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Research on Play and Literacy: A Critical Review

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Abstract

The idea that a seemingly frivolous activity such as play can promote children's literacy development is very intriguing and has prompted a large amount of research activity over the past several decades. In order to assess the status of this line of inquiry and provide guidance for future research, we undertook a critical analysis of 20 recent investigations of the play-literacy interface. We first attempted to understand the "story" that each study told -- how the problem was framed, the solution path, the claims that were made, and the evidence that supported these claims. Then we engaged in critical analysis of the studies, challenging both what was said (i.e., the claims) and what was not said and not addressed. We agreed with the major claims of 12 of the 20 studies, judging the research to be sound and complete. These studies supplied strong evidence that play can serve literacy by: (a) providing settings that promote literacy activity, skills, and strategies; (b) serving as a language experience that can build connections between oral and written modes of expression; and (c) providing opportunities to teach and learn literacy. However, our critical analysis of these studies also revealed a number of limitations and unresolved issues, including concerns about definitions, theories, methodology, lack of progress in establishing causal connections with development, and dominance of the "play as progress" rhetoric.

Examining the Play-Literacy Interface: A Critical Review and Future Directions

"Read not to contradict and confute, nor to believe and take for granted, nor to find talk and discourse, but to weigh and consider." - Sir Francis Bacon

That play and literacy share common boundaries in the developing mind of the young child is, to use a phrase of Kagan's, "a pleasing idea" (cited in Whitehurst & Lonigan, 1998). The possibility that, by engaging in joyful play, children also build meanings and develop skills closely associated with reading and writing is intuitively appealing to researchers and educators alike. The idea is not new, framed theoretically by Piaget (1962) and Vygotsky (1978), and researched as early as 1974 by Wolfgang. What is new, however, is an emergent literacy perspective, which brings this pleasing idea more squarely into view. In sharp contrast to the readiness position, an emergent perspective stretches the process of literacy development to include budding literacy-like behaviors (e.g., pretend reading) as legitimate and contributory, and treats social contexts (e.g., bedtime reading) as important venues for exposing children to literacy knowledge and practices. Through this lens, children's early 'hands on' experiences with

language and literacy in everyday social activities give rise to the internal mental processes that are needed to do the intellectual work of reading and writing activity. Play activity in particular affords these experiences, creating bold and subtle opportunities for children to use language in literate ways and to use literacy as they see it practiced. From an emergent perspective, therefore, the play-literacy interface grows more prominent and more significant, opening up new possibilities for investigating and understanding the interrelationships between these two very complex domains of activity.

In this paper, we review the recent empirical research that assumes an emergent literacy stance in examining relationships between play and literacy. At this point in the play-literacy line of inquiry, such a review is both timely and useful for several reasons. Although a relative newcomer to the field of early literacy research, the play-literacy connection has been one of the most heavily researched areas of early literacy in the last decade (Yaden, Rowe, & MacGillivray, 2000). And, although Pellegrini and Galda (1993) examined some of this early work just seven years ago, discussing symbolic play-literacy links, research work has steadily grown and extended into additional areas since that time (Roskos & Christie, 2000). Moreover, interest in play as part and parcel of a developmentally appropriate early literacy curriculum has surged as the concept of emergent literacy has taken hold in the early childhood professional community. Regrettably, the benefits of play for literacy acquisition are not well-articulated and understood, which makes it increasingly difficult for educators to defend play as an opportunity for literacy experience and learning. Many early childhood teachers already feel pressure to alter play in ways that better serve discrete literacy goals or to abandon it as a curricular tool altogether (see, for example, Lubeck, 2000). Finally, the scientific pursuit of the play-literacy interface also involves paying attention to the various discourses that give meaning to play and literacy as objects of knowledge (Sutton-Smith, 1995). The study of the play-literacy interface is itself shaped and contoured by the historical and sociopolitical voices of the times. These social meanings speak through the research problems that are studied and the solution pathways that eventually wend their way into the everyday lives of children. To bolster and strengthen inquiry, it's important to remain alert to these persuasive discourses.

To conduct the review of research, we have chosen to use a critical analysis approach, which treats research reports as texts subject to critical reading (Jupp, 1996). In this respect we depart from the more typical technical evaluation of studies and meta-analyses, which focus on the integrity of research design, the validity of statistical findings, and effect sizes. Our emphasis rather is on analyzing the definitions, explanations, and solutions put forth as conceptualizations and to challenge them, not only for what is said, but for what is not said. This cultivates understanding out of which critical points emerge that chart the way for further productive research work. We begin with a brief overview of the beginnings of the play-literacy line of inquiry, then turn to the critical analysis of studies conducted during the past decade, and conclude with our interpretation, which we hope assesses the research situation clearly and honestly and informs future research on this important topic.

