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Abstract. This study examined young children's self-management (i.e., executive control) during the construction of meaning. Its task, expectations, and operationalized definition of emergent literacy-related metacognition were based on Vygotsky's (1962, 1978) cognitive and developmental theory, which links speaking to thinking through the regulatory function of language and internalization of others' speech. Participants were 44 preschoolers from a midwestern city in the United States. Each child was asked to engage in a literacy task of constructing an "autonomous" text for others to read. These autonomous texts were analyzed for their holistic quality, using Hasan's (1984) discourse model of cohesive harmony. The metacognitive utterances surrounding the texts were identified and quantified (Cox, 1994). Statistical analysis revealed that 1) these preschoolers were already developing emergent metacognition, 2) there was a significant emergent reading level effect on both metacognition and textual quality, an d 3) there was a significant relationship between metacognition and the quality of the dictated text. The relationships among emergent metacognition, emergent reading, and emergent writing are discussed in light of relevant literacy theory and research.

Metacognition refers to the process of active control over one's own cognition (Flavell, 1979). It encompasses two related, interactive aspects: self-appraisal and self-management (Brown, 1982; Jacobs & Paris, 1987). Self-appraisal means awareness of one's own cognitive processes and products. Such awareness involves declarative knowledge (knowing what), procedural knowledge (knowing how), and conditional knowledge (knowing when and why). Self-management, on the other hand, means the active monitoring and consequent regulation and orchestration of one's intellectual performance. It is often equated with "executive control" (Britton & Glynn, 1987; Garner, 1994). Relative to literacy (i.e., reading and writing), self-management involves strategic planning, on-line monitoring, and regulating action during the construction of meaning in, or from, text (Baker & Brown, 1984). More specifically, planning involves setting goals, generating questions, analyzing how to attack a problem, and selecting and organizing information for one's text. Monitoring refers to tracking of attention and evaluating comprehension or composing processes. Through regulating action, readers/writers modify their reading/writing behaviors in order to facilitate their construction of meaning. These three functions of self-management are not independent of each other; instead, they are all considerations in the complex, interwoven, and highly interactive processes of meaning construction (Ruddell & Speaker, 1985).

The present study examines preschool children's self-management (or executive control) as they engaged in a literacy task of constructing an "autonomous" text (Wolf & Pusch, 1985) for others to read. There are two reasons for focusing on the self-management aspect of metacognition. First, self-management presupposes self-appraisal, for without awareness (i.e., conscious metacognitive knowledge), readers/writers may lack a readiness to exercise control over, orregulate their construction of, meaning (Gordon, 1990). Second, as the overt representation of one's inner metacognitive knowledge (which is often difficult to measure, especially among young children), self-management is more readily observable in children's outward behaviors, such as speech. In this article, the terms "autonomous text," "dictated text," or "written text" are used interchangeably to connote a sufficiently "decontextualized" text produced for readers.

Theoretical Framework

The study's task, its expectations, and the operationalized definition of emergent metacognition are based on Lev Vygotsky's (1962, 1978) sociocognitive and developmental theory that relates speaking and thinking through the regulatory function of language and internalization of others' discourse. According to Vygotsky, language can express inner cognitive processes; in addition, the principal means for uniting thought and language is through "inner speech."

Inner speech is speech that becomes embodied in thought (Bruner, 1976). Its development involves an internalization process that proceeds from a social (between child and environment) to a psychological (inside the child) plane. During this internalization process, many functions of speech are developed. One of these functions is the regulatory function; that is, the executive control of one's thought and action.

Vygotsky's theory invites us to consider the possibility that young children may use language to guide (or regulate) their own thoughts and behaviors, as well as others' actions, especially when faced with a challenging task. In fact, such regulatory behaviors reflect the enactments of those things that are common features of children's social experience (Wertsch & Stone, 1985). Thus, early forms of metacognition or its precursors may be observed in children's natural speech as they engage in challenging activities. For example, children who appear to be talking to themselves may indeed be planning, monitoring, or regulating their own activities in ways that foreshadow metacognitive thinking (Manning, White, & Daugherty, 1994). As their functional language potential continues to expand as a result of social and cultural experiences, their coordination of speech with action becomes increasingly refined, which, in turn, contributes to the expansion of their regulatory capacities. This linguistic and cognitive d evelopment assists children in coping with new tasks and challenges (Berk & Spuhl, 1995).

