The Play-Literacy Nexus and the Importance of Evidence-Based Techniques in the Classroom

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A growing body of research has focused on the role of play in young children's literacy development and early-literacy learning. In reviewing this research, the authors define the play-literacy nexus as that space where play, language, and emerging literacy behaviors converge and interact. They describe findings about the play-literacy nexus (which they call knowledge *of* the nexus) and what these findings mean for children, their parents, and their teachers in literacy development and early-literacy learning (which they dub knowledge *in* the nexus). They define play and literacy in terms of this current knowledge; they review the major theoretical frameworks that give rise to play-literacy hypotheses and relationships; and they discuss topics that connect play and literacy, including literacy-enriched play environments, play's role in narrative development, and how play supports cognitive-linguistic abilities and skills that help children learn to read. They argue that knowledge of the play-literacy nexus, i.e. research, should determine the nature of the knowledge used in the play-literacy nexus within the larger context of early-childhood education, and they illustrate their argument with several evidence-based techniques for classroom practice, including literacy-enriched play environment design, topic- and theme-related dramatic play, and play planning. **Key words:** early-childhood education; early literacy; literacy-enriched play environments; play-literacy nexus; play planning; theme-related dramatic play

Brian Sutton-Smith (1995), the eminent play theorist, has called play a "medium for propaganda for one propaedeutic sort or another" (283), implying that "children learn something useful from their play" (279). Although early-childhood theorists (Piaget 1962; Vygotsky 1976) and researchers (Pellegrini 2011; Smith 2010) have not established scientifically that children learn useful things from play, proving such has become the scholarly quest of many. Much of their education-oriented scholarship has examined how play provides opportunities for children to become literate and learn about mathematics, science, and the world in general.

Indeed, the majority of this research has focused specifically on the role of play in young children's literacy development and early-literacy learning. The key question for such studies asks: Does early-childhood play under certain conditions contribute something useful to the process of learning to read? Researchers have pursued the answer for some time now, and in this article we describe what they have discovered about the play-literacy nexus (which we call knowledge *of* the nexus) and its meaning for children, their parents, and their teachers (which we call knowledge *in* the nexus).

Coming to Terms

The concepts of play and early literacy have proved difficult to define. Consider play—the broader of the two. Although an object of study for over a century (Bateson 2011; Gordon 2009), play—what it is and what it is not—continues to vex scholars, researchers, and teachers. Recently, Burghardt (2011) made progress in this regard, identifying a set of five criteria that characterizes play behavior across species and contexts (see figure 1.) Burghardt has stipulated that a "one-element rule" be applied to these criteria: "NO single criterion, even if satisfied, is alone sufficient to label a behavior as play; ALL FIVE must be met in at least one respect" (13).

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1. The behavior is not fully functional in the form or context in which it is expressed.

2. The behavior is spontaneous, voluntary, intentional, pleasurable, rewarding, reinforcing, or autotelic ("done for its own sake").

3. The behavior is incomplete, exaggerated, awkward, precocious, or involves behavior with patterns with modified form, sequencing, or targeting.

4. The behavior is performed repeatedly in a similar, but not rigidly stereotyped form.

5. The behavior is initiated when an animal (or person) is adequately fed, clothed, healthy, and not under stress.

Adapted from Burghardt 2011, 13–16.

Figure 1. Burghardt's criteria for recognizing play

Considering these criteria, when kindergarteners, for example, "play school," we would define the activity as play because it is voluntary, loosely structured, repetitive, relaxed, and not fully functional. Thus, this in-school play meets the criteria for play. But when the children engage in a phonological-awareness game during Circle Time, we would not define this activity as play. While meeting some elements of play criteria (e.g., intentionality and repetition), the activity is not play because it is completely functional in the context (learning to hear sounds in words), tightly structured and sequenced, and may be stressful for some children. Even though the teacher might say "We are playing a game," the children may not be playing at all. Hence, these five criteria and the one-element rule show promise as a more rigorous framework for identifying play behavior in play-literacy research—which at present seriously lacks conceptual clarity.