Method

As indicated earlier in our introduction, we took a less traveled approach to a review of current research, engaging in a critical analysis of research reports as texts. Critical analysis examines assumptions that undergird research reports and considers other possible accounts that may be concealed or ruled out. It tends toward the theoretical in that the emphasis is on how a set of abstract ideas and concepts is translated into an inquiry or problem-solution "story." The goal is to first understand the inquiry as the author meant it and then to evaluate it for 'fit' with more general understanding and worth (Hodder, 2000; Jupp, 1996). The result is a *criticism* in the social science sense that identifies the major issues or "basic intellectual oppositions" in a field of inquiry on which further productive work might turn.

Data Collection

We focused our critical analysis on a set of 20 play-literacy studies published within the last decade (1992-2000) that represented a second wave of this research. Integrative reviews of

play and literacy-related relationships have been conducted with some regularity over the past twenty years, providing benchmarks of progress in this line of inquiry (in chronological order: Fein, 1981; Christie & Johnsen, 1983; Pellegrini & Galda, 1993). Limiting our analysis to studies within the past decade, therefore, followed this trend and built on this work, but also offered an alternative approach to more traditional research reviews conducted in the past.

We selected studies based on four criteria: a) implicit or explicit assumption of play-literacy connections; b) publication in a scholarly, refereed document (e.g., journal or book) between 1992 and 2000; c) presentation as a research report (i.e., in the research genre), and d) an emphasis on the early childhood period (children ages birth-8). Studies were identified through three successive sweeps of the professional literature. Initially we scanned the PsychINFO and ERIC online databases for articles from 1992-2000 that met the inclusion criteria of play (or pretend play or dramatic play) and literacy (or early reading or writing or emergent literacy). This initial search yielded a total of 189 records that included articles, studies, book chapters, and dissertations. From this collection we culled those articles that met our 4 criteria, yielding a total of 17 studies. In our third sweep, we manually searched edited books (e.g., Roskos & Christie, 2000; Spodek & Saracho, 1998) and the full text of retrieved papers for studies that did not emerge from the computer search. This strategy yielded 7 studies, 4 of which duplicated those found in prior searches. This produced a collection of 20 studies that investigated the play-literacy interface in early childhood in a research report genre. The design features of these studies are summarized in Table 1.

[insert Table 1 about here]

Data Analysis

Unlike some other areas of qualitative analysis (e.g., Spradley's domain analysis [Spradley, 1979]) there are no well-formulated procedures for conducting critical analysis. Although the analytic aims seem clear, namely to understand what the text says and then to evaluate it for what it does and does not say, how to achieve such aims remains a murky endeavor. At best, Jupp and Norris (1993) suggest two relevant questions that may guide the critical reading of a research report as a document. One of these essentially asks: What is said? The goal is to find out what the problem is, how it is explained and the solution path preferred. The second question asks: What is not said? And the aim is to identify what is 'not seen' as problematic, what explanations are missing or rejected, and which solutions are not preferred.

Working to specify these questions more finely, we developed a coding matrix that allowed us to summarize what authors stated, explained, and systematically pursued as research problems and also the conclusions they drew as solutions to those problems and on what evidentiary basis (see Appendix 1). The matrix consisted of eight key prompts and related probes derived from descriptions of analytic strategies (Miles & Huberman, 1994) and explanatory discourse (Brown & Armstrong, 1984). This matrix provided an analytic tool that aided the critical reading of each study in a consistent manner.

To test the coding matrix, we each applied it to a sample study, which led to a few minor modifications and clarifications. Then, after achieving an interrater reliability of nearly 100% on three studies from the collection, we divided up the remaining studies (making sure that we did not code our own studies) and summarized each using the matrix system. This provided us with a synopsis of the research information germane to our aims of understanding and criticism.

For the next phase of our critical analysis, we adapted a syntopical reading technique described by Adler and van Doren (1972). Syntopical reading is a form of interpretive reading that attempts to synthesize authors' concepts and claims on a topic around a common set of terms and propositions. It involves reading to understand what each author said, establishing a neutral set of main ideas, and considering authors' competing points in relation to it. The goal is to define the questions the authors attempt to answer and evaluate how successful they are in addressing these issues. For our purposes of criticism, the syntopical reading and analysis consisted of four steps, described below. The first two steps helped us to understand what the authors said, while the last two steps allowed us to evaluate their texts and infer issues.

In Step One, our goal was to build up a common set of terms across the collection. We identified the specific terms authors used to describe the play-literacy interface and how they explained the interface as a research problem. For example, Branscombe and Taylor (2000) refer to play as “through oral, written, and acted stories” and literacy as “story in the literate sense” and examine this interface based on a theoretical rationale or set of reasons why this seems plausible. This first step helped us to understand what the authors were attempting to explain with their research studies.