Review of Related Research

Educators long have been interested in children's knowledge and control of their own cognitive activities (Flavell, 1979; Nickerson, 1988; Sternberg, 1984). Within the literacy community, there is growing interest in developing clearer conceptions of metacognition and its role in children's construction of meaning (Baker & Brown, 1984; Garner & Reis, 1981; Jones & Pellegrini, 1996; Schmitt, 1988). As a whole, research suggests that good readers have more effective strategies for selecting and attending to important information in text, and that good writers are more introspective of, and involved in, their writing process. Poor readers and writers, on the contrary, seldom monitor their comprehending/composing processes and often display a lack of awareness and management skills.

Although there is an extensive body of research relating metacognition to literacy (see Paris, Wasik, & Westhuizen, 1988 for a review), few studies have examined preschoolers' metacognitive processes during a literacy event. To date, there is still little understanding about these young children's emergent metacognition. In fact, some education psychologists (e.g., Flavell, 1985) even doubt that children have developed metacognitive ability during the preschool years. They suggest that young children do not have the ability to monitor their own thought processes, and that they are limited in their ability to do anything about metacognitive knowledge. They also contend that it is not until late childhood or early adolescence that students become capable of assessing a learning problem, devising a strategy to solve the problem, and evaluating their success or failure (c.f., Dembo, 1994).

A limited number of studies have, however, offered preliminary evidence to the contrary. For example, Cox and Sulzby (1982) documented evidence of planning in dialogues and monologues by 5-year-olds during storytelling, dictation, and story writing. Rowe (1989) also reported that some preschoolers were using metacognitive strategies during self-selected literacy events (e.g., writing). More recently, Dahl (1993) examined the spontaneous utterances of 12 1st-grade, inner-city children as they engaged in classroom literacy activities. She found that of the 87 utterances analyzed, nearly half of them (47%) were metacognitive statements reporting learners' self-appraisal and self-management.

The present study extends this earlier work in emergent literacy. It examines preschoolers' emergent self-management (i.e., executive control) as they engaged in a challenging literacy task--dictating an autonomous text for others to read. In furthering our earlier work (Cox, 1994; Cox, Fang, & Otto, 1997), the study takes a more integrated vision of the relationship between emergent metacognition and emergent literacy. Three questions were formulated: 1) can evidence of metacognition be observed in these preschoolers' utterances during dictation? If so, 2) what is the relationship between children's metacognition and their reading ability? and 3) what is the relationship between children's metacognition and the quality of the autonomous texts they produced?

Method

Participants

The participants in the study were 44 preschoolers (20 girls and 24 boys) aged 4 to 5, from two preschool sites in a midwestern city in the United States. All of the children were native English speakers and were at least average in their language development, based on teacher and researcher observation as well as on formal testing using Hresko, Reid, and Hammill's (1981) Test of Early Language Development (TELD). They were all emergent readers with varying levels of "abilities": none of them was attending to print (words) in the book during their pretend reading. Judged by Sulzby's (1985a) emergent reading categories, these children were classified into three reading levels, based on their pretend reading of favorite picture storybooks. The three levels are 1) picture-governed: no story (n=11); 2) picture-governed: oral-like (n=21); and 3) picture-governed: written-like (n=12).

Briefly, Sulzby's (1985a) emergent reading scale evaluates a child's reading in terms of its proximity to conventional/independent/adult reading. It is based on three features of emergent readings: 1) whether the reader attends primarily to picture (less advanced or to print (more advanced); 2) whether the reading does not form a narrative across pages of the storybook, such as labeling or commenting on individual pictures (less advanced), or whether it constitutes a narrative (more advanced); and 3) whether the language used in reading is more oral-like--that is, colloquial, dialogic, contextualized in the pictures (less advanced)--or whether it is more written-like--that is, monologic, literary, formal, complex, decontextualized from pictures (more advanced).

