The Contribution of Play Experiences in Early Literacy: Expanding the Science of Reading

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ABSTRACT

Children's experiences in preschool and kindergarten influence their future literacy learning. Although emergent literacy has traditionally been supported by play-based experiences, there has been a decline in play opportunities in recent years. Media publications citing the science of reading have called for more focus on systematic, direct instruction of skills in phonics and phonemic awareness. However, from the perspective of the simple view of reading, the process of learning to read involves developing both decoding and linguistic comprehension skills. In this article, we review the research that has linked play experiences to three areas: (1) the development of language skills necessary for linguistic comprehension, including vocabulary, decontextualized language, and oral narrative competence; (2) opportunities for functional literacy behaviors, including emergent reading and writing behaviors; and (3) skills related to decoding, including print awareness, phonological awareness, word recognition, and reading fluency. The research also has demonstrated the value of adult guidance during play experiences in optimizing literacy learning. This review of the literature linking play and literacy in early childhood expands the scope of the science of reading to include a wider range of skills that support reading development.

Children's literacy behaviors in early childhood can predict their successful reading performance in later years (Suggate, Schaughency, McAnally, & Reese, 2018). It is imperative, therefore, to examine the science of reading to understand how preschool and kindergarten practices ensure literacy achievement. Planned time for play has traditionally been considered important for young children. In spite of the research that has shown the benefits of play as it relates to literacy development, the time allotted for play has been reduced and often replaced by teacher-directed, skill-based lessons (Bassok, Latham, & Rorem, 2016; Miller & Almon, 2009).

Emergent literacy methods have been challenged in the media by advocates of more direct instruction of decoding skills (Hanford, 2018; Hood, 2019). They have pointed to the findings of the National Reading Panel (National Institute of Child Health and Human Development, 2000) that included support for the importance of teaching phonics and phonemic awareness in a systematic sequence for young children. However, these critics have ignored other findings of the panel that included the importance of fluency, vocabulary, and comprehension. Since this report, the consensus among researchers has been that a narrow focus on decoding skills discounts the complexity of the science of reading and other important skills (Cabell & Hwang, 2020; Language and Reading Research Consortium, 2015).

A better term would be *the sciences of reading* (plural) to demonstrate the richness of research currently available (Gabriel, 2020). Effective reading requires both skills to decode symbols into sounds and skills to make meaning of texts. By focusing primarily on explicit code-based instruction, we run the risk of having children who cannot understand what they read. When we expand the scope of the science of reading to include play experiences that support this wider range of skills, we can ensure that young children have the competencies they need to be successful readers in later years.

To better understand the role of play in early literacy development, in this article, we examine the history and models of early reading development, the research linking play and literacy, and the influences that affect the practice of play in preschools and kindergartens.

History and Models of Early Reading Development

In the early 1900s until about 1950, reading readiness, seen as a maturation process of neural ripening, was the prevailing philosophy of teaching young children to read (Teale & Sulzby, 1986). Formal reading instruction was not started until age 6 years 6 months because it was determined that most children did not have sufficient mental development to learn to read at an earlier age (Morphett & Washburne, 1931). The role of the school was to test students on visual and auditory perception to see if they were ready for formal instruction. The focus changed in the 1960s to getting children ready to read before formal schooling (Gunderson, 1964). These programs in preschool and kindergarten continued to focus on auditory and visual discrimination, letter names and sounds, and word recognition, often using direct instruction. Reading skills were developed in children before writing was introduced to them.

In the 1980s, a paradigm shift occurred with the introduction of the emergent literacy framework. Research in language acquisition, especially that of Chomsky (1975), showed that children use cognitive approaches to construct their knowledge of language. This understanding, along with Piagetian and Vygotskian theories, was applied to research in reading and writing acquisition. Reading research was integrated with other disciplines, and the meaning of reading was greatly expanded to include cognitive, linguistic, meaning-making, and social processes (Goodman, 1968; Smith, 1985).