Step Two consisted of determining the authors’ propositions, i.e., claims, assertions and arguments, arrived at through the research process. In other words, what did the author conclude and based on what evidence? Grasping this, we then might understand more fully what the author meant to say and on what grounds. Dunn, Beach & Kontos (1994), for example, claim that day care environments do not afford much literacy activity and materials during playtime and support their claim with observational data (surveys; rating scales) gathered from 30 Centers in the Midwest. Examining the authors’ claims in this way allowed us to generate a general set of questions (or propositions) that the authors tried to answer.

Having built an understanding of the authors’ texts, we next turned to the critical phase of the analysis. Our goal here was to judge the texts, examining specific concepts and claims against the common set of terms and propositions and determining the extent to which authors’ evidence and reasoning shed light on the research problem. This allowed us to think within alternative systems of thought, recognizing and assessing assumptions, implications and consequences that pointed to issues facing the field. Beginning with Step 3, we evaluated each research report by either agreeing or disagreeing with it or suspending judgment about it (see Appendix 2.) The basis of agreement or disagreement rested on qualities of soundness and completeness in the report. To determine soundness we probed the extent to which a report was informed, i.e., provided knowledge relevant to the problem and made assertions based on facts and evidence, and logical, i.e., combined ideas and concepts in clear, accurate, orderly and mutually supporting ways. To assess completeness we observed whether the report solved the stated research problem and led to implications of importance that followed from the evidence. Disagreements were documented by evidence of a lack of soundness or completeness in the text of the research report. If neither agreement nor disagreement seemed fully warranted based on our critical reading of the text and discussion, then we agreed to suspend judgment. The results of this analysis yielded points of agreement and points of criticism.

Finally, in Step Four we worked inductively to define the issues revealed by our syntopical reading of the texts and to examine the different ways authors addressed (or overlooked) these issues, thus gaining insights into the character of the play-literacy interface as a domain of study. Further interpretive analyses of the “conflict in the opposing answers” around the issues also provided opportunity to examine the scientific discourses influencing the research work.

Results

Our critical analysis of the authors’ research reports as written texts produced results in three main areas that constitute a critical review of the set of 20 studies. The first of these is a *description of the collection-as-a-whole* which summarizes its key features and evaluates its qualities as scientific work. Another involves *the concepts of play and literacy* that authors use to examine what they see as problematic and the theories they employ to explain the shared boundaries between these two concepts. And a third is concerned with the *authors’ claims and the evidence gathered to support them*. In each of these areas, we first summarize the gist of the texts and then step back to offer points of criticism.

Description of the Collection-as-a-Whole

The total set of 20 studies addressed a broad range of play-literacy topics that stretched across descriptions of environmental exposure (e.g., Dunn, Beach & Kontos, 1994),

observations of play-language relationships (e.g., syntax, Vedeler, 1997), analyses of play-narrative links (e.g., story sense, Branscombe & Taylor, 2000), documentation of literacy outcomes (e.g., reading environmental print, Vukelich, 1994), and examinations of play-literacy interactions (e.g., peer collaboration - Christie & Stone, 1999). The collection-as-whole was representative of established research problems in the field (e.g., play-narrative relationships), but also reflected newer areas of inquiry (e.g., peer and adult mediation of literacy in play activity).

Observations of children – their actions, language, knowledge and thinking – dominated the set, a total of 15 reports, and occurred primarily in the indoor play environment within institutional settings, such as day-care centers, Head Start classrooms, preschools, and elementary schools (85% of studies). As one might expect, sixteen of the studies involved children between the ages of 3-5, the most popular age-range for play research (Christie & Johnsen, 1987). It's noteworthy that four (20%) of these reports provide data on children in the 6-7 age range (primary graders). Research on school play is typically confined to the preschool and kindergarten levels. Rowe (1998), on the other, expanded the age range in the opposite direction, observing very young children (ages 2-3) who are entering the representational period of the preschool years.

Another popular topic was the adults' role in facilitating literacy in play connections. Three studies, for example, directly examined adult mediation of children's literacy in play. Neuman (2000) and Neuman and Gallagher (1994) evaluated the effects of family literacy programs that attempted to improve teenage mothers' play interactions with their children. Roskos and Neuman (1993) investigated how experienced preschool teachers interacted with children during literacy play. Two other studies considered the play environment, but dealt only marginally with adults' direct involvement in designing the environment for play/literacy interactions (Dunn, Beach & Kontos, 1994; Makin, Hayden & Diaz, 2000).

The collection contained a good mix of methodology. Ten of the studies relied solely on quantitative methodology, while another seven used only qualitative procedures. In a promising development, three other studies used both quantitative and qualitative methods (Neuman & Roskos, 1992, 1993, 1997). The quantitative studies used a broad spectrum of methods to collect data, ranging from systematic observation to standardized tests. Some studies simply reported descriptive data, whereas others used inferential statistics. On the qualitative side, constant comparison was the preferred data analysis strategy, employed in virtually all of the studies.