As the names suggest, the picture-governed/no story readers focused their attention on pictures, not print, during their pretend reading. They made sporadic comments on illustrations by labeling or commenting on the picture or pictured action. However, their comments did not form a coherent story across the pages of the book. This emergent reading level is furthest from conventional reading. The pictured-governed/oral-like readers also focused their attention on pictures and made dialogic comments on the picture. Their comments formed an oral-like story across the pages of the book. Moreover, the child used a storytelling intonation and/or spoken language (e.g., informal and interactive speech patterns characteristic of oral discourse) in relating the story. The picture-governed/written-like readers, likewise focused their attention on pictures when pretend reading. However, they were able to relate a picture-based story that was similar, or almost verbatim, to the original text. The language they used in te lling the story was typical of that found in a "written" text (e.g., use of literary sounding words/phrases, use of pronouns that are clearly referenced only within the linguistic text). This emergent reading level is closest of the three to conventional reading. According to Sulzby (1985a), the three emergent reading levels reflect, in order, an increasing amount of experience with storybook reading prior to formal school instruction.

Task

The task used in this study has been described in some detail in several related studies (e.g., Cox, 1994; Cox, Fang, & Otto, 1997; Cox, Fang, & Schmitt, 1998). Specifically, each child was interviewed by a familiar adult who had been present in the classroom and had established rapport with the child prior to the interviews. All interviews were audiotaped and later transcribed. During the interview, the child was asked to relate an oral story based in a personal experience (i.e., oral storytelling). Then, the adult commented on the oral tale's interest, and suggested that some other children would like to read the story. The adult then invited the child to assume the role of a writer "like that of your favorite storybook author" and dictate that same oral tale as a "written" text for these other children to read. In other words, the child was asked to compose a sufficiently decontextualized text based on his/her oral storytelling, and then dictate that text for the adult to write down. During the dictation, the adult acted only as scribe, offering no help beyond simply recording the child's words, re-reading the text aloud back to the child, and inviting edits. The distinction between oral storytelling to an interlocutor in a vis-a-vis conversational context and delivering an "autonomous" text through the oral medium for an absent reader-audience has been discussed in greater detail elsewhere (e.g., Pontecorvo & Zucchermaglio, 1989; Sulzby, 1985b).

The request for a retelling of a face-to-face "oral" story as an "autonomous" text for others to read defines a new context in which the topic of the story remains the same, but changes occur in audience (from interactive listener to absent/invisible readers) and in language mode (from oral to written). In order to comply with the request, the child must recognize the unique differences between oral and written discourses and make appropriate linguistic adaptations. That is, the child must be able to recontextualize his/her earlier "oral" story text by making changes in, for example, cohesion pattern, wording choices, and genre structure, so that the dictated text is maximally autonomous of the immediate storytelling context and comprehensible to an invisible audience of readers. Specific linguistics features for oral storytelling texts and autonomous texts (i.e., those written for others to read) have been extensively discussed

by both linguists (Chafe, 1982, 1985; Halliday, 1989; Tannen, 1984, 1985) and lit eracy educators (e.g., Purcell-Gates, 1988; Unsworth, 1997).

In essence, the task required the child to take responsibility for constructing an autonomous text, while also allowing him/her to review, monitor, and edit text by making requests of the scribe. It had three interrelated purposes. First, it allowed the child to use his/her memorable social experience as the content for a text written for a communicative function. Second, it freed the young child of the mechanical demands of writing (e.g., spelling, punctuation, handwriting) and, as a result, allowed the child's attention to be more fully devoted to discourse level concerns, such as purpose, word choice, syntax, textual connections, thematic development, organization, and clarity, during the construction of an autonomous text (Gundlach, 1981; Jacobs, 1985). Third, it provided a situation in which task difficulty was increased (e.g., from vis-a-vis storytelling to independent construction of an adequately decontextualized text). The increase in task difficulty is likely to force the young child's inner speech outward as audible self/other-regulatory utterances (Berk & Spuhl, 1995).

