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Families as Social Contexts for Literacy Development

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This chapter presents an overview of a number of ways in which social interactions within the family support literacy acquisition. There has, of course, been a substantial amount of research devoted to this topic, much of it starting from the observation that middle-class and highly educated families typically produce more successful school learners than do working-class families. A major site for looking at family interactions has been book reading, on the assumption that early exposure to literacy promotes later literacy skills. The research I discuss here differs from previous efforts in two major ways. I have not engaged in social class comparisons, preferring to compare within relatively high-risk samples the families who successfully support their children's literacy development to those who do not. And I have focused less on literacy-specific interactions than on language interaction in general as a source of skills that are relevant to literacy.

The findings reported here derive from three major studies in which I have been involved: a study of the correlates of school literacy among children from low-income families attending second through seventh grades (Snow and others, 1991), a study of children in U.S. schools who come from

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families where a language other than English is spoken (Snow, 1991a), and an ongoing longitudinal study of language and literacy development in children from low-income families, from age three through fourth grade (Snow, 1991b). In all of these studies, a major question was, Which activities or interactions in the home contribute to children's school achievement, particularly as related to literacy?

Before presenting findings from these studies, though, it is important to define the outcomes of interest. We have data on traditional literacy outcomes, for example, standardized tests of reading and writing samples, but we have also collected data on domains that we consider prerequisite to or closely correlated with traditional literacy—in particular, certain aspects of oral language. In order to clarify how our findings about oral language skills relate to literacy, it is necessary to outline the model of literacy development that has undergirded these various studies. After presentation of that model, I turn to summaries of relevant findings from the three studies. The basic point of the discussion is that parents' most important contributions to their children's literacy development may come through language interactions rather than print-related activities.

A Model of Literacy Development

Foremost, assessment of family influences on the development of literacy requires a decision about what we mean by *literacy*. What developments or accomplishments in childhood should be considered relevant to literacy development? The model of literacy that has guided my investigations (see Snow, in press; Snow and Dickinson, 1991, for expanded presentations; see also Dickinson, Cote, and Smith, this volume, for a similar view) views sophisticated, college-level literacy as representing the culmination of several strands of development, some of which start well before anything like formal reading or writing occurs. College-level reading, for example, involves the ability to read in ways adjusted to one's purpose (to enjoy light fiction, to memorize factual material, to analyze literature), to learn facts and discover ideas in texts, to judge the writer's point of view, and to incorporate information and perspectives from text into one's own thinking but also to question and disagree with information and opinions expressed.

The abilities that emerge within these various strands represent *problem spaces*, that is, domains that children have to work on or receive instruction in. Use of the term *problem space* is meant to emphasize learners' active roles in reorganizing their own knowledge, after recognizing discrepancies between their current theory or notion and some information in the world. Some problem spaces, such as figuring out irregular past tenses in English, are fairly common for children at a particular developmental level; others, such as figuring out the circle of fifths in music or endgame strategies for chess, emerge at a particular stage in the mastery of a domain rather than at some

point defined by age or cognitive stage. A crucial characteristic of problem spaces, though, is that the current problem attracts considerable cognitive energy from the child, and can be worked through more quickly if relevant informative and helpful interactions with adults are available.

Familiar Reading Skills. Let me illustrate this model by discussing a skill traditionally associated with reading readiness—*letter recognition*. Clearly, before one can begin to read words in an alphabetic language, one must be able to differentiate letter shapes and associate each letter with its proper sound or sound family. Many children struggle with the problem of letter recognition during the preschool period, fitting magnetic letters into puzzle forms, perhaps learning to print their own names and other important words, and seeking out familiar letters on signs or in books. Most children work hard and encounter frustration at this stage of development, confusing *b* and *d* for a period of time, or forgetting how certain letters are written. In some families, they receive help, support, and considerable positive recognition even for somewhat primitive efforts at writing with invented spellings, copying words, or identifying letters during this stage. At some point, letter recognition is smooth, reliable, and ultimately automatized such that it does not require much cognitive energy. In fact, letter recognition becomes so skilled that older children and adults can read relatively degraded print without difficulty. Letter recognition is no longer a problem space.