The term *emergent literacy* was suggested by Teale and Sulzby (1986) to signify this new paradigm, in which (a) reading and writing developed simultaneously as interrelated processes, and (b) there was a continuity of the process of becoming literate from birth through the point of conventional literacy. The use of the term *literacy* rather than *reading* began to be used to refer to the emerging, interconnected processes of reading and writing. The research at this time showed that literacy was naturally learned in real-life social settings that were meaningful and purposeful (Teale, Hoffman, Whittingham, & Paciga, 2018). Based on this emergent literacy framework, researchers began examining the role of play in early learning environments because it provided active learning in a meaningful and purposeful setting.

During this time, Gough and Tunmer (1986) introduced a conceptual model called the simple view of reading, which proposes that reading is the product of decoding and linguistic comprehension skills. This general model gives equal weight to decoding and comprehension and predicts that children with deficits in either domain will have reading problems. There is a wide body of research that has supported and expanded the simple view of reading (Cervetti et al., 2020), emphasizing the need for both decoding and linguistic comprehension skills and questioning whether the two strands are distinct in the early years (Dickinson, Nesbitt, & Hofer, 2019). Significantly, this newer research has shown that preschool oral language development predicts reading comprehension at grade 3 (Language and Reading Research Consortium & Chiu, 2018) and that reading comprehension and decoding do not emerge as distinctly measurable constructs until grade 3 (Lonigan & Burgess, 2017). Oral language development influences reading comprehension, and that influence increases once children have developed decoding skills (Cervetti et al., 2020). Nation and Snowling (1998), for example, found that fourth graders who had weaker reading comprehension skills had similar phonological skills as better readers, but less developed vocabulary. This research has shown that focusing only on the decoding component of the simple view of reading overlooks the significant importance of language-related skills in successful reading development (Dickinson, Golinkoff, & Hirsh-Pasek, 2010).

The Role of Play in Reading Development

The role of play, seen in the context of the simple view of reading, is important primarily because it contributes to language skills that relate to linguistic comprehension and, secondarily, because it helps children develop the functional skills of working with print and texts. The type of play most often empirically linked to literacy development is sociodramatic play that includes the self-directed, imaginative use of language, symbolic representation, and reciprocal roles (Sutton-Smith, 1998, 1999). This play may involve, for example, children pretending to be customers

at a restaurant and ordering food by reading a menu, or assuming the roles of different characters while reenacting a story. In addition, research has shown that adult-guided play and games also provide rich opportunities for early literacy skills. From a cognitive developmental perspective, games are the developmental continuance of sociodramatic play and provide an effective context for learning (Kamii & DeVries, 1980). In this article, we review research related to sociodramatic play, adult-guided play, and games.

Play and Language Development

Language development in early childhood includes an interconnected set of skills that affect reading in later years (Dickinson, Nesbitt, & Hofer, 2019). This effect of language development on reading skills lasts a long time. Observational studies have linked language development and reading ability from age 7 months to grade 3 (Walker, Greenwood, Hart, & Carta, 1994), from age 3 through grade 3 (NICHD Early Child Care Research Network, 2005), and from kindergarten through grade 8 (Catts, Adlof, & Weismer, 2006; Dickinson & Tabors, 2001). The research linking language development and play has focused on three of these skills: vocabulary, decontextualized language, and narrative discourse.

The development of vocabulary depth and breadth is important for both code-based and meaning-based skills. Vocabulary development has been positively correlated with later reading comprehension (Suggate, Reese, Lenhard, & Schneider, 2014). As children move from focusing on decoding to focusing on meaning, they need semantic representations to connect to the words, or comprehension will fail. Young children's ability to rapidly understand words predicts their ability to learn new vocabulary, comprehend language, and process verbal information at age 8 (Fernald, Perfors, & Marchman, 2006; Marchman & Fernald, 2008). Vocabulary knowledge also has an indirect effect on decoding skills (Language and Reading Research Consortium, 2015; Wagner, Herrera, Spencer, & Quinn, 2015). When children know more words, they are able to encode the words into memory as phonemic units, allowing the children access to sound units that are smaller than words (Dickinson et al., 2010).

