write successfully in the primary grades. By providing a "safety net" for fragile learners before years of failure have fossilized unproductive patterns of responding, intervention seeks to correct quickly young children's misunderstandings of how to operate on print so that future forms of long-term assistance will be greatly reduced or will be unnecessary.

Early intervention is "something more" than classroom instruction alone. Intervention accepts the premise that some children, due to differences in preschool experiences and/or opportunities to learn, require *extra* resources to assure their early success in learning to read and write. Hence, an intervention program is supplemental to classroom instruction but does not replace it. Rather, the success of a plan of intervention as extra help is interdependent with a regular classroom program of literacy instruction that operates alongside it. Children are receiving a "double dose," as it were, of literacy instruction.

A program of intervening for literacy success is intended to help screen children who, at a young age, appear to be having difficulties learning to read, yet who cannot be identified with certainty as requiring placement in a long-term assistance program such as special education. In this case, early intervention serves as a pre-referral program to special education to differentiate between children experiencing early confusions related to reading and writing acquisition, and children who have processing difficulties requiring long-term special help.

The crucial issue of extra instructional time for children who are behind in reading was addressed by Kameenui (1998): "The pedagogical clock for students who are behind in reading and literacy development continues to tick mercilessly, and the opportunities for these students to advance or catch up diminish over time" (p.12). The longer we wait to help children who are behind, the greater the gap between them and their peers. Stanovich (1986) described the increasing gap as the "Matthew effect;" that is, children who

have difficulties in the beginning stages of learning to read fall further and further behind their classmates. The "rich get richer and the poor get poorer," so to speak.

In addition to catching children early in their schooling and providing supplemental assistance alongside classroom instruction, intervention programs, to be effective, must focus on powerful instruction that enables slower-performing children to "catch up" with their peers. In traditional thought about children and learning, the idea of taking the lowest-achieving children and moving them more quickly than their peers in order to "recover" the trajectory of progress their classmates have obtained, appears an unlikely, if not impossible, task. However, successful early intervention programs regularly enable children to "accelerate" in their literacy development. The acceleration that children achieve from early identification and intensive supplemental instruction is what makes intervention a short-term program; children "fill in the gaps" of their learning rather quickly and then are released from the supplemental program to continue learning from regular classroom instruction (Allington, 1995; Clay, 1991; DeFord, Lyons, & Pinnell, 1991). In the following section we review the research literature regarding school-based early intervention programs that have been found to be effective.

Although the purpose of this study is to investigate the outcomes of particular early interventions for two specific groups of children (i.e., English language learners and Spanish-speaking students who are participating in Spanish reading instruction), a general review of effective early intervention programs is being provided as background.

Effective Intervention Programs

English Intervention Programs

Several programs have been devised that meet the intervention criteria of providing intensive, individual and/or small group, short-term, supplemental instruction to high-risk children. Among these programs are Success for All (Madden, Slavin, Karweit, Dolan, & Wasik, 1991), the Early Intervention in Reading (ERI) Project (Taylor, Short, Shearer, & Frye, 1995), The Winston-Salem Project (Cunningham, Hall, & Defee, 1991), Small Group Literacy Intervention/Boulder Project (Hiebert, 1994), and Reading Recovery (Clay, 1993b; Lyons & Beaver, 1995; Pinnell, 1989, 1995).

Success for All is a total school program that provides both regular classroom instruction and supplemental instruction. The classroom component

includes a comprehensive reading program in which students are regrouped for instruction, affording them the opportunity to work with materials that are appropriate for them. For students who are falling behind their peers, a supplemental program is provided. It consists of 20-minute daily individual tutoring sessions conducted by certified teachers or well-qualified paraprofessionals. Consistency is achieved between the classroom program and the tutoring through a focus on the same strategies and skills. Results of a large replication study that evaluated Success for All in 23 sites across the United States showed statistically significant positive effects in reading performance in grades 1 through 5 on every measure used, including standardized tests. Additionally, special education students who were participating in Success for All improved their performance and there was a reduction in special education referrals (Slavin, Madden, & Wasik, 1996).

In the Winston-Salem Project, the traditional ability-grouped basal instruction was replaced by multi-method, multi-level instruction. Classroom instruction was reorganized to include a "four-blocks program" involving guided reading, self-selected reading, working with words, and writing. High-risk students received an additional 45 minutes per day of small group instruction. Results of Informal Reading Inventories and observational data indicated that "after two years of multi-method, multi-level instruction, no child remained a non-reader. Most children, including those at high risk for failure, read at or above grade level" (Hall, Prevatte, & Cunningham, 1995, p. 154).

The Early Intervention in Reading (EIR) Program (Taylor et al., 1995) was developed to accelerate the learning of low-achieving first-grade children. It involves 20 minutes of supplemental, small-group reading instruction taught by the classroom teacher as an addition to the regular daily classroom reading program. While the results of EIR were not as dramatic as those reported by other interventions (Reading Recovery and Success for All), the program helped many low-achieving, emergent readers become readers. By the end of the first year of implementation, 67% of the children served were reading at least on a preprimer level, while 40% were reading on grade level or better. These achievements surpassed a comparison group who did not receive the supplemental instruction. In a follow-up study of these children in March of second grade, 72% of the children who had participated in EIR were reading second-grade-level texts while 65% of the children in the comparison group were reading on grade level. This intervention demonstrated that classroom adaptations by teachers can positively affect the reading development of children experiencing difficulty in first grade, even though it does not meet the needs of every child who requires special assistance (Taylor et al., 1995).

Another intervention program that reported promising results modified Title 1 instruction to focus on rereading of predictable books, word identification strategies, word pattern instruction, and writing. The intervention was provided to groups of three children for 30 minutes daily by paraprofessionals and teachers (Hiebert, 1994). According to the author, the majority of children who were initially in the bottom quartile were performing at levels comparable to the average students in their classrooms by the end of the year.

One of the most widely disseminated and researched intervention programs in schools today is Reading Recovery. It is an early literacy, one-to-one intervention designed to help the lowest-achieving first-grade children achieve accelerated progress by developing productive strategies for reading so that they are able to perform at a level commensurate with the average readers in their classrooms and to profit from classroom instruction (Clay, 1993b; Pinnell, 1995; Pinnell, Fried, & Estice, 1990). As an intervention program, it provides daily individual 30-minute lessons for approximately 12-20 weeks. Lessons are taught by specially trained teachers and consist of reading and writing experiences designed to help children develop effective strategies. Attention is paid to phonological awareness and the alphabetic principle in both reading and writing activities. Instruction is provided until the child is reading at or above the average of his or her class *and* has acquired independent reading and writing strategies. The program is then "discontinued," providing the opportunity for another child to begin the Reading Recovery program.