Letter recognition is a crucial skill in literacy, though well defined and quite limited in scope. Also well defined but somewhat more complex is the skill of *phoneme segmentation*—figuring out the compositional units of words and matching the sounds with the letters (the basic alphabetic principle). Phoneme segmentation by first graders has been widely found to be a good predictor of reading progress (for example, Juel, 1988; Stanovitch, 1986). Phoneme segmentation and phoneme-grapheme mapping in particular involve more complexity than letter recognition in languages, such as English, where the spelling rules are abstract and morphological rather than concrete and phonemic. Children's entry into the problem space of phoneme segmentation is indicated by their interest in rhymes and other forms of sound play; pig latin and other such segmentation-based invented languages emerge only after children have achieved a fairly high degree of automatization with segmentation.

Obviously, though, reading involves more than letters and segments. The development of the literacy skill called *word recognition* relies on the achievement of relatively late stages of skill in letter recognition and phoneme-grapheme mapping, with the additional problems of blending sounds into words, figuring out syllable stress and thus the pronunciation of vowels in multisyllabic words, and connecting the sounded-out word with a meaning. The process of acquiring word recognition skill typically starts with formal reading instruction in kindergarten or first grade and continues for novel and complex words into the late elementary years. As for the other skills dis-

cussed, word recognition is effectively acquired only when it is automatized to the point that little cognitive energy goes into the process. Normal reading with comprehension relies on the fast and automatic recognition of most of the words in the text, and reading with comprehension is slowed and disrupted if effort must be expended on individual words in the text.

Automatized reading comprehension is a function of practice with the target words, not just of having automatized the component processes of letter recognition and phoneme-grapheme mapping. This is made clear by the difficulties that skilled readers encounter when reading in a second language, for example, or even when reading in English with modified spelling. In his novel *Riddley Walker,* Russell Hoban (1982) writes of life around Canterbury (Cambry) in a postdoomsday English that differs from twentieth-century English mostly in its spelling rules, though the occasional use of wonderfully evocative innovated word forms and the reliance on grammar more typical of oral than written language also challenge the reader:

> Looking up in to the black where the goast of Power circelt blyn and oansome like a Drop John round the lost hump of Cambry I larft I yelt, "SPIRIT OF GOD ROAD WITH ME!"
>
> Dark of the Moon it wer. Pas the failing moon of my getting and fulling on tords the moon of my bearthing I gone to the hart of the wud I gone to the stoan wood in the hart of the stoan I gone to the woom of her what has her woom in Cambry.
>
> The black sky dint change colour nor the stoans dint go wite nor the dogs dint runny on ther hynt legs with the shyning colours coming thru them it just stayd solid black. No lerting from the dogs so I lit a candl. Up jumpt the shadders and shaking on the walls and rubbl. In amongst them stoan trees there wer what you myt call a notness of some 1. Some 1 ben roun there nor not too long befor me. No 1 was there now tho. Lookit in the hidey hoal where Greanvine livet. Emty.
>
> Lookit in the out poast. HOAP OF A TREE stil on the wall and the picter of Goodparley with the vines and leaves growing out of his mouf. No 1 there [pp. 191–192].

Note that the majority of words in this passage, as in the whole book, are standard English spellings; nonetheless, the unfamiliarity even without any particular lexical or mapping complexity of *stoan* for stone, *myt* for might, *wud* for would, *poast* for post, and so on disrupts reading enormously, perhaps more for skilled readers than for those who are not yet able to rely on automatized word recognition.

Finally, of course, traditional sketches of reading include as a separate component reading comprehension, the ability to extract or formulate meaning from text. Reading comprehension is obviously even more complex and multiply determined than word recognition, and it is not a skill that ever be-

comes fully automatized for all text types. While most adults with a high school education can read a newspaper or sports magazine without consciously working to comprehend, even those of us with advanced degrees struggle to understand physics textbooks, instructions for filling out tax forms, and transcripts of presidential news conferences. Some comprehension strategies that are taught to young children explicitly inhibit automatization of comprehension; these include metacognitive strategies such as "stop at the end of every paragraph and ask yourself what it was about" or "preview the section headings and try to predict what the passage is going to tell you." Thus, I treat reading comprehension here not as a component strand of literacy development but as the much more amorphous product of many component skills.