Another important aspect of language development is decontextualized language, which is a type of academic language used in narrative texts and other written communication in schools. Young children need to be able to describe objects and events that are not present or to be clear when speaking to someone who does not share their background knowledge of the topic. Decontextualized language is necessary for school learning and includes retelling stories, answering open-ended questions, and giving explanations (Dickinson & Snow, 1987).

A third aspect of language that is important to later reading comprehension is oral narrative competence. Children's oral narrative skills, such as acting out or retelling a story, have been found to relate to later reading comprehension (Griffin, Hemphill, Camp, & Wolf, 2004; Suggate et al., 2018). The ability to create and understand narratives stems from both decontextualized language and an understanding of story schema that helps children organize the structure of the discourse (Rand, 1984).

Next, we review the research that has connected play experiences to the development of these three important language skills.

Play and Vocabulary

A variety of research studies has shown that play experiences support vocabulary development. Dickinson and Moreton (1991) observed preschool children during a variety of activities and found that the time they spent talking with peers while pretending was positively associated with the size of their vocabulary two years later in kindergarten. Levy, Wolfgang, and Koorland (1992) used a single-case repeated-measures multiple-baseline design to observe three kindergarten children during sociodramatic play treatments. The enriched sociodramatic play, which included a theme, props, and adult intervention, improved kindergartners' language functioning, including the total number of words used, the number of specific and content words, and the mean length of utterance and grammatical complexity.

Han, Moore, Vukelich, and Buell (2010) tested two vocabulary-teaching interventions with at-risk preschool children that included (a) explicit instruction or (b) shortened explicit instruction and an added 10-minute session of dramatic or constructive play with a pretend element. Play tutors used a script to model and encourage children to use the materials and target words. Both conditions received 30 minutes of intervention with pairs of students and an adult twice per week over four months. The researchers chose 16 words to focus on during sessions, and the theme of the play episodes included the target words. The children in the sessions with the added play condition showed more growth in both receptive language and picture-naming vocabulary measures. In addition, the majority of children in the play condition moved from scoring below expectations for language development to scoring within age-level averages after four months of intervention.

More recently, Hadley, Dickinson, Hirsh-Pasek, and Golinkoff, (2019) examined how play can improve depth of vocabulary, or the quality of a child's knowledge about words. Using a within-subjects design with preschoolers, the researchers implemented a two-month vocabulary intervention in which children engaged in a highly scaffolded interactive reading of an informational book with explanations of the target words. This was followed by a 10-minute play intervention. The play included four

sessions per book, with props related to the books and target words. An adult guided the first two sessions, and the next two sessions included child-directed play. Results comparing children's learning of taught words versus exposure and control words showed substantial growth on a demanding measure of vocabulary depth that asked the children to provide semantic and contextual information about the words. This growth was larger than other reported vocabulary interventions in the literature.

Toub et al. (2018) also found that play interventions following interactive book reading improved preschool children's ability to recognize new instances of target words and to explain their meanings. In their first study, the researchers used three small-group play conditions: free play, guided play, and directed play. Results showed higher gains for children in both the guided and directed play conditions than in the free play condition. There were no differences between the guided and directed play conditions. In the second study, the researchers compared two conditions: (1) reading a book plus small group-guided play and (2) reading a book plus a whole-class picture card activity. The within-subjects design allowed all children to receive both interventions. Results showed a large effect size for increased vocabulary, and play sessions were more effective in improving word acquisition than the didactic picture card activity was. This demonstrated that it was the playful aspect that affected vocabulary rather than just the added adult scaffolding in reviewing target words.

Hassinger-Das et al. (2016) built on the research showing the positive effects of guided play following storybook reading on vocabulary learning by combining storybook reading with game play. Four-year-old children in the intervention group engaged in storybook reading, followed by a modified Snakes and Ladders game that embedded target vocabulary words. The comparison group listened to the story, reviewed the target words guided by the adult, and played the game without the embedded words. Pre- and posttests measured receptive and expressive vocabulary. After two sessions, results showed that the intervention group performed significantly better on both measures. The design of the study allowed the researchers to conclude that the game play was the aspect of the treatment that improved learning.

The research on language and vocabulary growth as a result of play experiences has demonstrated the value of combining teacher-directed and scaffolded book reading with child-directed play sessions based on the book and target words. These important linguistic skills contribute to children's ability to understand texts that are read aloud or that they later read on their own.