Early literacy as a concept in overall literacy development and education has also taken root and expanded, albeit over a shorter period of time. Like play, literacy has multiple definitions, ranging from the ability to create meaning through different media (e.g., visual literacy) to knowledge of key concepts and ideas (e.g., cultural literacy). Because our educational work has focused on early-childhood language arts—the part of the preschool curriculum that deals with helping children learn to speak, listen, read, and write—we have relied on a school-based definition of literacy, which involves creating meaning through text via reading and writing. In this school-based context, early literacy refers to the skills and knowledge that children acquire during the preschool years that set the stage for learning to read and to write in the elementary grades and beyond.

Early literacy has attracted lots of attention in the past decade: hundreds of millions of federal dollars has funded basic research on literacy development and applied research on early interventions, such as the Early Reading First program (2001). This attention was generated by the movement to prevent reading difficulties and by the standards movement. The first gave rise to a new perspective on reading instruction anchored in a body of "scientifically based reading research" (SBRR) (Christie 2008; Snow, Burns, and Griffin 1998). The second led to a persistent press for accountability—currently manifested in the rise of state-level early-childhood academic standards, the development of standardized assessments of academic achievement at the preschool level, and a heavy emphasis on school readiness (Christie and Roskos 2006; Roskos and Vukelich 2006). The combination of SBRR and standards formed current conceptions of "excellent instruction" in early literacy. The National Early Literacy Panel (2008) produced an extensive synthesis of the scientific research on early

1. The strong to moderate predictors of success in reading and writing are alphabet knowledge, phonological awareness, rapid automatic naming of letters and numbers, ability to write one's own name, and phonological memory.

2. Other potentially important variables include concepts about print, print knowledge, oral language, and visual processing.

3. Code-focused interventions designed to teach children letter-sound relationships reported large effects across a broad spectrum of early literacy outcomes.

4. Shared reading intervention that involve reading books to children and encourage adult-child interactions connected with the material being read yielded gains in print knowledge and oral language.

5. Home programs that teach parents instructional techniques to use with their children produced gains in children's oral language skills and cognitive abilities.

6. Age, socioeconomic status, and race did not appear to alter the effectiveness of various interventions.

7. Intervention that produced the largest effects usually were conducted one-on-one or in small group settings, were teacher directed, and help children learn skills by engaging in those skills.

National Early Literacy Panel. (2008). *Developing Early Literacy: Report of the National Early Literacy Panel*

Figure 2. Findings of the National Early Literacy Panel

literacy, which identified the skills and concepts young children need to learn to succeed as readers and writers and the instructional practices that enhance early-literacy learning (see figure 2).

As this brief discussion indicates, while we recognize the complexities of play and early literacy, we hope that we are coming to better terms with them in early-childhood education. That is, we look to new scholarly thought and research to produce more functional and conceptually clear definitions to guide our field.

The Nexus

Figure 3 illustrates the play-literacy nexus that is the object of interest and study in both play-literacy research and early-literacy education. The nexus is that core space where play, language, and early literacy converge and interact. This
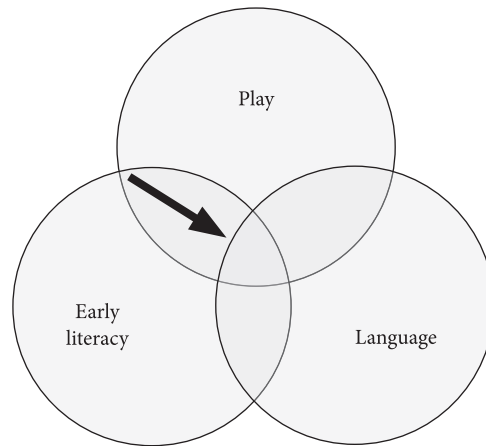
Figure 3. The play-literacy nexus

dynamic is what we seek to observe, explain, and interpret to understand better the role of play in early-literacy development and early-literacy learning, especially in the classroom. Before discussing knowledge of and knowledge in the play-literacy nexus, it is important to highlight the major theoretical frameworks that lead to play-literacy hypotheses and relationships.