Reading Recovery was developed by Marie M. Clay, a New Zealand educator and psychologist. During the 1960's, Clay conducted longitudinal research documenting change over time at weekly intervals, enabling her to design techniques for detecting reading difficulties of young children. In the mid-1970's, she developed Reading Recovery procedures with teachers and tested the program in New Zealand (Clay, 1979). The success of the pilot program resulted in the nationwide adoption of Reading Recovery in New Zealand in 1983.

Subsequently, the success of Reading Recovery in New Zealand led to program initiatives in Australia, the United States, Canada, England, Ireland, and Scotland. In the United States, Reading Recovery sites have been established in 49 states and the District of Columbia. Additionally, Descubriendo La Lectura, the redevelopment (not translation) of Reading Recovery in Spanish (see Escamilla, 1994), has been implemented in eight states. Descubriendo La Lectura offers in Spanish the same intensive literacy intervention to eligible first-grade children receiving primary language instruction that Reading Recovery offers to English speakers. (Descubriendo La Lectura

will be described in greater detail below.) With all authentic Reading Recovery and Descubriendo La Lectura programs, data are collected daily and national data are analyzed annually for all children served. (See The Ohio State University and Reading Recovery Council of North America, 1998.) In fact, Reading Recovery has gone further in collecting data on every student involved than any other early intervention program (Pinnell, 1995).

The success of Reading Recovery has been well documented in the United States, New Zealand, Australia, and England (Askew, Fountas, Lyons, Pinnell, & Schmitt, 1998; Clay, 1993b; Fr ter & Staniland, 1994; Hobsbaum, 1995; Pinnell, 1995; Rowe, 1995). In North America alone, nearly three quarters of a million children have been served by Reading Recovery since it was first introduced in 1985; and, since its inception in North America, 83% of children who had full Reading Recovery programs have become independent readers (The Ohio State University and Reading Recovery Council of North America, 1999). Several longitudinal studies have shown that most Reading Recovery children continue to succeed in reading beyond first grade (Askew et al., 1998; Brown, Denton, Kelly, & Neal, 1999; The Ohio State University and RRCNA, 1999).

Contributing to the success of Reading Recovery is the high-level professional development for teachers (Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1993) whereby they are trained in the practice and theory of literacy acquisition through an intense yearlong graduate course of study. Following their training year, Reading Recovery teachers continue to attend sessions about Reading Recovery theory and practice and receive support from their teacher leaders as they work with the hardest-to-teach first-grade children.

Bilingual Intervention Programs

Although interventions for bilingual children have been less widely reported, there have been a few reported for children in bilingual classrooms and for English language learners whose first languages are other than English but who are receiving literacy instruction in English. Goldenberg (1994), though not dealing specifically with early intervention programs, described classroom programs that supported beginning Spanish readers. He concluded that kindergarten children in Spanish bilingual classrooms "learn more about literacy when they are in classrooms that provide additional and direct opportunities for learning about print. They learn more when directly taught" (p. 184). In this case, a strong emphasis on learning letters, sounds, and how they combine to form syllables and words helped Spanish-speaking children become literate. In first-grade Spanish bilingual classrooms, Goldenberg (1994) found

that a continuous balance between a code emphasis and reading for meaning and communicative purposes was more effective than an emphasis mostly on learning the code and skills. Additionally, increased pacing of instruction and the systematic inclusion of opportunities for taking books home to read and discuss with parents had positive effects on student learning.

Slavin et al. (1996) reported that in Success For All schools where the bilingual version of the program, *Lee Conmigo*, was implemented, Spanish-speaking students outperformed control group bilingual students and the differences were significant. The bilingual students scored at or near grade level and more than six months ahead of children in control groups.

Descubriendo La Lectura (a reconstruction of Reading Recovery in Spanish) is an early intervention program for students whose initial literacy instruction is in Spanish. The aim of Descubriendo La Lectura is to help students having difficulties in bilingual first-grade classrooms to read and write within the average band of their peers. Preliminary investigations of Descubriendo La Lectura have shown it to be a successful intervention for Spanish-speaking children who are being taught to read and write in Spanish (Escamilla, 1994; Escamilla, Loera, Ruiz, & Rodriquez, 1998). In a study that examined the initial impact of Descubriendo La Lectura on 23 students who participated in the program during 1991-92, Escamilla (1994) reported that Descubriendo La Lectura intervention students made significant gains in literacy acquisition and surpassed control group students on six reading measures, including text reading. In another study which examined the sustaining effects of Descubriendo La Lectura programs, Escamilla et al. (1998) found that students who had successfully completed the Descubriendo La Lectura intervention program in first grade and were continuing to read in Spanish in second and third grades, sustained their reading achievement as indicated on both informal and standardized measures of reading (text reading and SABE-2 Spanish Reading Achievement Test). Results indicated that 92% of the second-grade former Descubriendo La Lectura students met or exceeded the average band on Spanish Text Reading and 75% met or exceeded the average band on the SABE-2. For third graders, the percentages were 93% and 79%, respectively. The authors concluded that Descubriendo La Lectura had a positive impact on Spanish-speaking children in much the same way that Reading Recovery had on English-speaking children.

English Language Learner Intervention Programs

The research on the success of early intervention programs for English language learners is limited. Slavin et al. (1996) examined the efficacy of an

adaptation of Success For All for "English as a Second Language" (ESL) students and found it to be effective. Asian students in grades 3-5 performed at or above grade level and far better than control students. Many of them had been in the program since kindergarten. Outcomes for non-Asian ESL students were also very positive with statistically significant differences being documented between experimental and control groups.

Reading Recovery has been found to be successful in helping young English language learners become literate. In New Zealand, Clay's (1993b) earlier studies and, more recently, Smith's (1994) research on children for whom English is a second language, confirmed that Reading Recovery was an effective intervention for such learners. In England, Hobsbaum (1995) reported that bilingual children who received Reading Recovery had similar outcomes on *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) tasks as monolingual English-speaking children. Entry scores for the bilingual children were lower on all subtests of the survey, but by the end of the program, bilingual and monolingual children looked very similar.