Play and Decontextualized Language

Researchers have posited that an influential factor of young children's play experiences is the use of decontextualized language (Pellegrini, 1985). In one study, Pellegrini (1984) had children ages 5–8 listen to a story and then participate in one of three conditions: dramatic play, discussion, or drawing. After three story-reading and treatment sessions, children were asked to retell the story to either someone who had heard the story before or someone who had not. Results showed that the children who had engaged in dramatic play about the topic were able to use more explicit language when retelling the story to a listener who had not heard it before. Pellegrini suggested that negotiating different roles and symbolic transformations during play helped children practice encoding meaning through language.

Other researchers have examined the role of metaplay in developing children's comprehension of stories. Metaplay includes the communication that children use outside of the play frame to manage the roles and actions of the play, such as "Let's pretend we are sleeping." Williamson and Silvern (1992) examined how play, metaplay, and language production ability contributed to the comprehension of familiar and unfamiliar stories in kindergarten children. In this study, the children heard a story and then reenacted it through play. Videotapes were coded for instances of different categories of play and metaplay to identify the aspects of the reenactment that contributed to performance on a reading comprehension test, a retelling task, and a sequencing task. The children were also tested on a story they heard but did not act out. Multiple regression analysis showed that the metaplay category of directing (assigning roles, discussing story lines, or telling others to perform) contributed significantly to all measures of comprehension, whereas the play category alone did not. Children's language production, measured by telling a story, also contributed to comprehension scores. This study is important in showing the importance of language in negotiating roles and events within the play experience.

Galda, Pellegrini, and Cox (1989) observed that the use of metalinguistic verbs, such as *talk*, *speak*, and *say*, was prevalent among preschoolers during free-play sessions and increased with age. This type of decontextualized language demonstrated that children were reflecting on the use of language during their play. The researchers observed preschoolers of two different ages (3.5 and 4.5 years old) for one year during free-play periods in their preschool classrooms and assessed their emergent writing and reading status and concepts of print at the end of the year. After controlling for receptive vocabulary, the regression analyses suggested that older children's use of symbolic play predicted writing development and that their use of process verbs predicted the highest level they reached on Sulzby's (1988) Emergent Reading Scale. For younger children, symbolic play facilitated their use of metalanguage. Pellegrini and Galda (1991) continued this study by observing and testing the children the following year. The researchers found that the use of metalinguistic

verbs during play predicted both children's concepts of print and children's highest score on Sulzby's scale two years later. Pellegrini and Galda concluded that early reading behaviors are related to children's ability to use metalinguistic verbs during play.

Play and Oral Narrative Competence

Children's oral narrative skills, including retelling and creating original stories, are used in comprehending and writing narrative texts (Paris & Paris, 2003; Pinto, Tarchi, & Bigozzi, 2015). When children engage in sociodramatic play, they use elements of story structure, such as a setting (e.g., doctor's office), character roles (e.g., doctor, patient), and plot episodes (e.g., the patient is sick and needs a prescription for medicine). In a study of children ages 4–8, Eckler and Weininger (1989) found that when children played by themselves within a prepared play center, 76% of their play episodes structurally followed expectations from story grammars that describe and predict effective narratives. This story structure helps young children generate oral narratives and the ability to understand stories.

Research has supported the link between play experiences and narrative competence (Pellegrini & Galda, 1993). Pellegrini and Galda (1982) used a play intervention with children in kindergarten through second grade. After listening to a story, children experienced one of three conditions: a thematic-fantasy play activity, adult-led discussion, or drawing. After three sessions, children were tested via 10 comprehension questions and a story-retelling task. For kindergartners and first graders, story retelling was most improved by the play condition. Children at all ages in the play condition recalled more story events and sequences. Observational data suggested that children who took on more active roles in the play scenarios recalled more events. The researchers attributed the increase in ability to retell the stories to active engagement and the perspective taking needed to coordinate roles during play.