Theoretical Views of the Nexus

Theories about play attempt to explain the motivations for the different types of play that function in human development, ranging from pure enjoyment (as when children become absorbed in imaginary play) to biological necessity (as when children's play includes potentially useful behaviors such as coping with aggression) (Bateson 2011). For the most part, the classic developmental theories of Piaget (1962,1976) have guided investigations of the role of play in early-literacy development and learning since Charles Wolfgang's pioneering study of the relationship between reading and children's play almost forty years ago (Wolfgang 1974). These theorists emphasized the significance of pretend play (symbolic play) in the development of children's thinking, viewing this form of play as a means of representing experience *in the mind.* Pretending involves substituting—what Garvey (1974) referred to as transforming the *you* and *me* (person), *here* and *now* (place), and *this* and *that* (thing)—through gesture,

movement, and language. By the end of the preschool developmental period (age five), a child grows increasingly adept at pretending (alone and with others) and enjoys this form of play immensely (Kavanaugh and Engel 1997). The simultaneous occurrence of pretend play, the language "spurt" (Bloom 2002), narrative development (Nicolopoulou 1997), and emerging literacy awareness (Ferreiro and Teberosky 1985) in the preschool period dominate the play-literacy nexus. The theoretical lenses of both Piaget and Vygotsky shed light on the implications for learning to read and—later on—to write.

Play as practice. Piaget (1963) stipulated that learning and development require a balance between two complementary processes: *assimilation*, in which the child incorporates new information into existing cognitive structures (often "bending" reality in the process); and *accommodation*, in which the child modifies existing cognitive structures to match, imitate, or otherwise conform with the reality of the physical world. Piaget (1962) viewed play as an imbalanced state in which assimilation (inner reality) trumps accommodation (external reality). Thus, Piaget theorized that play affords an opportunity to reinterpret experience and to practice emerging skills; it does not, however, induce new skill combinations that advance abilities (Case 1991; Fischer and Immordino-Yang 2002). For example, when children engage in pretend play, they use a variety of make-believe transformations in which objects, actions, and words stand for other objects, actions, and situations. Piagetian theory stipulated that these playful transformations enable children to practice using and interpreting symbols, developing mental resources that will later come in handy in dealing with the second-order symbolism of written language. Similarly, when children plan and act out stories during dramatic play, they have an opportunity to consolidate their growing knowledge about narrative story structure, building a foundation for comprehending and writing stories.

Play as ZPD. Vygotsky argued that "play contains all developmental tendencies in a condensed form" (1976, 552) and functions as a leading activity in early childhood that pulls forward the child's motor, mental, and emotional abilities to higher levels of performance. Pretend play stimulates meaning-driven thinking (cued by ideas) that overrides object-driven thinking (cued by the immediate environment) to stimulate change in how thought is organized. From a Vygotskian perspective, pretend play (alone or with others) is a mechanism of cognitive change at a specific phase in early development (approximately ages

three to five). This idea has profound and deep implications for early literacy because it suggests that at a particular point in early childhood, particular play behaviors matter for the development of representational abilities that intersect with conventional literacy skills. Language is key.

Vygotsky distinguished between two levels of development—"actual development" (independent performance) and "potential development" (assisted performance). He calls the distance between the two the *zone of proximal development* (ZPD). Temporary assistance (scaffolding) from an adult or more competent peer enables the child to engage in activities that he could not do alone, extending the child's knowledge and skills to higher levels. However, Vygotsky viewed play as a "self-help" tool. When children engage in play, they can create their own scaffold or self-assistance. For example, pretend play triggers change in representational abilities by separating thought from action via gesture and language. It does so by demanding a new mental structure where thought takes precedence over action. This creates a ZPD where the child learns that a word can stand for a thing, which builds a rudimentary understanding of word meaning and precipitates the use of words (language) to represent and express experience.