In a one-year study of the effects of Reading Recovery on English language learners, Spanish-speaking bilingual children, and monolingual English children, Kelly, Gomez-Valdez, Klein, and Neal (1995) reported that English language learners who received Reading Recovery and Spanish-speaking children who received Descubriendo La Lectura benefited from both interventions. Furthermore, their success was similar to monolingual English children who participated in Reading Recovery.

The Purpose of the Current Study

The purpose of this study was to extend the work of Kelly et al. (1995) by examining several years of data collected in California between 1993 and 1996 to document longer-term outcomes. The focus of the investigation was the same; that is, to determine if Reading Recovery and Descubriendo La Lectura interventions resulted in reading and writing success for two groups of bilingual children: (a) English language learners receiving Reading Recovery instruction—first-grade children acquiring English as a second language concomitantly with developing literacy in English through instruction provi led in English-speaking classrooms; and (b) Spanish-speaking children receiving the Descubriendo La Lectura intervention who were in first-grade bilingual classrooms that provided primary language instruction.

Two important terms used in the sections below are defined here: *program*

children are students who participated in Reading Recovery/Descubriendo La Lectura who received a full program of instruction determined either by successfully completing the program, or by receiving a minimum of 60 lessons of tutoring. Children who have *discontinued* from the intervention programs have met two criteria: (a) they have developed independent strategies in reading and writing; and (b) they have reached the average reading level of children in their classrooms and, therefore, can benefit from classroom literacy instruction without additional assistance. To reiterate, for the purposes of this study, children were designated as program children if they received a minimum of 60 lessons or successfully discontinued from the program at the average level of other first-grade children. (Please note: In the United States currently, the 60-lesson designation is no longer used to identify "program children;" rather, 20 weeks is the recommendation for classifying children as having received a full program.)

In determining whether the Reading Recovery/Descubriendo La Lectura programs were effective literacy interventions, "effective" was defined in terms of three variables. The first variable involved changes in average score levels on the three measures of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) or *Instrumento de Observacion* (Escamilla, Andrade, Basurto, Ruiz, & Clay, 1996), which are described below. Another variable involved the proportion of children receiving full programs who successfully discontinued from each program. The third variable involved the end-of-year progress of children in Reading Recovery/Descubriendo La Lectura as they compared to random samples of first-grade children. Therefore, the questions that guided the research were:

1. What changes in average scores exist between pre- and post-tests for English language learners in Reading Recovery and children in Descubriendo La Lectura?

2. Do similar proportions of children in these two groups successfully discontinue from the programs as compared to the total population of children in Reading Recovery?

3. How do successfully discontinued Reading Recovery English language learners and Descubriendo La Lectura children compare to a random sample of their peers on average scores of the three selected measures of *An Observation Survey of Early Literacy Achievment* (Clay, 1993a) and *Instrumento de Observacion* (Escamilla et al., 1996) at the end of first grade?

Method

Participants and Assessment Instruments

Participants in the study included children who had received Reading Recovery or Descubriendo La Lectura instruction from 1993-1996. They included 2,359 Spanish-speaking children who participated in Descubriendo La Lectura, 3,992 English language learners who participated in Reading Recovery, and a comparison group of 18,787 children who received the Reading Recovery intervention in English.

All children in both Reading Recovery and Descubriendo La Lectura were identified by their classroom teachers as having difficulty learning to read and write. They were selected for intervention based on their teacher's recommendations and the results of their performance on either *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) or *Instrumento de Observacion* (Escamilla et al., 1996). Both of these surveys are administered individually to children in order to determine how well they are developing emergent reading and writing behaviors and understandings. Each survey is comprised of six measures that assess behaviors associated with early reading and writing:

1. *Letter Identification*. The child is asked to identify upper and lowercase letters (54 in English including conventional print for "a" and "g" and 61 letters in Spanish).

2. *Word Test*. The child is asked to read a list of 20 words drawn from words most frequently used in beginning reading texts. Three forms are available.

3. *Concepts About Print*. The child is asked to perform a variety of tasks during a book reading. These tasks check on significant concepts about book handling and printed language, such as directionality and the concepts of letter and word. Two forms are available.

4. *Writing Vocabulary*. The child is asked to write as many words as he or she can in a ten-minute period. The score for this measure is the number of words written accurately.

5. *Hearing and Recording Sounds in Words*. The child is asked to record sounds he/she hears in the words of a sentence that is slowly read

aloud. This measure indicates the child's ability both to hear and to record sounds in words. Four forms are available.

6. *Text Reading Level.* Measures of Text Reading Level are obtained by having the child read texts that have been leveled in a gradient of difficulty. The highest level read with an accuracy of 90% or better is considered the child's instructional text level. The leveled texts have been drawn from a series of stories that are not used in Reading Recovery or Descubriendo La Lectura instruction (The Ohio State University and Reading Recovery Council of North America, 1998).

An Observation Survey of Early Literacy Achievement (Clay, 1993a) and *Instrumento de Observacion* (Escamilla et al., 1996) provide a means by which a wide range of literacy behaviors can be observed in a systematic way through a set of standard tasks with standard administration, thereby providing a means for educators to track changes over time. All six measures are used in order to assure that multiple indicators are applied in assessing early reading behaviors. According to Clay, "No one technique is reliable on its own. When important decisions are to be made we should increase the range of observations we make in order to decrease the risk that we will make errors in our interpretations" (1993a, p. 7). The tasks on *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) were all developed in research studies and are authentic in that they reflect early literacy behaviors that children need to acquire early in the process of learning to read and write. "All tasks in my observation survey are like screens on which are projected the immaturity or degree of control demonstrated by the young child's tentative responses to print and to books" (Clay, 1998, p. 63).

The children were selected for tutoring from the lowest 20% of children in first-grade classrooms as assessed with these surveys in schools where Reading Recovery and/or Descubriendo La Lectura was being implemented. The lowest-achieving children were selected first. For English language learners, an additional criterion for eligibility for the program was their English language proficiency; that is, their proficiency was sufficient for them to understand the directions and required tasks of the assessment instrument.

