Explaining and Understanding Early Literacy

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The last decade has brought a growing consensus on the range of skills that serve as the foundation for reading and writing ability (Neuman & Dickinson, 2011). To become a skilled reader, children need a rich language and conceptual knowledge base, a broad and deep vocabulary, and verbal reasoning abilities to understand messages that are conveyed through print. Children also must develop code-related skills, an understanding that spoken words are composed of smaller elements of speech (phonological awareness); the idea that letters represent these sounds (the alphabetic principle), the many systematic correspondences between sounds and spellings, and a repertoire of highly familiar words that can be easily and automatically recognized.

But to attain a high level of skill, young children need opportunities to develop these strands, not in isolation, but interactively. Meaning, not sounds or letters, motivates children's earliest experiences with print. Consequently, it is important to recognize that in practice, children acquire these skills in coordination and interaction with meaningful experiences. Given the tremendous attention that early literacy has received recently and the increasing diversity of the child population in most countries, it is important and timely to take stock of these critical dimensions as well as the strengths and gaps in our ability to measure these skills effectively.

In the following sections, I describe the critical dimensions of early literacy and the implications for high quality practices in the early childhood setting.

The Critical Dimensions of Language and Literacy in Early Childhood

Language. Verbal abilities are consistently the best predictors of later reading achievement (Beck & McKeown, 2007). Skilled readers typically draw upon multiple levels of the language system, with abilities encompassing vocabulary, syntax, and discourse. Vocabulary size in optimal settings may increase exponentially in the early years (some estimate about seven words a day), with children learning to comprehend words spoken to them before they are able to produce them on their own. Word knowledge, however, is not just developed through exposure to increasingly complex language, but to knowledge-building language experiences (Neuman, 2006) that involve children in developing and refining networks of categorically-related concepts.

With opportunity and practice, children's word knowledge is put to use in syntactic structures that grow in length and complexity. Children's sentences often start at two words, but quickly lengthen to four or more words as children communicate their ideas increasingly through language. Snow and colleagues (Snow, Baines et al. 1991)) have shown that conversations that are physically removed from immediate objects or events (i.e., 'what if?') are tied to the development of abstract reasoning, and related to literacy skills like print production and narrative competence.

With word learning occurring so rapidly, children begin to make increasingly fine distinctions of words not only based on their meaning but also based on their sound. They begin to make implicit comparisons between similar sounding words, a phenomenon described by linguists as lexical restructuring (Metsala, 1999). For example, a two-year old child probably knows the words "cat" from "cut;" "hot" from "not." Distinguishing between these similar sounding words both quickly and accurately, children begin to hear sequences of sound that constitute each known word. Children with large vocabularies become attuned to these segments, and acquire new words rapidly; children with smaller vocabularies may be limited to more global distinctions. Consequently, vocabulary size and vocabulary rate are important for lexical restructuring (i.e., making sound distinctions between words), and are strongly tied to the emergence of phonological awareness.

Phonological awareness. Based on a massive body of research (Lonigan, 2006), phonological awareness is a critical precursor, correlate, and predictor of children's reading achievement. Discriminating units of language (i.e., words, segments, phonemes) is strongly linked to successful reading (National Reading Panel Report, 2000). It is, however, as described above, both a cause and a consequence of vocabulary development, and learning to read. Typically developing children begin first to discriminate among units of language (i.e., phonological awareness), then within these units (i.e., phonemic awareness). Phonological awareness refers to the general ability to attend to the sounds of language as distinct from its meaning. Phonemic awareness is the insight that every spoken word can be conceived as units of sounds that are represented by the letter of an alphabet.

Evidence suggests that children achieve syllabic sensitivity earlier than they achieve sensitivity to phonemes, and sensitivity to rhyme before sensitivity to phonemes. Children's

entry to these skills typically begins with linguistic activities such as language games and nursery rhymes that implicitly compare and contrast the sounds of words, and include alliterative phrases (i.e., bibbily bobbily boo begins with /b/). But implicit comparisons, alone, may be insufficient. Phonological awareness and phonemic awareness are meta-linguistic abilities (Adams, 1990). Children must not only be able to recite and play with sound units, they must also develop an understanding that sound units map onto whole or parts of written language.