Oral Language Skills Prerequisite to Reading. The three processes discussed so far—letter recognition, phoneme segmentation and mapping, and word recognition—are well recognized within the field of reading as prerequisite or component reading skills, and family interactions can of course support the development of any of these. But other skills in the domain of oral language use are just as critical to efficient and effective reading, and these are even more likely to be developed in the context of family interactions. These include oral language skills such as familiarity with relatively rare vocabulary, understanding the lexical and grammatical strategies for adjusting to a nonpresent audience, identifying the perspective of the listener so as to provide sufficient background information, knowing the genre-specific rules for various forms of talk such as narrative and explanation, and so on.

Vocabulary has been associated with literacy development across a variety of studies, for children speaking different languages and learning to read in a variety of instructional settings (Anderson and Freebody, 1981; see Dickinson, Cote, and Smith, this volume, for a review). Some of the mechanisms by which a larger vocabulary promotes reading are obvious; in a language such as English, where pronunciation of many words is not easily predictable from their spelling, access to stored target forms helps eliminate mispronunciations and misidentifications in most cases. Vocabulary also predicts literacy, though, in languages such as Spanish, where the spelled form is absolutely unambiguous as to pronunciation. It seems likely, then, that vocabulary knowledge in these cases indexes world knowledge—background information that the reader can use to help in the task of comprehension.

Beyond vocabulary, though, performance on tasks like describing pictures or telling stories in a way that is relatively complete, detailed, and comprehensible relates to reading. Why do we find this connection? The ability to give a good, complete picture description requires analysis of what it is the listener (who, of course, cannot see the picture) needs to know in order to understand what the picture is about. Furthermore, compressing the needed information into a comprehensible oral language format requires the use of

complex grammar (relative clauses, appositions, subordination) as well as effective self-monitoring. Consider the following examples of picture descriptions from fifth graders who were native speakers of Spanish. The first comes from Elena, a girl reading above grade level:[1]

1 There's some baseball players.
2 And they're playing.
3 And a girl went to hit the ball.
4 And then she's going to hit it but it's too close.
5 So she can't hit it.
6 And there are two boys that are talking.
7 And they going to play too.
8 And there's a catcher.
9 And there's another boy that throws the ball.
10 Is the pitcher . . .
11 And there's there's numbers in the floor.
12 And there's a cap # there's a cap behind the girl
13 So if the ball goes away it won't go away because the cap holds it.
14 And here are two boys talking about baseball players
15 or maybe about something else.
16 And there's a boy there with a bat on their hands.
17 And they . . . there's another boy there that has (a) . . .
18 a glove to catch the ball in the other game.

The next description, of the same picture, comes from Carmen, who was reading below grade level:

1 There's three boy . . .
2 One got # they're playing baseball . . .
3 The girl has hair ye // yellow hair . . .
4 It got walls.
5 The boy has the hair up.
6 The girl gonna hit the ball.
7 The other girls // she's talking with a boy . . .
8 The girl has a dress.
9 It's red and white.
10 She got the eye black.
11 Her face is like red.
12 It got black and red.
13 The boy got the shirt white and the pant white.
14 The boy has another bat.
15 He got his hair up.
16 The other girl has a pant blue # the shirt blue and white.

17 She got her hair yellow.
18 The face is white.
19 There's a dog.
20 It's black and white.

While these two descriptions are of approximately equal length and degree of attention to detail, the first gives a much better gestalt of the picture, in part by making explicit the relations among the different individuals and activities depicted. Elena focuses on the actions of the children, using relative clauses or other postnominal modifiers six times (in lines 6, 9, 12, 14, 16, and 17) to clarify her references. She also expresses a complex causal relationship in lines 12 and 13, referring to a ball that would roll away if a cap were not preventing it. Carmen, in contrast, mentions only two actions ("playing baseball" in line 2 and "gonna hit the ball" in line 6) and makes no relations among the children or among the actions explicit.