Procedures

Data were collected on every child served in Reading Recovery and Descubriendo La Lectura programs in California for each of the three academic years: 1993-94, 1994-95, and 1995-96. The data analyzed for this study,

therefore, represent the total population of children who received Reading Recovery or Descubriendo La Lectura intervention for each academic year. (The data for 1993-94 were reported earlier; see Kelly, et al, 1995.) Pre-program and post-program scores were obtained annually for Reading Recovery and Descubriendo La Lectura children on the three target measures of *Hearing and Recording Sounds in Words*, *Writing Vocabulary, and Text Reading Level*, in order to determine changes in mean scores for each measure. Scores were analyzed in terms of two sub-groups of children, Spanish-speaking children in bilingual classrooms (Spanish L1) receiving the Descubriendo La Lectura intervention; and, English language learners (English L2) receiving the Reading Recovery intervention. In addition, data were obtained for the total population of children receiving the Reading Recovery intervention. (This included monolingual English-speaking children and English language learners in English instruction classrooms.) Pre-program scores were obtained by school-based trained and in-training Reading Recovery teachers at the beginning of children's programs; post-program scores were obtained when children concluded the program, either as "discontinued," or, "not discontinued with a full program." Table 1 depicts the number of children in each group who received Reading Recovery or Descubriendo La Lectura instruction in California for each of the target years, the discontinuing rates for each group, and the average number of lessons for discontinuing.

As mentioned earlier, every child selected for Reading Recovery/ Descubriendo La Lectura intervention was administered *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) or *Instrumento de Observacion* (Escamilla et al., 1996) upon entry to the program. However, if they entered within a few weeks of the initial fall testing, the initial test data were used; otherwise, the battery of tasks was re-administered at entry to obtain a current picture of students' strengths. Children received consistent daily tutorial instruction over an average of 17 weeks. Reading Recovery and Descubriendo La Lectura teachers monitored children's progress on the basis of daily observations and successful reading of progressively difficult continuous text.

When the Reading Recovery or Descubriendo La Lectura teachers, in collaboration with the classroom teachers, decided that children's programs could be discontinued, the surveys were re-administered by someone other than the Reading Recovery/Descubriendo La Lectura teacher. When making decisions to discontinue children's programs, teachers considered whether the children had demonstrated accelerated progress, whether their scores on the surveys fell within the average range for first-grade students in their schools, and whether they exhibited observable behaviors indicative of a self-extending system of lit-

eracy learning (Clay, 1979, 1993b). The joint decisions to discontinue children's programs were supervised by a Reading Recovery/Descubriendo La Lectura teacher leader. The assessments were administered again at the end of first grade for children discontinued prior to April 1st.

To determine the effectiveness of Reading Recovery for English language learners and Descubriendo La Lectura for Spanish-speaking children, we made comparisons between pre- and post-assessment results on three of the measures from *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) for children in Reading Recovery, and *Instrumento de Observacion* (Escamilla et al., 1996) for children in Descubriendo La Lectura: *Writing Vocabulary*, *Hearing and Recording Sounds in Words*, and *Text Reading Level*. These three measures were selected because they represent authentic reading and writing tasks required for learning to read and are, therefore, valid indicators of children's growth in

Table 1. Reading Recovery/Descubriendo La Lectura Data for Three California Populations: 1993-96

	Year	Served	Program	Discontinued	Success Rate (%)	Average Number of Lessons
DLL	93-94	243	165	129	78%	65.34
	94-95	721	487	386	79%	62.30
	95-96	1395	952	762	80%	65.31
	93-96	2359	1604	1277	79.6%	64.40
RR:ELL	93-94	1409	885	667	75%	66.00
(English	94-95	1474	912	653	72%	69.12
=L2)	95-96	1109	699	476	68%	68.12
	93-96	3992	2496	1796	72%	67.69
RR	93-94	3621	2419	1789	74%	62.67
(English	94-95	6674	4368	3268	75%	63.53
=L1)	95-96	8492	5658	4295	76%	63.33
	93-96	18787	12445	9352	75.2%	63.27
Totals	93-94	5273	3469	2585	74.5%	
	94-95	8869	5767	4307	74.7%	
	95-96	10996	7309	5533	75.7%	
	93-96	25138	16545	12425	75.1%	

Note. DLL=Descubriendo La Lectura; ELL=English language learner; RR=Reading Recovery

reading and writing.

Observing children's writing helps us to learn what they understand about print and the features of print to which they are attending. The *Writing Vocabulary* task, a measure of the number of words a child can write in 10 minutes, illustrates how quickly children are building control over a basic writing vocabulary. According to Clay (1998), "The word lists differ from child to child, and so are open products. For a year or two this is a very discriminating indicator of who is becoming a writer; it is a good way of capturing changes occurring at this stage" (p. 106). The *Hearing and Recording Sounds in Words* task is an indication of the specific sounds children hear in words and of how well they are able to record the sounds with appropriate letters (Clay, 1993a). This measure taps into children's phonemic awareness, which has been found to be an excellent predictor of success in reading acquisition (Adams, 1990; Stanovich, 1993/94). The total possible raw score on the task is 37 for the English version and 39 for the Spanish version.

Text Reading Levels are obtained by taking samples of children's reading of texts via running records. Running records have shown high reliability (accuracy and error reliability of 0.90) and face and content validity; therefore, they provide teachers with a standardized and reliable way to record reading behaviors that can be analyzed for processing and problem-solving strategies, accuracy, and text difficulty (Clay, 1979, 1993a). In Reading Recovery/Descubriendo La Lectura, children's abilities to read continuous text are assessed on materials not previously seen and which are arranged along a gradient of difficulty from pre-primer levels to a sixth-grade (basal) level of reading. Table 2 displays grade-level equivalents assigned to the *Text Reading Levels* of assessment materials used in Reading Recovery and Descubriendo la Lectura.

The other three tasks from the surveys, *Letter Identification*, *Word Test*, *and Concepts About Print*, were not used in our pre- post-test analysis because although they have value in discriminating between children who are and are not developing literacy understandings in early stages of reading acquisition, they may not discriminate as well between the groups in later stages. This is because the fixed numbers of answers on the *Letter Identification* and *Word Test* provide a ceiling of possible scores so that frequently even children who are not putting together a reading processing system on continuous text are able to score as well as those who are developing reading skills on these tasks of item knowledge. The *Concepts About Print* tasks may not discriminate well with regard to advanced print concepts. Some children who read well may still confuse the concepts of letter and word (Clay, 1998). Additionally, good readers may not notice reversals of text, word, or letters when the tester is reading the text.