However, looking beyond these descriptive features of the collection about which we might readily agree, points of disagreement emerge about the collection as a whole that challenge its scientific value. Our initial critical analysis led us to question the soundness (e.g., availability of information; the quantity and quality of evidence) and completeness (adequacy of research tasks) of eight studies and ultimately to disagree with their claims. As a result, these eight were excluded from further analyses. (See studies marked with an asterisk in Table 1.) Our points of disagreement with these studies were threefold – missing information, insufficient evidence, and inadequate solution paths. Two examples suffice to illustrate these points.

Consider, for example, Dever and Wishon (1995) who pose a formidable research question – what are play's benefits for literacy learning in first grade? This is a fundamental question and a significant one if we are to understand the role of play in early literacy development. The solution path they chose, however, is not well-matched to this problem, gathering evidence of literacy behaviors in play events instead of literacy performance (knowledge and skills) in relation to types of play activity engaged in by the children (e.g., exploratory play, dramatic play, rough and tumble play). As a result, information needed to inform the problem is unavailable and consequently the report is incomplete. The research work done, in other words, is not up to the research task, and thus opens the door to untenable conclusions.

The report of Bergen and Mauer (2000) provides another case in point. They take on an intriguing research problem – the relation of symbolic play to children’s developing phonological awareness in the early years. Oral language is at the interface of this relationship, i.e., how children’s language use in play might draw their attention to the sounds of language apart from its meaning. Children’s playful use of words in the flow of play, for example, has not gone unnoticed (Weir, 1962). Illuminating this potential intersect would certainly benefit developmental research as well as early childhood literacy pedagogy. Yet, the report does not shed light on the theoretical ideas and research that might inform this question nor build a case for the argument, namely that exploring sounds in play might benefit children’s developing phonological awareness so necessary in learning to read. In addition, there were problems in how symbolic play was operationalized across the three years of this longitudinal study. During the first year (preschool), play consisted of free play in literacy-enriched centers. In the second year (kindergarten), play was assessed during structured clinical play sessions with games. During the final year of the study (grade 1), telephone interviews were used to find out about children’s home play behavior. This lack of consistency in how play was defined severely limits the conclusions that can be drawn about play’s relationship with phonemic awareness.

Setting these eight studies and our judgments of them aside, we agreed with the major claims, assertions and arguments of the remaining 12 studies in the collection, judging the research work as sound and complete, and thus a solid evidentiary base for further analyses. All 12 authors identified and framed their research problems along well-delineated theoretical lines and channeled research tasks to find acceptable solutions in response to these problems. The real strength of these reports, though, resides in the consistent, systematic (and sometimes painstaking) data collection and analyses that characterize many of them. Rowe’s (1998) analysis, for example, coupled constant-comparison of videotaped events over a nine-month period in the preschool setting with a case study of her own son, lasting 13 months. She used extensive triangulating of multiple data sources and “expert” checks of her analyses and findings to confirm her conclusions.

Still there are specific weak spots in this remaining set of 12 studies that warrant brief description. One of these results from too much scatter in the topics selected for investigation such that studies do not build on one another to establish a line of inquiry. Most studies were isolated efforts, providing information about some aspect of the play-literacy interface, but with no follow-through. There are several notable exceptions (e.g., Neuman & Roskos, 1992, 1993, 1997; Neuman & Gallagher, 1994; Neuman, 2000). Neuman and Roskos, for example, focused their 1992 study on the effects of placing literacy objects in play settings. The 1993 study investigated adult mediation of play in literacy-enriched settings and its impact on children’s environmental print recognition, and the 1997 investigation examined the impact of these settings on other aspects children’s literacy knowledge.

Another limitation concerns the very narrow range of research strategies used to analyze data. Like “Johnny-one-notes”, these researchers preferred constant-comparison to all other qualitative analytic strategies, which limited the scope of vision and interpretation. Metaphor, for example, might provide a richer and more complete means for describing phenomena and moving to a more inferential level with data. Roskos and Neuman (1993) were the only investigators to employ this technique, developing a metaphor to represent each of the roles that teachers used to facilitate children’s play.

A third weak spot, also related to diversity, is the dominance of Vygotskian and Piagetian theories as the ‘drivers’ of research efforts to the near exclusion of other explanatory models. In addition, Vygotsky’s explanatory influence appears limited to the symbolic connection between play and literacy and to social interaction. Minimal attention is paid to *play* as a ‘zone of proximal development’ in and of itself, or to the material culture as a mediator of literacy knowledge and practice in the play environment. In other words, while researchers have made heavy use of Vygotsky’s theory, they have focused on narrow parts of his theory, ignoring some potentially important links between play and literacy.

Concepts of Literacy and Play

What is the interface of play and literacy as an object of study in the 12 remaining studies? To arrive at an answer to this question required identifying the researchers' terms for these constructs and discovering how they explained concepts so as to join them together. Understanding the researchers' terms, in turn, laid the groundwork for a critical analysis of the interface. We first describe the researchers' definitions of play and literacy, and then bring them to terms, so to speak, by analyzing what is and is not explained by them.