New theoretical lenses. Both the theories of Piaget and Vygotsky offered strong frameworks for investigating the play-literacy nexus—no small task given the complex layers of pretend play, language growth, and emerging literacy behaviors. The potential relationships are many, varied, and dense whether studied from a play-as-practice or play-as-ZPD perspective. Still, these classic theories do not address the influences of sociocultural variation on the development and consequences of symbolic play in early childhood. These theories have difficulty explaining the influences of culture-specific views on the educational benefits of play at school, benefits that promote or limit the use of play in the curriculum (Goncu and Gaskins 2011). Neither do these theories consider certain ecological issues (Fagen 2011) such as the impact of ecological resources (e.g., opportunity for play) and potential bidirectional interactions between children and the environment (e.g., how an individual child's play predispositions interact with classroom play opportunities). Grounded in developmental-systems theory (Thelen and Smith 1995), scholars with bold, new ecological perspectives have begun to study the formative role of rhythm (music and movement) in the origins, functions, and implications of play in early-childhood development such as infant-mother play (Malloch and Trevarthen 2009).

Elsewhere, we have recommended a wider use of connectionism and dynamic-systems theories, which build on the shoulders of Piagetian and Vygotskian theoretical frameworks, to provide a better view of literacy at work in play and vice versa (Roskos and Christie 2011). Dynamic-systems approaches to play-literacy relationships invite researchers to explore mutually reinforcing behaviors and skills, such as pretending and narrating, that combine to create "webs of developing skills and activities" and pull cognitive development forward to new levels (Fischer and Immordino-Yang 2002, 13). From this vantage point, one can study play-literacy connections through a multiple-skills lens, theorizing how play and literacy skills develop simultaneously and interact to form longer developmental trajectories of language and literacy learning. Changing to this new lens may illuminate precursor skills (e.g., pretend awareness) that are indeed causal links in emergent literacy and also result in the development of tools, such as dynamic assessment, which enable teachers to increase the educational benefits of play-literacy connections.

Knowledge of the Nexus

The scientific pursuit of play-literacy relationships intensified toward the end of the twentieth century. In recent years, it has provided foundational knowledge of the play-literacy nexus. It has shown the benefits of play and its implication in developing narrative skills.

LITERACY ENRICHED PLAY ENVIRONMENTS INCREASE LITERACY BEHAVIORS. One of the more robust findings in play-literacy research suggests that a literacy-enriched play environment promotes literacy behaviors. (Roskos and Christie 2001; Morrow and Schickedanz 2006): Stocking the environment with literacy materials and tools stimulates literacy interactions in the course of play (Morrow 1990; Neuman and Roskos 1997); Adult involvement and intervention infuse literacy concepts and skills into play activity (Roskos and Neuman 1993; Vukelich 1994); And children share literacy knowledge and processes with one another in their play episodes (Kantor, Miller, and Fernie 1992; Neuman and Roskos 1991b). Many of these studies show the large impact that enriched play settings have on literacy versus nonenriched play settings, reporting the benefits of literacy-enriched play for children's literacy exposure, knowledge (e.g., print awareness), and range of experience (e.g., functional print), especially in the preschool years (Roskos et al. 2010). This research demonstrates an argument ecological psychologists have long made: the environment informs and shapes behavior (Gump 1989).

Together, the research provides a strong rationale for including literacy knowledge in the form of concepts, objects, and processes in the play environment (Roskos and Christie 2007). Opportunities for children to encounter and use literacy knowledge appear most beneficial during ages three to five years—the developmental period during which children engage primarily in indoor play alone or with peers, in various types of pretend. Several key features of a literacy-enriched play environment have been identified: (1) well-defined dramatic-play settings set off from the rest of the classroom by dividers such as storage shelves, furniture, or chart stands. (Neuman and Roskos 2007); (2) literacy objects, both generic (pencils, markers, paper, and notepads) and theme related (menus, wall signs, employee nametags, and cookbooks in a restaurant-themed setting); (3) adequate time (at least thirty minutes) for well-planned, sustained play episodes (Christie, Johnsen, and Peckover 1988); (4) access to social support from teachers (Roskos and Neuman 1993) and peers (Neuman and Roskos 1991b); and (5)connections between play themes and the rest of the academic curriculum (Roskos and Christie 2007).