Results

Reading achievement data for three academic years, 1993-94, 1994-95, and 1995-96, are displayed in Tables 3, 4, and 5 for the three populations of children relevant to this study: (a) children for whom Spanish was their first language who were receiving primary language instruction and were served in Descubriendo La Lectura; (b) children for whom English was their second language who received classroom instruction in English and were served in Reading Recovery; and, (c) the total English-speaking population of children served in Reading Recovery. The latter group included the English language learners and these children for whom English was their primary language. This total Reading Recovery group served to establish a standard for comparison of data from the other two groups. For each population represented in Tables 3-5, scores are reported for both "Discontinued" and "Not Discontinued" children.

In addition, for each academic year, scores are reported for children selected from two random sample populations of two first-grade cohorts. One random sample was from the Spanish-speaking population receiving primary language instruction; this sample served to establish a comparison for scores of Descubriendo La Lectura children. The other random sample was from the English-speaking population consisting of both monolingual children and those children who were learning English-as-a-second language and receiving English literacy instruction. In other words, the sample represents the typical, diverse first-grade population in California. This sample served as a compari-

Table 2. Grade-Level Equivalents for Text Reading Levels of Reading Recovery and Descubriendo La Lectura Assessment Materials

Text Reading Level Score	Equivalent Basal Level
0-2	Pre-primer A
3-4	Pre-primer 1
5-6	Pre-primer 2
7-8	Pre-primer 3
9-12	Primer
14-16	Grade 1
18-20	Grade 2
22-24	Grade 3
26	Grade 4
28	Grade 5
30	Grade 6

son for scores of the English language learners' population as well as the total Reading Recovery population. (Please note: In Tables 3, 4, and 5, "Entry" scores are obtained at the beginning of children's programs; "Spring" scores are obtained at the end of the school year. Totals may differ from table 1 because of missing data from individual subtests.)

Table 3 displays data for all three populations over three academic years on the *Hearing and Recording Sounds in Words* measure (total possible raw score = 37 in English and 39 in Spanish). For each group of Discontinued children, end-of-year mean scores were approaching the maximum scores possible and had changed significantly from entry scores. Furthermore, the end-of-year scores exceeded end-of-year scores obtained for the random samples of first-grade children.

For Not Discontinued children, mean entry scores for each academic year

Table 3. Reading Recovery/Descubriendo La Lectura Data for Three California Populations: 1993-96

		Hearing and Recording Sounds in Words					
	Year	Test Time	N	Mean	SD	T-test	*p*
DLL (Spanish=L1) Discontinued	93-94	Entry	129	6.56	8.14		
		Spring	126	36.87	2.51	40.06	< .0001
	94-95	Entry	383	7.40	9.79		
		Spring	352	37.06	3.05	52.38	< .0001
	95-96	Entry	754	8.33	10.49		
		Spring	732	37.38	2.63	71.61	< .0001
DLL (Spanish=L1) Not Discontinued	93-94	Entry	36	1.08	1.63		
		Spring	33	25.88	9.58		
	94-95	Entry	100	2.38	3.15	10.99	< .0001
		Spring	91	29.23	7.69		
	95-96	Entry	189	2.22	3.66		
		Spring	172	31.24	6.42	58.72	< .0001
DLL (Spanish=L1) Random Sample	93-94	Entry	--	--	--	--	
		Spring	50	33.22	7.43		
	94-95	Entry	--	--	--		
		Spring	56	31.14	8.81	--	
	95-96	Entry	--	--	--		
		Spring	91	33.29	8.28	--	
RR:ELL (English=L2) Discontinued	93-94	Entry	666	8.62	10.16		
		Spring	647	34.43	2.86	64.35	< .0001
	94-95	Entry	652	7.21	9.09		
		Spring	630	34.40	2.67	74.30	< .0001
	95-96	Entry	476	7.97	10.33		
		Spring	458	34.29	3.55	50.98	< .0001

were lower than entry scores for Discontinued children; end-of-year mean scores were significantly higher than entry scores, though not as high as mean scores for Discontinued children. The end-of year scores for Not Discontinued children in all populations were slightly lower than end-of-year scores obtained each year from the random samples of California first-grade children. Results on *Hearing and Recording Sounds in Words* for each of the three populations of Discontinued and Not Discontinued children were statistically significant at the $p < .0001$ level.

Table 4 displays data for all three populations over three academic years on the *Writing Vocabulary* measure. This task involves asking children to write as many words as possible in a ten-minute time period. As on the preceding task, all three populations of Discontinued children made remarkable gains in mean scores between entry and end-of-year tests. Additionally, end-of-year

Table 3. Continued

Hearing and Recording Sounds in Words

	Year	Test Time	N	Mean	SD	T-test	p
RR:ELL (English=L2) Not Discontinued	93-94	Entry	218	2.23	3.64	48.18	< .0001
		Spring	205	27.74	7.19		
	94-95	Entry	259	1.87	3.40	51.32	< .0001
		Spring	231	26.68	7.23		
	95-96	Entry	223	1.70	3.14	45.30	< .0001
		Spring	204	27.24	7.41		
RR (English=L1) Discontinued	93-94	Entry	1773	9.99	10.91	92.10	< .0001
		Spring	1723	34.43	2.63		
	94-95	Entry	3251	9.67	10.78	127.77	< .0001
		Spring	3138	34.60	2.81		
	95-96	Entry	4273	10.18	11.17	140.52	< .0001
		Spring	4144	34.82	2.89		
RR (English=L1) Not Discontinued	93-94	Entry	624	2.18	3.13	77.44	< .0001
		Spring	556	27.24	7.71		
	94-95	Entry	1091	2.48	3.94	98.94	< .0001
		Spring	970	27.63	7.57		
	95-96	Entry	1357	2.62	4.17	111.67	< .0001
		Spring	1226	27.66	7.64		
RR (English=L1 or L2) Random Sample	93-94	Entry	--	--	--	--	
		Spring	424	31.72	7.41		
	94-95	Entry	--	--	--	--	
		Spring	111	31.21	7.95		
	95-96	Entry	--	--	--	--	
		Spring	177	31.01	7.57		

Note. DLL=Descubriendo La Lectura; ELL=English language learner; RR=Reading Recovery

mean scores for all Discontinued children were higher than end-of-year scores for the random samples of first-grade English- and Spanish-speaking children.