What's striking from the outset is the authors' very liberal definitions of play. In fact, with the exception of two authors (Rowe, 1998; Vedeler, 1997), none provides an explicit definition of play to guide observations of children's behavior. For many (n=7), play is loosely defined as any activity occurring in play centers or around play props. Vukelich (1994), for example, described play "as a social context" embedded in kindergarten classroom play centers; Christie and Stone (1999) referred to it as "collaboration" in a literacy-enriched play center at school; and Neuman and Roskos (1992; 1993) imply that play involves "transformations" in play settings. Others describe play as "entertainment" arising out of home experiences (Sonnenschein, et al., 2000) or as global interactions that transpire in the play environments of early childhood settings, i.e., day care (e.g., Dunn, Beach & Kontos, 1994). Rowe (1998) is the sole author to include the generally-held properties of play in the body of the report (see Christie, 1991), and only Vedeler (1997) specifies what constituted dramatic play, setting 40% or more role play utterances in an episode as the criterion. For most of these researchers, therefore, play remains a fuzzy construct; it is what children do in play places or settings.

Literacy, however, is another matter, and here our authors tend to be more explicit, but also more conservative. Definitions range from a multi-modal semiotic view of literate behavior (e.g., response to books, Rowe, 1998) to literacy practices (e.g., problem solving strategies, Neuman & Roskos, 1997) to the traditional sense of literacy as phonological awareness, word identification, and reading comprehension (Sonnenschein, et al., 2000). All of the authors take pains to clarify what constitutes literacy in the context of their research and the behaviors that give evidence of children's literacy understandings and skills. Vukelich (1994), for instance, is quite clear that the ability to read environmental print is indicative of emergent reading. Similarly, others articulate the behaviors, performances, activities, and processes that define early literacy and allocate considerable text to clarifying their terms. Yet, unlike play where there is little activity that is not termed play, literacy is confined to a narrower strip of activity that involves primarily reading and writing. Children scribble and write, they pretend read, they respond to books that have been read to them, they use print. Vedeler (1997) is the single researcher who stretches the literacy concept to include the syntax of oral language as a forerunner in the learning to read process. In general, then, the majority of these authors keep a tight rein on what they mean by literacy, confining it primarily to print-based experiences.

How do these authors merge these two concepts to discover, describe, and examine their common boundaries? They use three thick theoretical ideas to pull play and literacy together. One is characteristically Piagetian, grafting play and literacy onto the development of recall, when children first imitate what they see (deferred imitation) and then say what they remember. The mental work of memory – conscious recollections of facts or past events – is at the root of pretend play schemes and also the manipulation of a second order symbol system, such as print. The interface, therefore, is at the level of representation, and the basic idea is that in both play and literacy children must recall facts and experiences held in memory to make new meanings in context, whether three-dimensional as in play or two-dimensional as in text.

Another is essentially Vygotskian, emphasizing the social interaction between individuals as the source of literacy knowledge. Play, like other social contexts, provides a social situation that: a) exposes children to literacy concepts and skills; b) creates socio-cognitive conflicts (different points of view) that generate adaptations in individual thinking; and c) promotes elaboration of literate thinking through more complex social exchanges. In pretend play, the

need to coordinate social actions with others gives rise to opportunities that may involve literate ways of thinking (e.g., narration) as well as use of literacy knowledge, tools, scripts and skills. The interface, here, is at the level of appropriation which is concerned with what children may take from their encounters with others in social situations, such as play, in which literacy may be embedded.

A third idea is fundamentally ecological, embracing Bronfenbrenner's basic concept of the person-environment dynamic, namely that individuals both shape and are shaped by their surroundings. Children are active, intentional entities of their environments; they help shape them. In turn, the situations they encounter cue them and also are embedded in larger environmental spheres with physical, social and cultural properties that influence directly and indirectly the child-environment interaction. Play is a system of activity (an environment) that arises from individual intentions as well as setting influences both near (the immediate surroundings) and far (socially-held views of play). As such, it affords an opportunity to exercise individual literacy ideas and skills even as it presses for certain kinds of literacy knowledge and interactions. This dynamic, complex process contributes to developmental trajectories that may more or less favor literacy achievement at school. Thus the interface in this case is at the level of activity, concerned with its social organization (e.g., groupings, roles, power relations) as well as its psychological content (e.g., tasks, tools, mental work).

How well do our authors do at conjoining play and literacy at these different interfaces? As might be expected, they are better at articulating some of these conceptually dense regions than others. Representation, for example, is clearly drawn in the work of Rowe (1998), where children remember and make sense of books in multi-modal ways, and that of Vedeler (1997), where children practice their syntactic abilities in play. Several authors describe the power of social interaction in scaffolding children's appropriation of literacy knowledge, processes, and skills (e.g., Neuman, 2000). To various degrees, different authors also outline the activity settings of home, day care, and preschool that support or constrain children's opportunities to engage in literacy practices of meaning and challenge to them (e.g., Neuman & Roskos, 1997).