Similarly, telling stories about events known to the teller but not the audience requires considerable analysis of what information must be supplied and how to organize the needed information into a form that effectively makes the teller's point. Both picture descriptions and narratives require speakers to engage in self-monitoring, to figure out on-line whether their productions are sufficiently complete and comprehensible. If speakers assess that their performances have been inadequate, they must, furthermore, invoke repair mechanisms like going back to clarify referents, repeating episodes in a simpler way, or responding to listener requests for clarification. Cazden, Michaels, and Tabors (1985) give elegant examples of first-grade children engaging in spontaneous self-repair during sharing time, which demonstrate the sophisticated monitoring skills some children have acquired by age six.

Another task that relates to literacy among school-age children is giving oral definitions for words. In administering this task, my colleagues and I have used very simple words like *donkey* and *bicycle* in order to disentangle this performance from vocabulary knowledge. Children who give formal definitions, that is, superordinate terms with appropriately restrictive relative clauses, are those who do better in reading comprehension. Again, one might well ask why this connection emerges. The explanation I favor is that the ability to provide good definitions requires analysis of one's stored knowledge; the essence of a good formal definition is that much of what one knows about the word meaning is excluded from the definition, but the crucial *defining* information is included. Consider the following definitions from a native Spanish-speaking fifth grader who reads above grade level:

Umbrella # we use # umbrella is # a thing that we use in the rainy days.
The # donkey is an animal # who carries things # on his back.

Contrast definitions of the same words from a classmate who reads below grade level:

> Umbrella is to use when it's raining.
> That's an animal. It has like # long ears.

These two sets of definitions do not differ much in terms of the information provided, though one could argue that "carrying things" is more criterial for donkeys than is "long ears." The two sets differ most strikingly, though, in the ways in which the first child organized the information into a particular, definitional form, whereas the second child sometimes omitted superordinates and juxtaposed information instead of integrating it into a single sentence. The first child typified better definers in that his definitions were relatively hesitant; dysfluencies such as he displayed are evidence that he was self-monitoring and engaging in more elaborate lexical searching and syntactic planning than characterizes his normal, fluent, conversational speech.

Putting the Model Together. The component skills most clearly and closely connected to reading—letter recognition, word recognition, and use of strategies for comprehension—are typically acquired over a relatively short period of time, and in the context of targeted instruction. One can easily see them as problem spaces for children, as evidenced by their interest in the domain as well as the occurrence of errors, frustration, and emerging reanalyses. The language skills are less constrained and well defined, thus they emerge over a much longer period; in fact, there is no clear end point even in adulthood for the acquisition of vocabulary or skills of effective communication while telling stories, giving definitions, or providing explanations. However, most adults have achieved sufficiently large vocabularies and sufficient control over the production of connected discourse that these skills can be woven into complex literacy tasks.

Children, though, are clearly making problems of the task of producing extended discourse and using sophisticated vocabulary items, as is clear from transcripts of their definitions during testing sessions, and from their attempts to tell stories or give explanations during family conversations. Consider, for example, the following definition from a fifth grader (Snow, Cancino, DeTemple, and Schley, 1991, p. 95):

> A donkey is an animal that most people use to wor // to make them work for them # or # to # use to ride.

One can see here from the retracings, the dysfluencies, and the self-corrections the process of trying to get this definition right. Similarly, in the following story told at the dinner table, five-year-old Jake is struggling to get his

point across to his father and older brother (Blum-Kulka and Snow, 1992, pp. 200–201):

JAKE: One day we stayed that much . . . all the way from (?) it's so smelly.
FATHER: What smells?
JAKE: It's (?).
FATHER: What smells?
SAM: We don't know what you're talking about. Who what smells?
JAKE: The ice cream.
FATHER: The ice cream.
JAKE: Yeah it does.
SAM: Whose ice cream smells?
FATHER: I never smelled bad ice cream Jake.
JAKE: I smelled it.
FATHER: You did? Where?
JAKE: At school.
SAM: Oh at school.
FATHER: That's most unfortunate.
JAKE: Yeah it stinks. That's the baddest in . . .
SAM: The best or the baddest?
JAKE: The baddest.
FATHER: Not the baddest. The worst.
JAKE: The worst.