Certainly, we have made progress in understanding the role of the preschool play environment in supporting literacy. Literacy-rich play environments nurture the knowledge that children need to learn to read and write, though the specifics remain scientifically unclear (Roskos and Christie 2001). Also, more resources allocated to literacy in play may mean less for other play functions that encourage variation and thus develop the combinatorial behaviors of children, their flexibility with materials and ideas, and their fluency with rules and conventions (Bruner 1972). We know little about what we ignore when we give literacy more attention in the play environment or about the broader aspects of environmental design that balance literacy with other learning opportunities, media, and materials, or about the impact a literacy-rich environment has on play itself. Does the literacy-enriched play environment, for example, increase the complexity of play? Does it contribute to the development of mature play behaviors—language, persistence, sustained attention, and collaboration—that are foundational skills in self-regulation (Diamond et al. 2008)? Until we have the research to answer such questions, we think it important to strike a balance between literacy and other kinds of knowledge domains in designing the play environment for learning.

PRETEND PLAY IS IMPLICATED IN THE DEVELOPMENT OF NARRATIVE COMPETENCE. Another strong finding of play-literacy research concerns the

connection between pretend play—also called symbolic play or fantasy play—and narrative competence, a relationship manifest by story production and comprehension. The grand hypothesis prompting such research proposes that the narrative schemas used in pretend play relate to future reading comprehension. It is an intuitively appealing idea, but one exceedingly difficult to prove. For thirty years, research seeking evidence for the hypothesis has taken two major paths, each producing promising results that increase our knowledge of the play-literacy nexus.

NARRATIVE ELEMENTS AND STRUCTURE. Considerable observational research shows that children in their social pretend play (sociodramatic play) practice role-appropriate behavior and language consistent with a particular story line or genre (Cook-Gumperz and Corsaro 1977; Garvey 1979; Scarlett and Wolf 1979). As a result, they develop knowledge about the motives and feelings of characters, and they become alert to prototypical roles found in storybooks. In her dissertation, Roskos (1987) provides the following example of three preschoolers enacting the roles of mother and daughters and demonstrating a good grasp of the concept of "grounding" as a form of parental discipline!

C1:	Mom, are you still mad at me?
C2:	Shhhh…the baby's sleeping. Now, be quiet!
C1 to C3:	We're gonna be grounded.
C1 to C2:	Mom, are we grounded now?
C2:	No! But you're gonna be. Now sit down and eat, I'm makin supper.
	(C1 and C3 sneak away and try to hide by a chair.)
C2:	Get out from under there! C'mon.
C2 to C1:	Now you stay. And you're gonna be grounded.
C1:	But what about her (C3)?
C2:	She ate the supper! You didn't. Now sit down!

Pretend play not only recruits and exercises knowledge of narrative character elements but also of narrative structures that arise and resolve, such as formulating, organizing, and sustaining a story problem and plot episodes. Several researchers have demonstrated the parallels between pretend-play narratives and oral narratives suggesting that competence in pretend play transfers to more generalized use, such as storytelling, reading, and writing (Eckler and

Weininger 1989; Ilgaz and Aksu-Koc 2005). In brief, the correlation revealed by this research suggests that the latent structural qualities of pretend-play narrative later actualize in oral narrative, reading, and writing. In other words, pretend-play stories provide a playful frame for exploring and practicing narrative elements—setting, problem, plot, and resolution—that children can later apply to stories in other contexts, such as oral storytelling and reading and writing stories. Margaret Meek (1982) says it much better in her wonderful book *Learning to Read*. "Successful early readers," she writes, "discover that the [written] story happens like play. They enjoy the story and feel quite safe, even with giants and witches, because they know that a story, like the house play under the table, is a game with rules" (37).

THEMATIC FANTASY PARADIGM. In thematic-fantasy play (TFP), originally developed by Saltz and Johnson (1974), children act out familiar fairy tales such as "The Three Pigs" and "Three Billy Goats Gruff." Any fairy tale or story with a simple, repetitive plot and a small number of characters works for this kind of training. The teacher reads the story, assigns roles to the children, and—through prompting—helps them enact the story. The teacher acts as narrator, at times takes a role in the dramatization, and models how to act out the roles. TFP may contribute to conceptual knowledge in several ways. Saltz, Dixon, and Johnson (1977) found that TFP helped preschool children connect separate events into logical sequences. In addition, TFP training improves story comprehension (Pellegrini 1984; Saltz and Johnson 1974; Silvern, et al. 1986). TFP results in gains in both *specific* story comprehension (understanding the reenacted story) and *generalized* story comprehension (understanding other stories), a finding that implies that TFP enhances children's knowledge of narrative story structure (Christie 1987).