In a more recent study, preschool children from low-income families dictated original stories and then engaged in playful reenactment of their story using themselves and peers as characters in the story (Nicolopoulou, Cortina, Ilgaz, Cates, & de Sá, 2015). In the treatment condition, the storytelling and story-acting sessions were conducted twice per week from November through April by the classroom teacher with help from a research assistant. The story taker wrote down the child's narrative in a nondirective manner, capturing the language verbatim, and read it back to the child. Later in the day, the story was enacted, with the storyteller selecting the children for each role in the story. The control group included the other classes in the centers that used the same curriculum, but without the storytelling and story-acting sessions. At the end of the treatment, children were tested on early literacy measures, including an adaptation of the Test of Narrative Language (Gillam & Pearson, 2004). In this test, children were told stories with and without picture cues, and then the children answered factual and inferential comprehension questions. The study was completed with three experimental and three control classrooms for the first year of the study and three experimental and four control classrooms during the second year. Results showed a statistically significant improvement in narrative competence of the children in the experimental group as compared with the control group for the children in the second year of the study.

Other Aspects of Literacy and Play

Although not as robust as the connection among play, language development, and later reading, other literacy components have been supported by play experiences. One of these is the opportunity for preschoolers to practice functional literacy behaviors and to use literacy materials during free play. For example, Neuman and Roskos (1990, 1992) carried out a series of studies examining the effect of the play environment on preschool children's book handling and reading and writing behaviors during play. Literacy props were added to thematic play centers, including a kitchen, office, post office, and library. The thematic literacy props were chosen based on three principles: appropriateness for children's sustained play interactions, authenticity for the children's real world, and utility as common, functional literacy objects. Compared with the control condition, in which the classroom environment was not changed, video observations showed that children in the play condition spent more time engaging in book-handling, reading, and writing activities and more frequently used literacy objects, such as markers, pencils, and crayons, to engage in a wide range of literacy behaviors, including integrating them into their play sequences. The children in the intervention group relied more on verbal communication with others during play, rather than nonverbal actions. These interventions highlight the key features of the contexts that support young children's literacy behaviors, such as the presence of literacy materials, multiple options for activities, purposeful situations, and feedback from other people (Neuman & Roskos, 1997). Other researchers have also shown that designing thematic play environments gives preschool children early opportunities for practicing literacy activities, such as book and paper handling and pretend reading and writing (Christie & Enz, 1992; Morrow, 1990; Morrow & Rand, 1991; Neuman & Roskos, 1993). This is especially important for children whose home environment might not include such materials or activities.

Maureen, van der Meij, and de Jong (2020) recently examined how digital storytelling combined with play activities compared with traditional literacy activities in developing name writing, print awareness, phonological awareness, alphabet knowledge, and word recognition in kindergarten. The study included three conditions: regular literacy activities, storytelling and play-based literacy activities, and digital storytelling activities. The digital environment allowed children to playfully combine images, audio (e.g., voices, sound effects), and other digital tools to create stories. After a six-week intervention, the children in the storytelling and play-based literacy activities and in the digital storytelling condition showed higher gains in name writing, print awareness, phonological awareness, alphabet knowledge, and word recognition than those in the regular literacy activities condition.

Other literacy skills have been increased through opportunities for children to create literacy games. Cavanaugh, Clemence, Teale, Rule, and Montgomery (2017) studied the effect of games on the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) assessment, which included first-sound fluency, phonemic awareness components, and oral reading fluency. Two kindergarten classes participated in 15-minute small-group sessions for three weeks. The control group was directed through a series of activities in which they used sets of 10–20 toys or miniature items to sort them by initial sounds or by rhyming word families. The experimental group used the same teacher-directed activities once and then were given time to use the materials to create their own games that practiced the word family or initial sound concepts. The repeated-measures, counterbalanced design allowed all children to experience both conditions at different times. Results showed significant differences favoring the experimental condition on the DIBELS assessment, with a medium effect size. Although this study used games rather than sociodramatic play, observations showed that the children made up stories about the objects and demonstrated a great deal of pleasure and many instances of creativity and imagination as they created games.

These studies demonstrated that experiences with guided play and games can affect young children's opportunities to practice functional literacy behaviors, as well as supporting skills related to decoding and fluency.