It is important to point out that this study's task differs from that in previous research, where metacognition typically has been operationalized as think-alouds, simulated recall, or retrospective interviews reporting conscious metacognitive strategies. These protocols may work well with adult subjects; it is, however, likely beyond young children's grasp (Juliebo Malicky, & Norman, 1998; Myers & Paris, 1978). Furthermore, as Nisbett and Wilson (1977) have suggested, the self-reported, retrospective, or artificial nature of these protocols renders them unreliable instruments; that is, they may not accurately capture the subjects' true thought processes. The present study, on the other hand, uses children's spontaneous speech during a natural literacy event (such as during the construction of an autonomous text) to infer their metacognitive processes; furthermore, story dictation is a common language experience for most school-age children. As such, the study's task and procedure enhanced the reliability of the data.

Data Sources and Analysis

There are two data sets in this study. One data set is composed of 44 autonomous texts dictated by the children. The other consists of metacognitive utterances associated with the dictation of these autonomous texts. Two experienced raters first independently analyzed and scored both data sets and then cross-checked with each other. Inter-scorer agreement rates were approximately 82% for the analysis of autonomous texts and 87% for the analysis of metacognitive utterances. Discrepancies were discussed and resolved to 100% agreement.

Autonomous Texts. The children's autonomous texts were analyzed for their holistic quality using Hasan's (1984) discourse model of cohesive harmony. Research has suggested that cohesive harmony reveals the nature of coherence in the text (Hasan, 1984), and that it is a viable index of textual quality (Fang & Cox, 1998). Specifically, a five-step procedure was instituted in cohesive harmony analysis. First, each text was parsed into modified t-units (Hunt, 1965). Second, each t-unit was lexically rendered: verbs were changed into their root forms; pronouns were replaced with their referents; content words (i.e., nouns, verbs, adjectives, and adverbs) were retained; and function words (i.e., prepositions, auxiliary verbs) were eliminated. Third, all appropriately used cohesive ties (Halliday & Hasan, 1976), and the similarity and identity chains formed by these ties, were identified. Fourth, functional grammar roles (Halliday, 1985) were assigned to lexical tokens in each t-unit. When the same functional role w as repeated across two or more t-units, with the same verb process, a cohesive harmony chain interaction occurred. Fifth, a cohesive harmony score was computed by dividing the number of tokens in the interactive chains by the total number of lexical tokens in the entire text. A more detailed description of the scoring procedure, along with actual examples, is available in Cox, Fang, and Otto (1997).

Metacognition: All utterances during the dictation that suggested self-management metacognitive functions were distinguished from the story text proper--dictated text--and parsed into utterance units (Cox, 1994). In order to be considered a metacognitive utterance, an utterance has to be an implicit or explicit attempt by the child to strategically plan for dictation/composing (e.g., Now what do I do? Let me think; This is about my field trip), monitor the dictating/composing process (e.g., Did I already say that? Did you already write 'because'? Is that the way you spell 'mommy'?), and regulate (through self or the scribe) the comprehensibility of text for a reader-audience (e.g., I don't want you to write that part down; I wanna change the word; He cut, he tried to cut; He listen to them, to his 'mommy'). It is important to note that a single metacognitive utterance often encodes multiple executive functions (Halliday, 1975; Painter, 1989). For example, an utterance regulating the scribe's behavior usually also implicates active

monitoring of the dictating/composing process on the child's part. However, each such utterance is counted only once as metacognitive in general for scoring purpose.

To control for the length of the dictated text, a metacognition proportional score was computed by dividing the number of total metacognitive utterance units by the total number of t-units in the dictated text, plus the total number of metacognitive utterance units. For example, if a child produced five utterance units indicative of metacognitive executive functions during the process of dictating a 15 t-unit autonomous text, the proportional score for metacognition is 51(15+5), or 0.25.