Letter knowledge: Knowledge of the alphabet letters is a strong predictor of short- and long-term reading success. However, its influence on later reading is not about knowing the letter names, per se. Rather, the learning of letter names mediates the ability to remember the sounds associated with the letters. Once again, there is a reciprocal relationship between skills: Letter knowledge plays an influential role in the development of phonological awareness, and higher levels of letter knowledge are associated with children's abilities to detect and manipulate phonemes. For example, the child who knows the letter 'b' is likely to remember the sound of /b/. Consequently, letter knowledge may reflect a greater underlying knowledge and familiarity with literacy related skills such as language and print.

Research indicates that children differentiate letters according to their visual form, that is, their horizontal, vertical and diagonal segments. Given the complexities of the visually distinct forms of letters (upper case, lower case, printed form), current learning theory suggests that simultaneously teaching two versions of letters with their confusable sounds and labels may be overwhelming to the young child. However, there is no substantial evidence to suggest which particular form (upper or lower case) should be taught first.

Background Knowledge: For children to become skilled readers, they will also need to develop a rich conceptual knowledge base and verbal reasoning abilities to understand messages conveyed through print. Successful reading ultimately consists of knowing a relatively small tool kit of unconscious procedural skills, accompanied by a massive and slowly built-up store of conscious content knowledge. It is the higher-order thinking skills, knowledge, and dispositional capabilities that enable young children to come to understand what they are reading.

Children's earliest experiences become organized or structured into schemas, building blocks of cognition. Schemas provide children with the conceptual apparatus for making sense of the world around them by classifying incoming bits of information into similar groupings. Stein and Glenn (1979), for example, provided a compelling case for schemas and their usefulness for recalling information about stories. Well-read to children internalize a form of story grammar, a set of expectations of how stories are told which enhances their understanding. Knowledge becomes easier to access (Neuman, 2001), producing more knowledge networks. And those with a rich knowledge base find it easier to learn and remember.

Quality indicators of a rich content base for instruction in early childhood programs include a content-rich curriculum in which children have opportunities for sustained and

indepth learning including play; different levels of guidance to meet the needs of individual children; a masterful orchestration of activity that supports content learning and social-emotional development; and time, materials and resources that actively build verbal reasoning skills and conceptual knowledge.

Print conventions. Recognizing that concepts about print in the English language are not intuitive, Marie Clay (1979), in her pioneering work with Maori children in New Zealand, identified a set of conventions that could be understood without being able to read. These conventions included, among others, the directionality of print in a book (left-to-right, top-to-bottom, front-to-back), differences between pictures and print, uses of punctuation, and definitional characteristics of a letter and a word. Knowing these conventions, she found, helped in the process of learning to read.

With the exception of a study by Tunmer and colleagues (Tunmer, Herriman et al., 1988) demonstrating the relationship of these skills to later reading success, however, there is little evidence to suggest the predictive power of these skills on later achievement. Rather, print conventions act as an immediate indicator of children's familiarity with text, and are not integrally related to the other language based skills associated with reading success. Therefore, while such conventions might be helpful to young children in navigating through books, these skills may not in the long run play a powerful role in learning to read.

In sum, research supports a particularly strong linkage between oral language, phonological awareness, letter knowledge, background knowledge, and to a much lesser extent, print conventions, in the preschool years. These skills are highly interdependent. Phonological awareness appears to influence vocabulary development and vocabulary rate. Letter knowledge supports phonological awareness. Code-related skills are highly predictive of children's initial early reading success while oral language skills and background knowledge become highly predictive of comprehension abilities and later reading achievement. Each of these skills, when integrated in meaningful activity, has an important role to play in children's literacy development.

Features of the Classroom Environment that Support Literacy Development

The environment can play a major role in promoting these critical skills for literacy development. The organization, structure, and complexity of the early childhood setting influence patterns of activity and engagement. For example, a fairly sizable number of studies have revealed the powerful influence of access to literacy tools on young children's involvement in literacy activities. This research indicates that in settings carefully constructed to include a wide access of literacy tools, books, and play materials, children read more, and engage more in literacy-related play themes with resulting effects on literacy improvement.

The physical placement of objects influences children's engagement in literacy-related activity. Children become more involved in sustained literacy play when objects are clustered together to create a schema or meaning network. For example, in one study (Neuman &

Roskos, 1993), placing props associated with mailing letters together in a play setting (envelopes, writing instruments, stamps and stationary) led to longer play episodes than when these props were scattered throughout the room. Further, props that were authentic, familiar and useful to common literacy contexts, like telephones in the kitchen area, or mailboxes in the office area, encouraged more complex language interactions and routines.