Yet, much remains uncharted along these common boundaries of play and literacy. We would argue, in fact, that most authors are centrists not veering far from classic interactionist explanations of the play-literacy relationship, i.e., locating its physical and social processes in interactions with the immediate world or among individuals. In the direction of socio-cultural explanations, for example, macro-level or societal processes are overlooked as having any bearing on children's appropriation of literacy concepts in play or the nature of the play activity itself. How the shift to a global economy and results-oriented policies, such as the Head Start Reauthorization mandating that all children learn 10 letters of the alphabet, impact play and literacy in play-like activity remains unexplored.

And in direction of individual systems, the role of children's bio-psychological resources (e.g., affect and motivation) and their 'developmentally instigative characteristics' (e.g., willingness to explore particular features of objects and symbols in the environment) are virtually ignored in examinations of activity and representation (Bronfenbrenner, 1995). Children contribute to their own development, and this may be especially relevant in the case of play 'as a playground' for exploring cultural symbol systems and related tools. Yet the dispositional proclivities that propel some children over others to take advantage of the literacy opportunities in their play environment are not well-charted, being mostly confined to two personal characteristics: age and gender.

Nor do authors attend very well to an holistic, integrative view of literacy in play activity as a micro-system (or eco-cultural niche) that involves simultaneous interactions with three features of the immediate environment: persons, objects and symbols. This is to say that, in joining play and literacy, authors fail to grapple with the dynamics of literacy-embedded play as experienced through patterns of co-occurring gestural and talk interactions that constitute activity. They remain fixed on the parts of activity and their attendant properties, whereas the play experience itself occurs as a whole – a web of relationships which holds the meaning that

the experience has for playing and for learning to read and write. There is also a need for a shift from the monocular focus on the shared “essential elements” between literacy and play (Pellegrini & Galda, 2000, p. 68) to a binocular vision of play processes as patterns of interaction that are turned into experience by and for children (Johnson, 2000).

Claims and Evidence

As the final step in our analysis we identified the authors’ conclusions in order to develop an understanding of what they proposed as answers or solutions to their research questions. We sought more than a literal understanding of their points, however, working to achieve a nuanced interpretation and analysis of the significance of the research findings. That is, we hoped to see subtle differences, levels and ironies among the authors’ claims so as to create a helpful interpretation. Our approach was two-tiered: to establish a set of neutral claims that shed light on the interface and to which each author contributed, and to engage in a discussion of this set, ‘reading between the lines’ so to speak, so as to reveal what the authors imply or do not imply in their claims.

Taking up the matter of the authors’ conclusions first, we gleaned from this list a set of four claims. At the very core and integral to the others is the foundational assertion that play serves literacy. In some measure, some form, some process, play is mustered into the service of literacy and thus contributes to the literacy development of young children. Each author makes this basic claim either by showing how play can be pressed into service, as in supplying its environment with literacy information and tools (Neuman & Roskos, 1992 or Vukelich, 1991), or how it may go untapped, as in limiting access to literacy resources or orientations in play (e.g., Dunn, Beach & Kontos, 1994 or Sonnenschein, et al., 2000).

Three closely connected propositions embrace this core claim. One is that a literacy-enriched play environment (social and physical resources) promotes literacy activity, skills or processes. Several authors assert, for example, that stocking the environment with literacy materials and tools stimulates literacy interactions in the course of play (Dunn, Beach & Kontos, 1994; Neuman & Roskos, 1992; 1997). Others cite evidence that adult involvement and intervention infuse literacy ideas, processes and skills into play activity (e.g., Neuman, 2000; Vukelich, 1994). Still others show the value of peers as provocateurs and informants in play settings (e.g., Christie & Stone, 1999). There is, in sum, a general consensus that the play environment can be engineered to enhance the literacy experiences of young children.

A related claim is made that play is a language experience for young children that builds connections between oral and written modes of expression. Sociodramatic play, for example, was found to recruit more advanced syntactic utterances and sentence expansions that are linked to reading success (Vedeler, 1997). Rowe’s (1998) young players of two and three years of age mingled toy play, gesture and talk to express their understandings of favorite books, thus building their ‘comprehension of the act’ of reading books. Through guided participation during play, the teenage mothers in Neuman’s study (2000) developed the distancing strategies of their young children so fundamental to meaning making in the decontextualized medium of print. The authors, therefore, find for and argue that the language of play can connect to the language of literacy, and thus contribute to the young child’s literacy development.