Statistical Analysis. The quantitative measures for the dependent variables (i.e., textual quality and metacognition) were submitted to SPSS (Statistical Package for Social Sciences). In addition to the generally reported descriptive statistics, such as means and standard deviations, inferential statistics also were calculated. Specifically, univariate analysis of variance (ANOVA) was performed to determine the effect of emergent reading level on metacognition and on the quality of dictated texts. Furthermore, correlational analysis was conducted to examine the potential relationship between metacognition and textual quality. Significance level was set at 0.05 for all analyses.

Results

Based on an examination of normal probability plots, it was judged that the data approximated normal distributions. Table 1 presents the means and standard deviations for metacognition and textual quality measures.

Of the 44 participants, 30 (68%) produced some metacognitive utterances indicative of executive functions during the construction of autonomous texts. Of the 14 preschoolers who made no metacognitive utterances, nine are in the picture-governed/oral-like group, which means that nearly 43%(9/21) of the children in this group did not demonstrate evidence of self-management while they engaged in the literacy task of constructing an autonomous text for others to read. The other five are in the picture-governed/no story group, meaning that over 45% (5/11) of the children in this group did not show evidence of executive control during the literacy event.

Univariate analysis of variance indicated that there was a statistically significant emergent reading level effect on metacognition, $F (2, 41) = 13.15$, $p = 0.00$. This means that there were statistically significant differences in metacognition scores among the three emergent reading groups. Subsequent multiple comparisons using Student-Newman-Keuls revealed that the mean metacognition score for the picture-governed/written-like emergent readers was statistically significantly greater than that for each of the other two emergent reading groups (p [less than] 0.05). No statistically significant difference was observed between the picture-governed/no story and the picture-governed/oral-like groups.

Univariate ANOVA also showed that there was a statistically significant emergent reading level effect on cohesive harmony index, $F (2,41) = 4.29$, $p = 0.02$. This means that there were statistically significant differences in the quality of autonomous texts produced by the three emergent reading groups. Subsequent multiple comparison using Student-Newman-Keuls indicated that the mean cohesive harmony score for the picture-governed/written-like emergent readers was statistically significantly greater than that for each of the other two emergent reading groups (p [less than] 0.05). No statistically significant difference was found between the picture-governed/no story and picture-governed/oral like groups.

Finally, correlational analysis indicated that there was a statistically significant positive relationship between metacognition and cohesive harmony (Pearson-Product Moment $r = 0.37$, p [less than] 0.05). This suggests that the quality of the autonomous text is moderately related to the children's metacognitive ability.

Discussion

Metacognition and Young Children

The results of this study indicate that most of the preschoolers in the sample were already developing emergent literacy-related metacognition. Specifically, they exhibited evidence of self-management while engaging in a challenging literacy task (i.e., constructing an autonomous text for others to read). During this process, the children not only strategically planned for, but also closely monitored their composing/dictating process; and when they detected

problems in the text, they either self corrected or prompted the scribe to correct them. The transcript excerpt from Mark's dictation (see Appendix) supports this observation. Overall, the excerpt shows that in constructing an autonomous text, Mark, a picture-governed/written-like reader, was not only cognizant, but also capable of coping with the unique demands of written discourse. For example, Mark used only intratextual reference, monitored the comprehensibility of text for a reader audience, and regulated the scribe to ensure the text's communicative effectiveness.

As a whole, this study suggests that these preschoolers did exercise executive control over their own thought processes and that they were capable of using their speech to coordinate or regulate literacy events. This is consistent with the findings from linguistic research (Halliday, 1975; Painter, 1989) that has shown that by the age of 2, most children already have developed several primary functions of language. One of these functions is the regulatory function, by which language is used to manage or orchestrate one's own or other's behavior. The finding of the study also corroborates Vygotsky's (1962) observation that children about to enter school already possess, in a fairly mature form, the functions they next learn to subject to conscious control and regulation.