The proximity of quality books at children's eye view supports involvement in literacy-like enactments (Neuman, 1999). In one of our first intervention studies of its type, we examined the influence of creating library corners in early childhood settings. These library corners were specially constructed to include the following elements: (a) a clear location with well-defined borders; (b) comfortable seating and cozy spots for privacy; (c) accessible, organized materials; and (d) related activities that extended whole- and small-group book activities. We found that the frequency of use rose significantly when library corners were made more visibly accessible and attractive. Library settings were created to "put books in children's hands" engaged children in spending significantly more time with books when they were placed in close proximity to children's play activities.

Consequently, there is clear and abundant evidence that certain physical design features in environments support young children's literacy engagement and subsequent achievement. Physical design features, uses of space, and resources, may help to focus and sustain children's literacy activity, providing greater opportunity to engage in language and literacy behaviors. This research indicates, therefore, that a more deliberate approach to the selection and arrangement of materials according to specific design criteria may enhance children's uses of literacy objects and related print resources.

Interactional Supports for Literacy Learning

Environments include not only physical settings, but psychological settings for literacy learning as well. Children are influenced by the participants present in a setting, their background experiences, their values and it is the integration of place, people, and occasion that support opportunities for learning. These individuals act as social and psychological resources that provide information and feedback through demonstrations and interactions.

A great corpus of research (Neuman & Dickinson, 2011) identifies the types of supports that promote children's language and literacy development. Essentially, they highlight both instructional and relational components. Since language represents the foundational basis for literacy learning in the early years, there is evidence that the amount of verbal input in settings enhances children's language development (Hart & Risley, 1999). Children whose teachers engage them in rich dialogues have higher scores on tests of both verbal and general ability. This is especially the case when discussions consist of teachers encouraging, questioning, predicting and guiding children's exploration and problem-solving. Such verbal interactions contribute to children's vocabulary growth which, in turn, is strongly correlated with phonological awareness, comprehension, and subsequent reading achievement.

Teachers also engage in activities that are highly supportive of literacy development. Reading stories to children on a regular basis is regarded as one of the more potent supports for literacy learning. Studies have shown that a teacher's style or approach to reading storybooks to children has both short-term and long-term effects on language and literacy development. Shared book reading activities, such as dialogic reading (Whitehurst, Arnold et al., 1994), for example, and repeated readings have been widely studied and identified as an important source of knowledge about vocabulary, about letters, and about the characteristics of written language. Recent studies also highlight the importance of introducing children to a wide variety of books in different genres such as information books, poetry, and popular folk tales.

This research highlights the central role of the caregiver who evokes children's interest and engagement in literacy learning. Children build a mental representation of their interactions with caregivers that influence their expectations and responses to activities. When children feel secure, they engage in learning; when insecure in situations, they may use digressive tactics to avoid activity. For securely attached children, book reading was ultimately an enjoyable task, tied to learning improvement; for insecurely attached children, it was negative, with caregivers often using verbal and nonverbal cues to discipline behavior.

In brief, the physical and psychological environments play vital roles in children's learning about literacy. These supports mediate opportunities for literacy engagement and practice, and will likely influence children's attitudes and efforts to engage in literacy activities despite difficulties they may encounter as they learning to read proficiently.

Conclusion

Explaining and understanding early literacy development is critical if we are to improve children's opportunities for success (Neuman & Celano, 2012). The following features highlight what we can do to make a difference in children's early education:

- A supportive learning environment in which children have access to a wide variety of reading and writing resources.

- Developmentally appropriate curriculum that actively engages children's minds and builds language and conceptual development. A high quality curriculum serves as an important scaffold for teachers and encourages careful planning and activities that build knowledge, skills, and dispositions.

- Teacher engagement in children's learning through conversations, discussions, and contingent responses to children's questions and queries.

- A daily interactive book reading routine that introduces children to multiple genre, including information books, narrative, poetry, and alphabet books.

- Activities that support small group and one-to-one instruction and differing levels of guidance to meet the needs of individual children.

- A masterful orchestration of activities that supports play, learning and social-emotional development.

- Adjustments and accommodations for English Language Learners that allow them to successfully engage in learning activities in the classroom.

- Ongoing assessment that is designed to monitor children's program, and tailored to children's needs.

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