PLAY ACTIVITY SUPPORTS COGNITIVE-LINGUISTIC ABILITIES AND SKILLS THAT PREPARE CHILDREN FOR LEARNING TO READ. Play-literacy research includes a third set of findings connecting play to the cognitive-linguistic bedrocks of learning to read and write, namely phonological awareness, orthographic knowledge, and oral-language abilities. Studies linking play and language skills are the more prolific, and they highlight the benefits of play activity for vocabulary growth, syntactic complexity, the generation of cohesive texts, and metalanguage (Galda, Pellegrini, and Cox 1989; Pellegrini 1984; Williamson and Silvern 1988). They support the tantalizing notion that there

may be a similarity between the language structures used in play and literate uses of language required in school. If proven, this connection would certainly advance the case for including play in the early-literacy curriculum since a subset of oral-language skills, namely grammar, definitional vocabulary, and listening comprehension, appears predictive of conventional literacy achievement (NELP 2008). The research related to the play-literacy nexus, however, is spotty, limited to one or two studies on key variables (e.g., vocabulary) with few meta-analytic efforts (Roskos and Christie 2010).

Studies of the effects of play on specific early-literacy skills, such as phonological awareness or alphabet-letter knowledge, are few and far between. Bergen and Mauer (2000) investigated the relationship between symbolic play and phonological awareness, but definitional and procedural difficulties prevented them from drawing any firm conclusions. Several literacy-enriched play-setting investigations included pre- and postintervention measures of literacy skills, with mixed results. For example, Neuman and Roskos (1991a) found that adding literacy materials to play centers resulted in a significant gain in preschoolers' scores on Marie Clay's Concepts About Print (CAP) test, whereas Vukelich (1991) failed to find connections between the two variables. In a subsequent study, however, Vukelich (1993) reported that enriched play settings led to gains in knowledge about the functions of writing using a different measure for print concepts. Perhaps the strongest evidence of a play-literacy skill connection relates to print recognition. Both Neuman and Roskos (1993) and Vukelich (1994) found that playing in literacy-enriched settings with supportive adults improved children's abilities to read environmental print located in those settings. For example, if a store or restaurant play setting had an OPEN/CLOSED sign, many children learned to recognize these printed words. Such positive links between play and literacy skills, however, are sparse, and there is almost a total lack of replication of the findings, making this an area in dire need of more research.

Knowledge in the Nexus

Knowledge of the play-literacy nexus, or knowledge based on the research, helps us determine the nature of knowledge that we should use in the play-literacy nexus within the larger context of early-childhood education. What kinds of early-literacy experiences should be included in play at school? What key literacy concepts and skills should be embedded in play activity? What kinds of literacy learning activities should play include? How do we judge the value of literacy in play for improving children's early-literacy knowledge and their play quality?

These are curricular questions that test the practical implications of the research we have—and the research we still need to conduct.

Play and the early-literacy curriculum, however, are not often seen as the best of playmates because we have a different level of expectations for early literacy from the one we have for early-childhood play. Increasingly, early literacy is defined by scientifically based developmental milestones and expectations, codified in academic-content standards, and used by states and agencies as the foundations of early-literacy curriculum (Vukelich and Christie 2009). The new Head Start Framework (2011), for example, includes five literacy-skill domains: book appreciation and knowledge; phonological awareness; alphabet knowledge; print concepts and conventions; and early writing. Three- and four-year-olds, once exempt from literacy expectations, face a new world of expected prereading achievement (and potential gaps). The pressure for teaching and learning prereading and writing skills will only increase, especially as early-literacy assessment takes hold in a comprehensive literacy-education model, from birth through high school (SRCL 2011).