Finally, a five-year-old, who evidently thinks *chunk* is a technical term meaning something like "mouthful," must work hard to explain his meaning to his parents (Davidson, 1993, p. 86):

EVAN: Do you know what sharks' chunks weigh?
MOTHER: Sharks' what?
EVAN: When they eat it.
MOTHER: Sharks' what?
EVAN: Chunks when they eat it.
MOTHER: When they eat what?
EVAN: You know how much # when the # // their chunks weigh when the shark eats the chunk?
MOTHER: No how much does a chunk weigh?
EVAN: Fifteen pounds.
MOTHER: A chunk of . . .
FATHER: You mean that a shark can take a bite out of another fish fifteen // a fifteen-pound bite out of another fish?
MOTHER: Really?
EVAN: Uh huh.

The children's persistence and hard work to get their points across in these examples suggest that oral language skills become problem spaces in much the same way as print-related reading skills do, though perhaps at more variable ages. The examples also show how parents can help children work through their problems; Jake's father and brother hold him accountable for clarity ("What smells?" "We don't know what you're talking about, who what smells?"), truthfulness ("I never smelled bad ice cream Jake"), and conventional correctness ("Not the baddest, the worst"). Evan's mother questions him repeatedly about the way in which he is using the word *chunks*, and his father finally gives a complete, grammatical, conventional gloss for Evan's intended meaning.

The model I am proposing might be conceptualized as a weaving or braiding of various strands of fiber. The width of any strand represents the degree to which it is a problem space; once automatized, the strand becomes a smooth, even thread woven into the fabric of reading for comprehension and learning. The point of this model is as follows: In looking for the influences of family interactions on literacy development, we must consider family contributions to the full array of strands in this developmental picture.

Contribution of Interactions at Home

In discussing family contributions to a variety of the strands identified above in the model of reading presented, I draw from all three of the studies cited. Fuller descriptions of each of the studies are available in the cited sources. I focus primarily on the language strands, since others' work has paid relatively less attention to these than to the classically defined reading skills.

Vocabulary. One might expect that children in families who talk a lot have larger vocabularies. In fact, though, talking a lot might not correlate with talking in ways that introduce relatively sophisticated lexical items. Hayes and Ahrens (1988) have shown that most oral language is comprised of only about ten thousand different words; even though adults know many more than ten thousand words, they evidently tend to use certain ones over and over, reserving more sophisticated vocabulary items for writing or reading comprehension. In our work (Beals and Tabors, 1993), analyzing the speech used in the families of three- to five-year-olds, we found even fewer different words (types) in regular use: under eighty-five hundred in a corpus of over five-hundred thousand, of which just about half were neither common nor rare words, but words that were family- or child-specific. When we compared the words used in these families to lists of high-frequency words (having excluded, as well, idiosyncratic, child culture, and family-specific words such as names of relatives, acquaintances, and local places, and *Lego, Teenage Mutant Ninja Turtles,* and *Cheerios*), we found that, overall, 30 percent of the types they used are rare. Presumably, as the children in the families get older, even rarer words will be used.

The use of rare words in these families related fairly robustly to child Peabody Picture Vocabulary Test (PPVT) (receptive vocabulary) scores at age five; $r = .33$, for example, for maternal use of rare words when children were age three (Snow and Tabors, 1993). Merged family scores for use of rare words at mealtimes showed correlations of .53 when children were age three, and .43 when they were age four. It seems, then, that exposure to less common, more sophisticated vocabulary at home relates directly to children's vocabulary acquisition (see Dickinson, Cote, and Smith, this volume, for related findings from preschool exposure).

Is there something special about the families who used rarer words? One difference may be that their talk tended to be organized around topics such as explaining why people do things or how things work, rather than around food, appropriate table manners, or topics of purely personal, local interest. Dickinson and Tabors (1991) found, for example, that the percentage of explanatory talk at mealtimes correlated .61 with children's vocabularies one year later, and Snow and Kurland (in press) found that mothers' tendencies to engage in "science talk," (that is, talk about scientific processes, prediction, categorization, hypothesis formulation, and discussion of general principles like attraction and repulsion) when playing with a magnet with their five-year-olds correlated .50 to the children's PPVT scores. Certain kinds of extended discourse seem to demand the use of more complex vocabulary items.