Adult Scaffolding in Playful Learning

Whereas the research base described so far showed strong connections between play and emergent literacy, not all play experiences are equally valuable for learning. Traditional definitions of play include self-directed choice as a defining feature. However, a substantial amount of research has shown that children demonstrate more literacy skills and behaviors when sociodramatic play includes varying degrees of adult guidance, resulting in playful learning (Hirsh-Pasek & Golinkoff, 2011; Hirsh-Pasek, Golinkoff, Berk, & Singer, 2009).

A variety of researchers and studies has examined the role that adult scaffolding has on children's ability to recall stories. Silvern, Taylor, Williamson, Surbeck, and Kelley (1986) designed a fantasy-play training intervention study to control for adult intervention during sessions and examine different kinds of adult support. Teachers were assigned to either a directive condition, in which they ensured that the children enacted the entire story, or a facilitative condition, in which they set up the play scenario and then let the children control the play. Sessions focused on a story that was either familiar or unfamiliar. Comprehension was measured with a story recall pre- and posttest. Results showed that when the play sessions used a familiar story, children's recall was highest in the facilitative adult condition. However, when the story was unfamiliar, children's recall was higher in the directive condition. This implies that there are conditions under which adult intervention during play can improve literacy outcomes.

Morrow (1990) and Morrow and Rand (1991) also examined different roles of adult intervention during play. The play conditions included adult-guided thematic play, adult-guided nonthematic play, and non-adult-guided thematic play. All groups had literacy materials added to the play areas, including paper, writing materials, books, and magazines. Observational results showed that thematic play with adult guidance resulted in more voluntary literacy behaviors, including paper handling, pretend reading, and emergent writing, than the other conditions did.

Christie and Enz (1992) also examined manipulating the play environment. They created two play conditions for preschoolers: one with literacy materials added and another with literacy materials plus adult guidance. Over the course of 20 weeks of treatment, observations showed an increase in total play activity and an increase in the amount of literacy behaviors during play. Analysis of an assessment of concepts about print at the end of the study indicated that although both groups made significant gains over time, there were no significant between-group differences.

Neuman and Roskos (1993) used three conditions to examine the effects of adult mediation on environmental print and functional print tasks in Head Start preschools. The researchers used parent volunteers to ensure that the cultural and linguistic background of the adults matched that of the children. The three conditions were an interactive adult (an enriched play setting with a parent volunteer who actively assisted), a monitoring adult (an enriched play setting with a parent volunteer who monitored but did not take an active role), and a nonintervention control group. Results on an environmental print task after five months of sessions indicated that children performed better in the group with an adult who actively

assisted in play. Video observations showed that children in the play condition with an active adult spent 32% of their time in literacy activities, as compared with 24% in the play condition with a monitoring adult and 2% in the control group.

In a qualitative study of adults' literacy scaffolding during play, Roskos and Neuman (1993) identified three teacher roles that support play: the onlooker, the player, and the leader. The onlooker role occurs when a teacher serves as an audience for the play and acknowledges the children's actions. The player role is when a teacher enters the play frame to take on one of the roles, thereby scaffolding the character and story development. Finally, the leader role happens when a teacher structures the play, including setting up props or suggesting play ideas, such as a makeshift booth to simulate voting.

Another important role of the adult in play situations is the quality of the adult's language use and its effect on children's language. For example, Meacham, Vukelich, Han, and Buell (2013) found that when teachers used more play-embedded instructional talk, the result was a higher frequency of children's talk. Dickinson and Porche (2011) examined teachers' language during play in preschool and found that the use of sophisticated vocabulary during free play predicted children's kindergarten language development and fourth-grade reading comprehension and decoding.