We hold play, on the other hand, to fairly loose expectations in early childhood, expectations clustered around broad developmental periods, such as sensorimotor play in infancy and a combination of constructive play and pretend play during the pre-K years (Johnson, Christie, and Wardle 2007). As a result, play has become increasingly marginalized from the early-childhood curriculum and faces an uncertain future in times of fiscal constraints and outcomes accountability. As Zigler and Bishop-Josef (2004) observe, many preschools have seriously reduced if not eliminated play from daily schedules. Moreover, play assumes no serious role in the design of early-literacy curriculum (Christie and Roskos 2007). This is unfortunate not only in light of the research concerning the play-literacy nexus, but also given what we know about the role of play in human development more generally. Learning without play—as every boy and girl knows—can be very dull indeed. On the other hand, curricular structures that support what we might term *play-contingent early-literacy learning*—where literacy activity depends on play activity—are starting to take shape in preschool literacy instruction.

Let us look at a few promising examples for promoting early-literacy skills while honoring the playful spirit in early childhood.

Literacy-enriched play-environment design. In addition to ensuring a print-rich environment that contains ample books, multimedia, writ-

ing tools, paper, signage, and labels in play areas, an evidence-based design of a literacy-enriched play environment is guided by several fundamental principles. To start, storage, display, and maintenance should be intentional, attractive, and replete with texts, words, and the visual arts in ways that organize and inform experience. This, in brief, some call the *infrastructure* principle, which focuses on the basic arrangement and organization of physical space into activity settings for learning.

Another element of such design involves play areas—including those outdoors—that afford opportunities for drawing, writing, decoding, and reading. In these areas, materials and writing tools lay at hand to encourage diverse, everyday literacy experiences. Coined the *authenticity* principle, it encourages the design of play settings that support meaningful literacy-related discovery and problem solving for children—tapping and extending their background knowledge, language, and early-literacy skills. Hall and Robinson (1995) report a stellar example in their garage case study that recounts the literacy-filled sociodramatic play of a group of four- and five-year-olds.

A third element—the *complexity* principle—calls for the enriched play environment to include varied and complex material resources that engage children in symbolic representation, literacy, and the visual arts. A variety of activities— drawing, decoding, reading, and writing—extend communication and expression. More complex materials with multiple parts, multiple modes (visual, auditory, and tactile), and multiple uses make the materials more compelling—they hold children's attention and challenge their thinking.

One way to assess these principles in the play environment involves a look at the space from the children's perspective. These spaces should include comfortable places for them to talk with friends and adults. They should contain a setting in which the children can read and write their names regularly and comfortably. Other settings should encourage the trying out of new roles, new media, and new ideas in dramatic play. The environment also needs to urge children to explore reading and writing with all their senses and to express their playful selves in this place.

Topic- or theme-based dramatic play. Though not a new strategy, theme-based dramatic play needs reinvigoration, renewal, and refreshment. When child specialists first introduced the literacy-enriched play-setting strategy several decades ago, they emphasized creating spaces with strong connections to common, everyday activities involving literacy—grocery stores, restaurants,

travel agencies, and similar settings. While these environments encouraged children to incorporate reading and writing into their play, they—perhaps inadvertently—created play that "stood alone," or remained isolated from the rest of the curriculum. As a result, the programs lost valuable opportunities for play to boost not only literacy skills, but also to promote acquisition of academic concepts as well.

Roskos and Christie (2007) have proposed that a considerable amount, but not all, classroom play should be networked with instructional goals related to academic content. Play, in and of itself, represents a network of interactions characterized by nonliterality, intrinsic motivation, self-initiation, and valuation of means over ends. But this highly motivating network must be joined with other activities in the preschool classroom in clear and consistent ways to support the progressive learning of difficult ideas. In large and small groups, children can be taught new concepts, but it is in play that they put such concepts to practical use (from the child's point of view), and thus practice the transfer of new ideas to real situations.

A network approach to curriculum implementation intersects academic content (e.g., early literacy, math, and science) with play settings. Play's networking role means that some play settings and play objects serve as deliberate extensions of key concepts and skills taught during Circle Time and small-group activities (e.g., the teacher relates play props to the stories he reads to children). Play's networking role also requires teachers to actively support and guide play toward instructional goals (e.g., teacher purposefully uses new vocabulary words when interacting with children during play).