The authors also claim that play is an opportunity to teach and learn literacy. Neuman and Gallagher (1994) show how young mothers can become better teachers of language and thinking when at play with their children. Vukelich (1994) describes how adults can demonstrate and express literacy to children while they play. And Christie and Stone (1999) illustrate how multi-age grouping in a play setting allows children to teach one another. Play provides chances to learn literacy, too. As they play, children learn to read words, such as environmental print (Neuman & Roskos, 1993; Vukelich, 1994); they learn to comprehend books (Rowe, 1998), and they develop phonological awareness and print motivation (Sonnenschein, et al., 2000).

As these supporting claims attest, therefore, play serves literacy in various ways and that it does so is the most fundamental claim of all. Given the recency of play-literacy line of inquiry, that such claims can be made based on sound evidence is a testament to the strength,

appeal and fruitfulness of the play-literacy relationship. Still there are controversies that swirl around this set of claims and intellectual oppositions that confront them and expose their weaknesses. Consider, for example, the foundational claim that play serves literacy, from which we might infer that indeed literacy is 'king' and play the 'jester-clown.' So positioned, play and literacy are in a power relation wherein play is subordinated to the loftier goal of learning to read and write – a power struggle not to be taken lightly as Lubeck (2000) has observed. “The professional commitment to play,” she writes, “has begun to be eroded in a political climate dominated by language of standards and outcomes” (p. 3). What is not asked wholeheartedly and with conviction is how literacy might also serve play, thus enhancing and deepening this significant life experience for young children. Do more advanced emergent readers and writers engage in more complex play that in turn boosts their intellectual power? How do early experiences with writing and reading impact different forms of play? And, while Fein, Ardila-Rey & Groth (2000) accepted the challenge of this question, more potent research designs are needed to trace the spread effect of literacy curriculum experiences into play corners. Does an emphasis on emergent literacy in the early childhood curriculum limit play? What does a literacy emphasis portend for those “serious play” functions that give “push to variation,” and thus develop children’s combinatorial behaviors, their flexibility with materials and ideas, and fluency with rules and conventions (Bruner, 1972)? Questions like these expose what needs to be asked if play and literacy are to enter into a dialogic relationship – one that informs and instructs both domains to the improvement of each in the early childhood curriculum.

The claim of environmental enrichment for purposes of literacy enhancement also warrants closer scrutiny, because the question must be asked: if more resources (both social and physical) are allocated to literacy in play, what areas are given short shrift? What is ignored because literacy receives more attention? Resources, as we all well know, are finite, and the degree to which teachers (as social resources) allot time and energy to reading and writing in play means they are not doing other things in play, such as building concepts about social relationships or helping children learn to manipulate and create with their material world. They may overlook broader aspects of environmental design and provisions (physical resources) that produce “an amiable environment rich with learning opportunities, media and materials” (Gandini, 1998). Preoccupation with literacy may in fact inhibit the growth of a hybrid environment in which a richly layered network of situations creates conditions for complex learning. It’s important to ask: what might this literacy emphasis in play mean for the many developing languages of young children that equip them for an ever-changing and evolving world (Katz, 1998)? Thus it is important to probe and investigate as to what occurs when the play environment is enriched (or overstuffed) with literacy and to document not only what is gained, but also what may be lost and the consequences for children’s play activity in early childhood.

Play as a language experience tied to literacy is challenged by two controversies. One is the degree to which all young children engage in or have access to the kinds of play (e.g., sociodramatic play) claimed to do the linguistic groundwork on which literacy depends. We simply do not have sufficient research data to fully address this issue of incidence. Who engages in pretend play, in what cultural ways, and how often are important questions, along with the degree to which such play is allowed and encouraged in educational settings? Early education programs, for example, vary widely as to the time allotted for play. Further, just as the nature of the play language experience can be linguistically strong, good and true, it can be semantically and syntactically weak, mean-spirited, and headed in the wrong direction. Children can be exposed to language practices in play that give them an edge, but just as easily exposed to those that limit growth and instill feelings of insecurity and resistance.

Finally the proposition that play offers an educational opportunity in that literacy can be taught and learned within its boundaries must be cross-examined. Present evidence points to the potential of play for luring young children into literacy activity and kindred processes. Adults can show, and children will do. They can guide participation, and children will follow. But the

danger, of course, is the spreading expectation in the minds of adults that a certain measure of play must be purposeful and such purpose must be bent to literacy outcomes. What this might mean for young children's indoor play in the early childhood curriculum is hard to say, but it is necessary to pose the possibility that play may become a site for literacy lessons and to seriously consider the consequences. Presently there is little known as to how teachers view literacy-embedded play, how they plan for it, how it impacts children's play life or to what extent it improves children's literacy achievements. For example, what do teachers need to know to plan for literacy in play effectively and well? What factors influence children's participation? And, fundamentally, does such play help children advance as readers and writers? If so, how? These are questions that invite further and deeper investigations about the role of play in literacy learning and development.