Metacognition and Reading

The emergent reading level effect on metacognition suggests that metacognition and emergent reading ability may be related. Recall that one underlying assumption of Sulzby's (1985a) emergent reading categories is that higher emergent reading levels more closely approximate independent or conventional reading. That is, children whose pretend reading forms a written-like story are assumed to be more advanced in their reading ability than those whose pretend reading forms an oral-like story or no story at all; furthermore, children whose pretend reading forms no coherent story are assumed to be lower in their reading ability than those whose pretend reading forms an oral-like story. The present study found that young children who pretend read at the written-like level used statistically significantly greater proportion of metacognitive utterances when constructing an autonomous text than did those who pretend read at the no-story or oral-like level. Furthermore, as reported earlier, the 14 preschoolers who made no metacognitive utterances during dictation were in either the no story or oral-like group; none of the 14 were in the written-like group. A comparison of the dictation excerpts by Mark (a written-like reader) and Lola (a no story reader) in the Appendix reveals qualitative differences between the two children's self-management utterances. Specifically, Mark externalized his thinking and planning processes as clear, communicative, other-regulatory directives that monitored the scribe, and that clearly addressed the reader-audience's needs for textual clarity, sufficiency, accuracy, and appropriateness. In fact, he persistently checked the scribe and his text to be sure that the scribe did not make mistakes. In contrast, although Lola used utterances that implied some internal planning and thinking before actual dictation, she did not appear to be closely monitoring or strategically regulating the composing/dictating process.

Since Sulzby's (1985a) emergent reading levels reflect the varying amount of storybook reading experience, it seems reasonable to speculate that the greater self-management demonstrated by written-like readers maybe related to greater amount of experience they had with storybooks. Vygotsky (1962) has suggested that participation in literacy events such as storybook reading and language experience plays a "decisive" role in developing the child's metacognitive capacities. One explanation may be that children's storybook experience is often adult-mediated, featuring rich scaffolding, modeling, and direct instruction in language use (Cazden, 1992). It is possible that such adult-supported experience fosters children's awareness of their own thought processes and develops their ability to regulate their cognition (Donaldson, 1978; Wood, 1988). On the other hand, it is also plausible that as children become more metalinguistically aware and task conscious, their ability to read develops simultaneously (Downing & V altin, 1984; Yaden & Templeton, 1986).

Metacognition and Writing

In addition to the finding that the children's emergent reading level was related to their metacognitive ability, this study also found that their reading ability was closely related to the quality of the autonomous texts they produced. This is consistent with extensive emergent literacy research, which suggests that emergent reading and emergent writing are closely interrelated (Sulzby & Teale, 1991). More important, this study found that there was a positive correlation between self-management and the quality of the dictated texts. Specifically, the children who were cognitively active in strategic planning before dictation, in on-line monitoring during composing/dictating, and in regulating their own or the scribe's behavior to address reader-audience's needs produced better quality texts. This finding is supported by

other writing research (Calkins, 1994; Scardamalia & Bereiter, 1986) that suggests writing is not a linear process, but rather a complex task that involves both cognitive and linguistic skill s. A comparison of the dictation excerpts by Mark and Lola (see Appendix) reveals the qualitative differences not only in the two children's self-management, but also in their literacy products (i.e., dictated texts). Specifically, Mark's dictated text has a clear narrative structure: an orientation, sequence of related events, problem, and resolution. The text is also replete with rich, vivid descriptions of interesting episodes that are likely to entice young readers. Furthermore, pronouns are all clearly referenced within the linguistic text proper. In contrast, Lola's dictated text is only a simple list of ideas or actions. There is no clear or logical sequence to the particular ordering of the sentences. Textual development, such that there is, is haphazard. In addition, her use of the pronoun "it" is not clearly referenced within the linguistic text, suggesting that Lola has yet to learn to exercise control over the more autonomous mode of communication.