Faced with new challenges for more complex early learning, the early-childhood curriculum can neither afford to privilege play nor to exclude it, because the demand for learning educational concepts and skills is so high. It will take all the activity settings in the early-childhood classroom working together to provide sufficient opportunity for learning the content necessary for entering school.

Play planning. Play planning is a recent evidence-based technique in early-literacy instructional practice. Initially, the concept seems a contradiction in terms. Play is spontaneous and improvised whereas planning involves forethought and followthrough. Yet theory and research alike suggest that merging children's planning, play, and early-literacy skills improves both their play and literacy abilities (Bodrova and Leong 2007). At the heart of the tech-

nique lies a literary-related process of assisted or scaffolded writing during which children draw and write a highly structured play plan. At first, children choose, say, and draw a picture of their plan, writing only their name on the play-planning form (usually a half-sheet of paper). Then children advance to writing a play plan, making a line for each word and spelling each word on the line (e.g., I am going to make a castle.). Nearly daily practice in writing a play plan supports a child's developmental writing, as he or she progresses from making marks to making words and from producing prealphabetic to alphabetic word spellings. Moreover, the intention of the play planning and resulting play appears to exercise mature play behaviors that are foundational in executive functioning, namely inhibitory control, working memory, and cognitive flexibility (Diamond et al. 2008).

STORY DRAMA. Research conducted in the 1970s and 1980s indicated that reenacting stories supports the narrative competence and the listening comprehension a young child needs for reading comprehension (Christie 1987). However, the stories used in this early research tended to be restricted to traditional folk tales. Story reenactment should become a regular extension of shared book lessons and read alouds. Just about any narrative story appropriate for preschool- and kindergarten-aged children can be acted out. Several current early-literacy programs have story-character cutouts that can be used to make stick puppets to assist children in reenacting the narrative stories used in shared reading. Of course, teachers and children can make their own representations of key story characters, and these may be even more effective than commercially prepared ones.

Story drama can also be used in Tier 2 literacy interventions aimed at helping young children who are not making adequate progress in the regular literacy curriculum. With our colleague Karen Burstein, we have developed Say, Tell, Do, Play (STDP), a literature-based vocabulary intervention for at-risk preschoolers (Roskos, in press). The procedure begins with a short, interesting children's book that contains several salient new vocabulary words. In a small-group setting, the teacher introduces from three to five of these vocabulary words and asks the children to say the word, tell (talk about) its definition, and engage a word-related action. The teacher then reads the book and, in the process, highlights the new vocabulary. Finally, the children play a game reenacting key events in the story. The reenactment activity cements the children's comprehension of the story and reinforces their knowledge of the new vocabulary words.

DYNAMIC ASSESSMENTS. Traditional play-observation systems are static, measuring what is occurring at the moment regardless of context. Dynamic-systems theory asks teachers to use more sophisticated assessments that take social contexts into account and measure a range of behavior, from functional (what a child can do on her own) to optimal-level performance (the best a child can do with effective support). For example, Roskos and Christie (2010) describe an assessment tool that layers literacy-enriched play environments with social supports and observations of children at play in them to document the kinds of "assists" an individual child uses to accomplish literacy-related tasks during play. Such an instrument might reveal that some children engage independently in play-related literacy activity, whereas others require varying levels of support (coaching, prompting, or modeling) to interact effectively with print during play. This would allow a teacher to focus her support on the children who need it most.

Conclusion

In science and research, twenty years is not a long time to pursue play-literacy relationships. But it is a respectable length of time to focus on a small sphere of play that we refer to as the play-literacy nexus. Research shows the potential of some kinds of play for some early-literacy skills. In light of the recent surge of interest in early literacy as a foundation for school readiness and academic achievement, play attracts renewed attention for the "propaedeutic purpose" it may properly serve. In early literacy, as with all early-learning domains, we need to be cautious, however, of the play ethos that considers "everything play" as good. This is unlikely, and only information that—based on strong evidence—appears significant and beneficial should inform and guide new pedagogies that connect play and literacy in early-childhood education.

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