Mean scores on the *Writing Vocabulary* task for the Not Discontinued children in all three populations also showed considerable gains between entry and end-of-year testing; however, the means at end-of-year testing did not exceed the means for random sample English- and Spanish-speaking children. Changes in mean scores between entry and end-of-year on *Writing Vocabulary* for each of the three populations of Discontinued and Not Discontinued children were statistically significant at the $p < .001$ or $p < .0001$ levels.

Table 5 displays data for all three populations over three academic years for the *Text Reading Level* measure (see Table 1 for a guide to text levels). Discontinued children in each population entered Reading Recovery with mean text level scores below 1; they finished the year with mean scores

Table 4. Reading Recovery/Descubriendo La Lectura Data for Three California Populations: 1993-96

		Writing Vocabulary					
	Year	Test Time	N	Mean	SD	T-test	*p*
DLL (Spanish=L1) Discontinued	93-94	Entry	129	3.83	4.43		
		Spring	126	38.20	11.89	31.56	< .001
	94-95	Entry	383	4.63	5.96		
		Spring	352	39.97	13.33	44.79	< .0001
	95-96	Entry	755	5.59	9.05		
		Spring	727	43.13	12.08	71.10	< .0001
DLL (Spanish=L1) Not Discontinued	93-94	Entry	36	1.11	1.14		
		Spring	33	19.55	9.38	10.99	< .0001
	94-95	Entry	99	1.71	1.33		
		Spring	91	26.34	11.44	20.48	< .0001
	95-96	Entry	189	1.90	2.59		
		Spring	172	27.47	11.08	31.35	< .0001
DLL (Spanish=L1) Random Sample	93-94	Entry	--	--	--		
		Spring	50	29.04	12.38	--	
	94-95	Entry	--	--	--		
		Spring	55	25.91	13.32	--	
	95-96	Entry	--	--	--		
		Spring	91	33.02	15.57	--	
RR:ELL (English=L2) Discontinued	93-94	Entry	667	7.21	9.16		
		Spring	647	48.61	13.52	70.66	< .001
	94-95	Entry	653	6.06	8.16		
		Spring	631	48.28	12.89	77.50	< .001
	95-96	Entry	476	6.78	9.81		
		Spring	459	49.76	13.03	61.41	< .0001

between 13.29 and 14.79. All mean scores for Discontinued children at end-of-year testing exceeded mean scores for random samples of English and Spanish-speaking children in California for each of the three years.

The Not Discontinued children in all three populations had lower mean *Text Reading Level* scores upon entry to Reading Recovery than the Discontinued children; at end-of-year testing, they reached text levels between 4.78 and 5.83. These scores were lower than the mean scores for the random samples of English- and Spanish-speaking children. Results for *Text Reading Level* for each of the three populations of Discontinued and Not Discontinued children were statistically significant at the $p < .001$ or $p < .0001$ levels.

In summary, on all three tasks, children who were successfully discontinued in each of the target populations demonstrated gains that indicated they were operating at levels that exceeded the achievement levels of the random

Table 4. Continued

		Writing Vocabulary				
	Year	Test Time	N	Mean	SD	T-test p
RR:ELL (English=L2) Not Discontinued	93-94	Entry	218	2.17	1.81	
		Spring	205	30.95	12.74	32.84 < .0001
	94-95	Entry	259	2.27	3.38	
		Spring	230	29.71	11.32	37.50 < .0001
	95-96	Entry	223	1.89	2.07	
		Spring	206	31.28	14.58	29.22 < .0001
RR (English=L1) Discontinued	93-94	Entry	1773	8.35	10.29	
		Spring	1724	47.26	12.99	107.10 < .0001
	94-95	Entry	3251	7.91	9.82	
		Spring	3135	47.30	12.36	153.45 < .0001
	95-96	Entry	4274	8.60	10.85	
		Spring	4141	48.98	12.62	170.67 < .0001
RR (English=L1) Not Discontinued	93-94	Entry	624	2.35	2.23	
		Spring	558	29.13	12.11	54.04 < .0001
	94-95	Entry	1092	2.32	2.31	
		Spring	973	29.76	11.82	75.39 < .0001
	95-96	Entry	1357	2.42	2.55	
		Spring	1228	30.18	11.78	85.52 < .0001
RR (English=L1 or L2) Random Sample	93-94	Entry	--	--	--	
		Spring	423	42.02	18.79	--
	94-95	Entry	--	--	--	
		Spring	111	41.06	18.10	--
	95-96	Entry	--	--	--	
		Spring	177	37.48	16.58	--

Note. DLL=Descubriendo La Lectura; ELL=English language learner; RR=Reading Recovery

sample population at the conclusion of each school year.

Discussion

The results of this study serve to address the three research questions posed and will be discussed with reference to each. Our first research question was, "What changes in average scores exist between pre- and post-tests for English language learners in Reading Recovery and children in Descubriendo La Lectura?" For each academic year, 1993-94, 1994-95, 1995-96, the data obtained indicate significant ($p < .001$ or .0001) progress for discontinued children in both target populations of children on each of three tasks related to literacy acquisition: *Hearing and Recording Sounds in Words*, *Writing Vocabulary* and *Text Reading Level*. These results demonstrate that the Reading Recovery

Table 5. Reading Recovery/Descubriendo La Lectura Data for Three California Populations: 1993-96

		Text Reading					
	Year	Test Time	N	Mean	SD	T-test	*p*
DLL (Spanish=L1) Discontinued	93-94	Entry	129	.043	0.73		
		Spring	126	14.55	4.93	31.43	< .001
	94-95	Entry	383	0.62	1.26		
		Spring	352	14.36	5.28	47.51	< .0001
	95-96	Entry	754	0.61	1.06		
		Spring	732	14.79	5.04	73.81	< .0001
DLL (Spanish=L1) Not Discontinued	93-94	Entry	36	0.17	0.45		
		Spring	33	5.03	3.11	9.34	< .0001
	94-95	Entry	100	0.17	0.45		
		Spring	91	4.86	3.18	14.23	< .0001
	95-96	Entry	189	0.20	0.44		
		Spring	172	4.78	2.65	22.32	< .0001
DLL (Spanish=L1) Random Sample	93-94	Entry	--	--	--		
		Spring	50	10.32	8.87	--	
	94-95	Entry	--	--	--		
		Spring	56	8.86	7.76	--	
	95-96	Entry	--	--	--		
		Spring	90	10.40	8.96	--	
RR:ELL (English=L2) Discontinued	93-94	Entry	664	0.86	1.46		
		Spring	648	14.31	4.48	73.51	< .001
	94-95	Entry	653	0.54	1.11		
		Spring	631	13.29	4.29	73.27	< .0001
	95-96	Entry	476	0.76	1.6		
		Spring	460	13.90	3.95	63.93	< .0001

intervention for English language learners and the Descubriendo La Lectura intervention for Spanish-speaking children consistently enabled initially low-performing children to improve their performance on selected indicators of literacy acquisition.