As noted earlier, adult-mediated experience with storybook reading is a potent factor contributing to young children's developing metacognition and writing ability. Equally important, as children develop in their metacognitive ability, they, too, become more strategic and self-regulated readers and writers (Schmitt, Younts, & Hopkins, 1994). The advances in reading and writing abilities could, in turn, further develop their metacognitive potential. As noted British education psychologist and

Vygotskian scholar David Wood (1988) explained, "Literacy leads children to develop more explicit and objective 'theories' of language and helps to develop their self-regulatory abilities as they learn how to plan, monitor and evaluate their writing" (p. 165). This interactive relationship among metacognition, reading, and writing has been confirmed in one recent study (Cox, Schmitt, & Fang, 1995). Specifically, the study reported that as at-risk 1st-graders developed in their reading ability during the Reading Recovery (i.e., an early literacy intervention program) experience, they simultaneously developed as self-managed and strategic learners who actively monitored and regulated their behaviors during the construction of meaning in and from text.

Limitations and Implications

Two cautionary notes must be made in this study. First, the study's findings stem from the analysis of a relatively small (n=44) and homogeneous (Caucasian) sample. Care needs to be exercised before making broader generalizations beyond the characteristics of this sample. Similarly, the implications suggested below are tentative and should be taken only as such. The research matrix described in this study, however, deserves further exploration with larger and more diverse sample of subjects. Such replication-extension studies are critical for enhancing the accuracy of scientific and scholarly knowledge (Thompson, 1996). With these studies, the education research community will be "in a better position to determine whether an observed phenomenon is physically repeatable and generalizable, rather than purely probabilistically so" (Robinson & Levin, 1997, p. 26). Second, the study's suggestion that metacognition, reading, and writing are interrelated does not imply any direction of causal relationship among them . In fact, these three intellectual capacities may be so intertwined and interactive that they can, practically, be considered as one and the same process intimately involved in the construction of meaning.

In the final analysis, given the study's findings, it is important that schools and parents strive to provide children with ample opportunities to interact with language in meaningful and communicative contexts, while, at the same time, encouraging them to reflect upon and explore how language works to accomplish particular functions within particular sociocultural settings. Because literacy development is, in a unique sense, "a process of cognitive socialization" (Brown, 1956, p. 247), teachers and parents should engage young children in language-rich and adult-mediated activities such as dictating stories, story telling, language play, and process writing (Calkins, 1994). These activities should take place in a positive, considerate, and encouraging environment. In addition, teachers and parents should regularly read to and with children, using texts of diverse genres and inviting their active participation in textual interpretation. In particular, explicit discourse about written language and its function s are important (Derewianka, 1990; Painter, 1989). Such talks will enhance children's sense of how readers and writers communicate with each other. With conscious awareness of textual features and functions, children are more likely to develop as strategic and self-regulated readers and writers. As Kress (1994) pointed out, the most potent factors in the child's literacy learning are "the models of written language which the school provides, and which it encourages the child to emulate" (p. 86).

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Table 1
Means and Standard Deviations for Metacognition and Textual Quality
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Table 1
Means and Standard Deviations for Metacognition and Textual Quality

	Metacognition		Textual Quality
	Means	SD	Mean
Picture-Governed: No-Story Readers (n=11)	0.09	0.10	0.57
Picture-Governed: Oral-Like Readers (n=21)	0.10	0.11	0.54
Picture-Governed: Written-Like Readers (n=12)	0.33	0.19	0.73
Entire Sample (N=44)	0.16	0.17	0.60
	SD		
Picture-Governed: No-Story Readers (n=11)	0.17		
Picture-Governed: Oral-Like Readers (n=21)	0.22		
Picture-Governed: Written-Like Readers (n=12)	0.10		
Entire Sample (N=44)	0.20		

Appendix: Transcript Excerpts of Mark's and Lola's Dictations

Note: In both excerpts below, utterances indicating metacognitive executive control are capitalized. The dictated story text appears in regular font and style. The child's comments, which are not part of the dictated text, are italicized. Comments made by the scribe during the dictation process are put in brackets [ ].