These findings from the ongoing Home-School Study of Language and Literacy Development recall earlier findings from Snow and others (1991). In that study of second- through seventh-grade children, we tried to explain variation in four literacy outcomes (word recognition, reading comprehension, vocabulary, and writing production), using as predictors variables that all related conceptually to a notion of the family-as-educator. The family-as-educator variables that we tested included maternal education, paternal education, mother's educational expectations for the child, father's educational expectations, literacy environment of the home, parental provision of homework help, and affective pleasantness of parent-child interaction during a homeworklike task. Our expectation was that families with high values on all of these variables would have children who were doing better in school, in part because their parents were providing educational enrichment at home. When tested using regression analysis, the family-as-educator variables explained 60 percent of the variation in children's vocabulary scores. The variables maternal education, mother's educational expectations, and literacy environment of the home showed particularly high correlations with vocabulary. It is worth noting, by the way, that the same variables correlated highly with children's word recognition, which is further evidence that word recognition is to some extent dependent on vocabulary.

Telling Stories and Describing Pictures. The tasks of telling stories and describing pictures have in common the demand to produce extended text.

One might expect that children learn how to produce this kind of text by participating in opportunities at home to hear or provide extended texts, for example, opportunities at dinner to tell about their day or to listen to their parents explain something complicated. In fact, results from the home-school study confirm that this is the case; the percentage of explanatory talk at mealtimes correlated .36 to children's skill at telling a story based on pictures (DeTemple and Beals, 1991), and mothers' use of science talk in the magnet task correlated .55 (Snow and Kurland, in press). The tendency when reading a new book to supplement reading of the text and identification of the pictures with discussion of what might happen next, how the child feels about the story, and what he or she is reminded of by the story correlated .29 to children's storytelling ability. It seems, then, that opportunities to engage in extended discourse in the home build skills in producing extended discourse of precisely the type that is needed for high levels of literacy. Extended discourse emerges when talk deals with complicated events or topics; when a simple story is embellished by making connections to feelings, related events, causes, and implications; and when talk moves beyond facts to explanation, or beyond opinion to argumentation.

Definitions. As noted above, skill at manipulating the definitional genre has a strong relationship to literacy, but for reasons that are not entirely clear. Perhaps this relationship depends on the metalinguistic and analytical skills indicated by the ability to give good definitions, skills that also serve the thoughtful reader well. Whatever the reason, giving good formal definitions is a task through which social class differences emerge as early as kindergarten (Dickinson and Snow, 1987) and which is closely related to reading level for third and fifth graders (Velasco and Snow, 1993). Which activities at home help children learn this skill?

In the home-school study, we have found relationships between the percentage of mealtime talk that is explanatory and children's definitions, suggesting that cognitively challenging talk is most likely to generate skill with definitions. Watson (1989) found that parental use of superordinates during a book-reading session with two-year-olds predicted the children's formal definitions one year later—a very tidy relationship, since one feature of good formal definitions is the presence of an appropriate superordinate.

On the other hand, in the study at the United Nations International School, we found that children who spoke English at home were not better at giving formal definitions in English than those who did not, and, similarly, that native speakers of French did not give better French definitions. Variance in the quality of children's definitions was better explained by their exposure to the language of definitions in school (Snow, 1990). In other words, home factors explain definitional skill up to a certain point, but thereafter opportunities for exposure to and participation in the kinds of extended discourse about complex topics that generate definitional skill evidently are more likely to occur at school.

Conclusion

Much attention has been paid to parent-child interaction during book reading, a context in which the social interaction quite explicitly supports literacy acquisition. The approach presented here, though, clarifies the relevance to literacy development of parent-child interactions that go far beyond those centered on books and book reading. Parents and children engage in many different kinds of talk together, in the service of exchanging information, affirming mutual affection, enforcing discipline and socialization, and expressing important feelings. Within those various types of talk, there can occur opportunities for talk that require syntactic planning, careful lexical selection, making explicit cross-utterance relationships, and integration of successive utterances into a particular structure. These opportunities help children develop oral language skills that, ultimately, are extremely useful in literacy. Precisely because a large and sophisticated vocabulary, skill in producing connected discourse, and skill with specific linguistic genres are all strands that get woven into the development of literacy, family interactions that enhance those various skills directly support children as they learn to read and write.

Note

1. The following transcript codes are used in this chapter: # = pause, . . . = trailing off of speech, // = self-correction, (?) = unclear word or words.

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