Our second research question was, "Do similar proportions of children in these two groups successfully discontinue from the programs as compared to the total population of children in Reading Recovery?" The data displayed in Table 1 indicate that 72% of English language learner program children in Reading Recovery discontinued from the program; the mean number of lessons delivered for discontinuing the program was 67.69. This compares favorably with the proportion of total Reading Recovery children discontinued (75.2%) and the average number of lessons (63.27). For Descubriendo La Lectura, 79.6% of program children successfully discontinued; the average number of

Table 5. Continued

		Text Reading					
	Year	Test Time	N	Mean	SD	T-test	*p*
	93-94	Entry	218	0.23	0.59		
RR:ELL		Spring	205	5.43	2.52	29.47	< .0001
(English=L2)	94-95	Entry	259	0.23	0.60		
Not Discontinued		Spring	228	5.52	2.66	29.30	< .0001
	95-96	Entry	223	0.13	0.50		
		Spring	204	5.34	2.96	25.25	< .0001
	93-94	Entry	1772	1.19	1.64		
RR		Spring	1726	14.36	4.16	123.63	< .0001
(English=L1)	94-95	Entry	3249	1.17	1.72		
Discontinued		Spring	3144	14.27	4.35	158.35	< .0001
	95-96	Entry	4275	1.22	1.82		
		Spring	4145	14.48	4.14	193.04	< .0001
	93-94	Entry	624	0.42	0.72		
RR		Spring	558	5.63	2.66	46.00	< .0001
(English=L1)	94-95	Entry	1092	0.34	0.71		
Not Discontinued		Spring	973	5.83	3.93	42.99	< .0001
	95-96	Entry	1357	0.40	0.76		
		Spring	1228	5.79	2.78	67.80	< .0001
	93-94	Entry	--	--	--		
RR		Spring	423	13.79	9.12	--	
(English=L1 or L2)	94-95	Entry	--	--	--		
Random Sample		Spring	111	12.74	8.49	--	
	95-96	Entry	--	--	--		
		Spring	177	11.54	8.72	--	

Note. DLL=Descubriendo La Lectura; ELL=English language learner; RR=Reading Recovery

lessons delivered was 64.4. This proportion was higher than for the English language learner group (72%) and for the total Reading Recovery group (75.2%).

Our third research question was, "How do successfully discontinued Reading Recovery English language learners and Descubriendo La Lectura children compare to a random sample of their peers on average scores of the three selected measures of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) and *Instrumento de Observacion* (Escamilla et al., 1996) at the end of first grade?" Scores on the three literacy tasks described above for each population for each academic year were compared to scores obtained from annually drawn random samples of the first grade cohort. Results indicate that, for all three years, children in both target populations who received a complete program and achieved end-of-program criteria for discontinuation attained end-of-year mean scores that exceeded mean scores for the random samples of children. This demonstrates that initially low-performing English language learners receiving Reading Recovery intervention and Spanish-speaking children receiving Descubriendo La Lectura were enabled to reach the average level of their peers in approximately 63 to 68 lessons, or 31.5 to 34 hours of instruction.

In addition to results that address the three research questions, we make the following observations from the data presented here. First, the common assumptions that children who are learning English will take much longer to acquire literacy than children whose first language is the language of instruction is not borne out by these data. Over the three years of data collection reported here, the mean number of lessons delivered to discontinue from Reading Recovery for English language learners was 67.69 as compared to 63.27 for the total Reading Recovery population. For Descubriendo La Lectura, the mean number of lessons delivered for discontinuation was 64.40.

We believe the remarkable similarity of total time required for successful acceleration of progress for L1 and L2 students does not eclipse the most desirable practice of providing primary language instruction in both the classroom and intervention programs, as other research has demonstrated (Krashen & Biber, 1988; Ramirez, Yuen, & Ramey, 1991; Snow, Burns, & Griffin, 1998). Rather, the results of this study appear to speak to the power of individual tutoring by specially trained teachers who teach from a theory of teaching and learning that builds on each child's unique strengths. Moreover, the context of one-to-one tutoring is characterized by constant, language-rich interactions between a language learner and an expert user of that language. That children are enabled to accelerate their literacy learning in a daily regimen of authentic

reading and writing activities whether they are proficient in the language of instruction or still acquiring academic-level competency in their second language should not be a surprising finding.

Second, the data for three years appear to confirm the validity of the discontinuing assessment that was carried out in regard to determining end-of-program status of children. Since a combination of quantitative and qualitative factors are considered on a case-by-case basis for discontinuing individual children from Reading Recovery and Descubriendo La Lectura, one measure of the quality of the decision process is to observe if there are differential outcomes between Discontinued and Not Discontinued children. Although for all three years, differences between entry and end-of-year scores for these two groups of children in both target populations were statistically significant, differences in means do not reveal if the discontinuing decision-making process was "working" in terms of predicting which children had achieved a measure of independence for no longer requiring individual tuition.

One indicator that confirms discontinuing decisions is the discrepancy in end-of-year scores on *Text Reading Level*. Consistently for each of three academic years for both target populations, the Not Discontinued group scored 8 to 10 levels below the Discontinued group, revealing that Not Discontinued children did not exhibit requisite behaviors that would indicate they had acquired a system for literacy learning on continuous text at an acceptable level for first-grade expectations (see Table 1). Furthermore, the Not Discontinued groups in both populations scored below the mean of the random samples taken for the general first-grade population for each of the tasks. These data indicate that Not Discontinued children did not achieve scores commensurate to their age-mates and, therefore, while the data appear to confirm the discontinuing decision-making process and its veracity in discriminating between children who have and have not developed a system of literacy learning, the larger issue remains of how to better serve the children who do not discontinue from Reading Recovery and Descubriendo La Lectura. A consistent finding of the data is that Not Discontinued children appear to stall in their progress somewhere around level 5 in text reading; also, they take a longer time in the program to achieve this limited record of acceleration. (See Table 1.) Clay, the founder of Reading Recovery, maintains that there are two positive outcomes for children participating in Reading Recovery (a) successfully discontinuing (having accelerated to the average of their cohort), or (b) referral to longer-term intervention. Therefore, for the small number of children who require longer-term intervention, Reading Recovery or Descubriendo La Lectura has not failed; rather it has served successfully to "recover" those children who are

experiencing early confusions about print, while serving as a "screen" for those children whose processing difficulties indicate referral to alternate programs as the appropriate next step. A full examination of this issue is beyond the scope of reporting the results of the present study; however, Reading Recovery and Descubriendo La Lectura personnel are continuing to study the possible obstacles to learning in a short-term intervention that some children experience as we seek to "recover" an ever-greater proportion of children served.