Mark: A picture-governed/written-like reader

Mark: One day

I'll give you enough time to write. NO, DON'T WRITE THAT DOWN.

Scribe: Ok, thanks. One day-

Mark: My brother Benjamin went [pause] out [using dictation intonation] in the yard and sprayed all the cats. [pause] Then, then he went, UM, in the garage and [pause] UH, he [pause] sprayed the entire place. [pause] Then daddy came in and scolded him. [pause] Then we went out to feed, UM, my garden, the herb garden, and mommy and daddy's garden that we all share. [pause] Then Benjamin got the other hose out and he sprayed all of the cats again. [pause] Then Calico came into the yard. [pause] Benjamin dropped the hose. [pauses and drops measured dictation intonation for a conversational tone] I was secretly watching because I had gone away from my work and I was secretly watching. [pause, followed by something uninterpretable] BUT, DON'T WRITE THAT DOWN.

Scribe: Um hmm?

Mark: [resumes dictation intonation] Benjamin dropped the hose and picked it up and sprayed Calico as well. [pause]

Scribe: Um hmm?

Mark: I'M SORRY I DIDN'T TELL, UM, THIS PART BEFORE [meaning during the conversation and his oral rendition earlier before dictation]. I FORGOT ABOUT IT. [resumes dictation] And then, the black cat came into the yard [pause], another one of our cat friends. [pause] And Benjamin sprayed him, too. [pause] And then all of the cats chased him.

[pause] Last time my story only took two pages.

Scribe: Um hmm?

Mark: And then he ran inside the house and locked the door.

[pause] UM, OH, I'M, I KEEP ON FORGETTING THESE LITTLE PIECES OF THE THING.

Scribe: Um hmm?

Mark: [anxious, obviously concerned that the scribe may be writing his comment]

WHAT ARE YOU WRITING?

Scribe: That's OK [pause]. What little piece? [pause] I'm going to, I'm going to reread in a minute for you; so if there are any things that you have forgotten and want to add when we read it over, you certainly may do that, Mark.

Mark: OK

[resumes dictation] When he came out he was all dressed over and ready to fight with a million cats. [Scribe laughs. Mark continues] He was really dressed up when he came out. He had weapons like a medieval knight and he was all dressed in paper armor. [Both scribe and Mark laugh.] He was completely covered with battle clothes [chuckles] and he even had a little duck to ride on. [laughs]

Scribe: A little duck to ride on?

Mark: Yeah, and a horse. [chuckles]

[resumes dictation] And a little horse to ride on.

[comments] He's, he really gets crazy [laughs]

[still laughing, but resumes dictation] And then when he saw all of the cats, he got on, got on his duck and his horse and he chased them. [laughs again, then pauses]

Scribe: OK, I, just wait a minute, I couldn't keep up with you. Here's where I am: "When he came out he was all dressed up and ready to fight a million cats. He was completely dressed up like a medieval knight."

Mark: Yeah.

Scribe: And he had a duck?

Mark: To ride on. [pause] And he had a horse, too. [resumes dictation intonation and pace] When he saw the cats he charged. [pause] Then he ran back inside. [pause] When he came out, he sort of looked like a robot. [pause] He's, UM, and then me and Benjamin decided to make a little game and make a big tyrannosaurus, [pause] a big robot. It's huge. [pause] And we're still working on it. The end.

[Scribe rereads Mark's text and asks if there is anything he wants to add or change.]

Mark: [emphatically] No. THAT'S PERFECT.

Lola: A picture-governed/no story reader

Lola: [before dictating] I DON'T KNOW. I CAN'T THINK OF IT. [begins to dictate] I love it. I sleep with it. I like to bring it to show and tell. And I love momma. That's all.

Scribe: Anything else? [pause, no response] Let me read this back to you and you can see if it's just the way you want it for these other boys and girls. [rereading] I love it. I sleep with it. I like to bring it to show and tell. And I love momma. That's all. Anything you want to change? Or add?

Lola: (shakes her head) No.

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