However, one should not assume that teachers understand the importance of guidance for learning during play or have the skills to scaffold play in ways that support learning. Dickinson, Collins, et al. (2019) found challenges in implementing guided play in their research because teachers found it difficult to find time to schedule play in a small group and struggled to guide the play without becoming too directive. Pyle, Prioletta, and Poliszczuk (2018) found that the kindergarten teachers they studied fell into two groups: One allowed free play in their classrooms but focused only on socioemotional learning, and the other focused on guided play for literacy learning, and the teachers entered the play more often. This suggests that some teachers are unsure or unaware of the adult role during play that bests support learning. School leaders who successfully implemented a play-based primary-grades curriculum reported that extensive professional development and support were critical to success. It was also important to have clear expectations about outcomes for literacy and to design the play-based curriculum around literacy development pathways (McGuinness, Sproule, Bojke, Trew, & Walsh 2014).

Influences Affecting Play in Schools

The wide body of research on the connection between playful learning and literacy has presented a rich picture of the opportunities that play provides for supporting early literacy development. Play experiences help develop language skills, including vocabulary, decontextualized language, and oral narrative competence; provide opportunities for functional literacy behaviors; and support decoding-related skills, especially when carefully planned and scaffolded by an adult who guides the play environment and activities.

The National Association for the Education of Young Children (2018) considers play an essential element, and planned play experiences are highlighted in their 2018 accreditation standards. The role of planned play experiences, however, has declined in the preschool and kindergarten curriculum. In 2009, the Alliance for Childhood showed that time for play in public kindergartens has largely been replaced by lengthy, skills-based, teacher-directed lessons (Miller & Almon, 2009). Bassok et al. (2016) examined data that included approximately 2,500 kindergarten teachers in 1998 and approximately 2,700 from 2010. The researchers found that the percentage of classrooms that had a dramatic play area decreased from 92% to 71%. The percentage of kindergarten teachers who said that children should learn to read in kindergarten increased from 31% to 80%. The daily use of textbooks in kindergarten doubled from 11% to 26%, and the use of worksheets increased from 30% to 47%. These changes were more pronounced in schools serving non-white children and children from low-income families. A recent survey of kindergarten teachers in Massachusetts found that 33% of teachers serving students from low-income families had no time at all scheduled for play, as compared with only 3% of schools serving students from high-income families (Fowler, 2018).

Over the years, a variety of policies and practices have championed the idea that children need to be supported in learning how to read before first grade (Teale et al., 2018). Some of the influences have included the 1997 White House Conference on Early Childhood Development and Learning, which highlighted scientific findings on the importance of brain development in early childhood; the development of the Common Core State Standards introduced in 2000 (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2000); the emphasis on teaching reading skills in preschool and kindergarten as part of the No Child Left Behind Act's early childhood counterpart, Good Start, Grow Smart (Child Care Bureau, 2002); and the 2003 reauthorization of Early Head Start that removed evaluations of the socioemotional environment and instead emphasized attention on pre-literacy and pre-math skills (Meisels & Atkins-Burnett, 2004).

Although explicit instruction of skills was not prescribed in any of these programs or policies, the interpretation in practice has often resulted in more explicit instruction and less time for planned play. For example, many teachers believe that there is not enough time to use

play in kindergarten because of the pressure to meet academic standards (Lynch, 2015). The standards, however, define what children are expected to know and be able to do, but not how teachers should teach. In fact, the Common Core states that "the use of play with young children is not specified by the Standards, but it is welcome as a valuable activity in its own right and as a way to help students meet the expectations in this document" (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010, p. 6).

Recommendations

The science of reading has been narrowly defined in the media as explicit, systematic, and direct instruction of skills, especially phonemic awareness and phonics. Because play does not fit that categorization, it has not been promoted as a support for early literacy skills. However, the research reviewed in this article established a promising link between play experiences and literacy learning, particularly for language and vocabulary development. This is especially important because the role of language development in learning to read has been overlooked in the "science of reading" debate (Dickinson et al., 2010). Research also has shown that enriched play environments encourage a variety of emergent literacy behaviors; however, additional research is needed to study the later impact on students' literacy development.

Given the wide range of research that has linked play and various aspects of literacy learning, teachers and policymakers should ensure that there is time in preschool and kindergarten for planned play experiences and games that are scaffolded by adult guidance. We recommend that teacher preparation programs teach strategies for adult guidance during play that have been shown to support emergent literacy. When we expand the science of reading to include research-supported play experiences, children in preschool and kindergarten will have more opportunities to learn important language and literacy skills.

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