Conclusions

Early interventions such as Reading Recovery are intended to prevent failure for children who can be identified early as being at high risk for not learning how to read. Metaphors such as "a safety net," "a gift of time," and "an insurance policy against academic failure" describe the various ways in which powerful interventions function in schools to support the most fragile learners in their quest to become literate. The data reported here demonstrate that Reading Recovery is an effective intervention for initially low-scoring children who are acquiring English concomitant with learning how to read and write in English-speaking classrooms, and that Descubriendo La Lectura is an effective intervention for initially low-performing Spanish-speaking children who receive literacy instruction in Spanish.

Sufficient research has been amassed (Askew et al., 1988; The Ohio State University and Reading Recovery Council of North America, 1999; Brown et al., 1999) to conclude that early intervention as a system innovation can work considerably to reduce early reading failure. Reading Recovery/Descubriendo La Lectura, as a specific model of early intervention, achieves its stated goal to enable the lowest-performing children to accelerate their progress in a relatively short period of time, thereby making it possible for them to "catch up" to their peers. This study has served to confirm the effectiveness of Reading Recovery for children acquiring English and for whom literacy instruction in their primary language is not available. It also serves to replicate the success of the Descubriendo La Lectura program, which has been reported elsewhere (Escamilla, 1994; Escamilla et al., 1998).

When considering the resources necessary to mount an intensive intervention like Reading Recovery, school personnel rightfully question the long-term benefits of the intervention: the results of Reading Recovery are impressive, but how do children fare in subsequent years (see Brown et al., 1999)? With regard to long-term sustained effects of an intervention, larger and more complex factors must be considered in an overall implementation effort. Chief

among these is the level of commitment by the educational enterprise to place a priority on the prevention of academic failure. The effects of powerful results for intensive interventions such as Reading Recovery are not possible without a determination to invest resources to assure that every child learns how to read, for when access remains unavailable to the full contingent of eligible children, the program cannot be evaluated for its full effectiveness for a school or school system.

Furthermore, gains of children who are recovered in an intervention may remain tenuous as may be appropriately expected when children have just been put on a path of success and continue to have much additional learning to accomplish. Total conditions for success reside within schools and the culture for successful learning that schools foster. As failure in the early grades is almost always related to the failure in learning how to read, responsibility for the eventual success of children served in any literacy intervention must be borne by the total school community. Slavin, Karweit, and Wasik (1992/1993) maintain, "Success in the early grades does not guarantee success throughout the school years and beyond, but failure in the early grades does virtually guarantee failure in later schooling" (p.11). This quote implies that multiple variables are involved for eventual academic success. Early, intensive interventions such as Reading Recovery and Descubriendo La Lectura provide the best entrée to the world of literacy for the most fragile learners and provide the foundation on which other aspects of schooling can continue to build to assure success for every student.

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Biography

Judith C. Neal is a professor of Literacy and Early Education at California State University, Fresno, where she teaches graduate coursework and serves as a Reading Recovery trainer of teacher leaders. Dr. Neal has published articles in the *Journal of Reading* (now *Journal of Adolescent and Adult Literacy*), *The California Reader*, *Reading and Writing Quarterly*, and *The Running Record: A Review of Theory and Practice for Reading Recovery Teachers*. In addition to directing and supporting twenty Reading Recovery training sites, she is currently active in applying principles of early literacy intervention to students in the upper grades as formal programs of late intervention.

Patricia R. Kelly is a professor in the College of Education at San Diego State University. Dr. Kelly teaches graduate courses in reading and clinical and theoretical courses in Reading Recovery. She is the director of the Reading Recovery Program at San Diego State University. Dr. Kelly has conducted research in the areas of early intervention, reader response, and effective literacy instruction. Her articles have been published in *The Reading Teacher*, *The Journal of Reading*, *Reading and Writing Quarterly*, *The New Advocate*, *Reading Horizons*, and the *Journal of Reading Behavior*.

Reading Recovery Council of North America

VISION

The vision of RRCNA is that children will be proficient readers and writers by the end of first grade.

MISSION

The mission of RRCNA is to ensure access to Reading Recovery for every child who needs its support.

PURPOSE

The purpose of RRCNA is to sustain the integrity of Reading Recovery and expand its implementation by increasing the number of individuals who understand, support, and collaborate to achieve the mission of the Council.

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Literacy Teaching and Learning: An International Journal of Early Reading and Writing™

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Encouraged are submissions that include multiple perspectives from disciplines such as child development, linguistics, literacy education, psychology, public policy, sociology, special education, and teacher education. Contributions may include: (a) reports of empirical research; (b) theoretical interpretations of research; (c) reports of program evaluation and effective practice; and (d) critical reviews, responses, and analyses of key conceptual, historical, and research perspectives. Manuscripts representing diverse methodologies including ethnographic, empirical, and case study research are encouraged.

Literacy Teaching and Learning: An International Journal of Early Reading and Writing is an official publication of the Reading Recovery Council of North America (RRCNA), developed to provide a forum among professionals from a wide variety of disciplines. The journal has an international focus that encourages contributions from individuals with similar interests and research agendas working throughout the world. It is believed that this multidisciplinary and global perspective can make a positive contribution to the literature on early literacy learning.

RRCNA is an organization whose vision is that all children will be proficient readers and writers by the end of first grade. The organization serves to provide a network for colleagues, Reading Recovery (RR) professionals and interested partners, to interact throughout the continent. The network of RR professionals involves more than 15,000 educators in over 10,000 schools in the U.S.

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Benefits of membership in RRCNA include:

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— continued on next page —

Membership Application page 2

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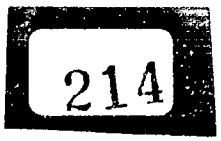
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