Critical Issues and Recommendations

The collection of 20 studies discussed in this critical review makes a substantial contribution to our understanding of the relationships between play and literacy. Most noteworthy, researchers have made considerable progress in: (a) describing children's play behaviors in literacy-enriched play centers, (b) determining the effects of play in these settings on children's ability to read play-related environmental print, and (c) understanding the effects of adult mediation and peer interaction on children's literacy play behavior.

However, as our criticism in the preceding section revealed, there are shortcomings in the current research and a number of important issues that remain unresolved or that have yet to be addressed. It is our hope that these issues can serve as guideposts for the next generation of research on the play-literacy interface.

- Definitions -- More attention needs to be given to the way in which play and literacy are defined. As noted earlier, the common practice has been to define play very loosely in terms of any activity that occurs in a "play" center or in the presence of play materials. Anyone who has observed children interacting in classroom play centers will likely recall exceptions to this premise. While in these play settings, children often engage in goal-directed activities that are closer to work than to play. Indeed, King's (1979) research in a kindergarten classroom revealed that children considered some activities with play materials to be work, rather than play. We hope that future researchers follow the lead of Rowe (1998) and Vedeler (1997) and establish precise criteria for what constitutes play. There is a fairly rich knowledge base to draw upon in crafting these criteria (Christie, 1991; Smith & Vollstedt, 1985).

Whereas there is a need to refine how play is defined, the definition of literacy could use expanding. Most of the studies in this review focus on emergent and conventional forms of reading and writing -- what could be termed "school literacy." Even the family literacy studies focused exclusively on educational forms of literacy. It would be desirable for researchers to extend research on the play-literacy interface into broader conceptions of literacy. Hall (2000, p. 190), for example, has connected literacy play with Street's (1995) construct of ideological literacy, "types of literacy that draw their meaning from being situated in within cultural values and practices." Hall has developed a strategy in which children engage in "real life" literacy activities that are connected with their ongoing sociodramatic play (e.g., filling out an actual "Planning Application Form" for the local city government in order to set up a garage play center in the classroom).

- Theory -- The research in this review has been dominated by Piaget's view of play as representation, Vygotsky's emphasis on social interaction and appropriation, and (to a lesser extent) the ecological perspective. We believe that this area of inquiry needs a broader theoretical base.

First, there is a need for an updated, expanded version of the ecological perspective, which places more emphasis on both ends of the spectrum of ecological influences on behavior. More attention needs to be given to both *macrolevel* societal and historical forces that impact play behavior and children's appropriation of literacy, and to *microlevel* factors

that emphasize individual differences in children's affect, motivation, and individual play styles.

Second, opportunities exist to take fuller advantage of Vygotsky's theory. As noted earlier, researchers have concentrated their attention on Vygotsky's "zone of proximal development" as it pertains to social interaction between children and adults or more competent peers. However, Vygotsky also viewed play *itself* as a zone of proximal development. Vygotsky (1976, p. 552) argued that, "In play a child is always above his average age, above his daily behaviour; it play it is as though he were a head taller than himself. Viewed from this perspective, play is self-help tool that enables children to achieve higher levels of cognitive functioning (Johnson, Christie, & Yawkey, 1999). Because play activity generates feedback under conditions of less risk, children may acquire the ability to regulate themselves, i.e., to correct mistakes and thus re-organize their action and problem solving schemes to higher levels of performance (Bruner, 1972). It would be interesting, therefore, to investigate if children's solitary play with literacy material does indeed allow them to function at higher levels than in non-play contexts.

Finally, a number of other theories, such as narrative theory (Bruner, 1990), collaborative learning theories (Tharp & Gallimore, 1988; Wells & Chang-Wells, 1992), activity theory (Leont'ev, 1981), and cognitive apprenticeship (Rogoff, 1990), have connections with play and literacy that are yet to be exploited. To date, these theories have been under utilized or completely ignored by researchers. Broadening the theoretical base could greatly enrich our understanding of the play-literacy interface.

- Methodology -- While the collection-as-whole featured a nice mix of quantitative and qualitative methodology, we were struck by the narrow range of qualitative methods employed by the researchers. With two exceptions (Rowe, 1998; Roskos & Neuman, 1993), the qualitative studies utilized a small subset of the available means for analyzing data (constant comparison and computing/tabulating), drawing conclusions (counting and patterns/themes), and verifying those conclusions (checking for bias and weighting evidence). A number of qualitative techniques were rarely if every used:
 - Data analysis: ranking/weighting, summarizing/generating themes, and completing matrices.
 - Drawing conclusions: clustering, making metaphors, splitting variables, subsuming particulars, factoring, noting relations between variables, and finding intervening variables.
 - Confirming conclusions: making contrasts, checking for outliers, using extreme cases, ruling out spurious relations, replicating a finding, checking out rival explanations, looking for negative evidence, and getting feedback from informants.

While it is obvious that not all of these procedures will be appropriate for any given research problem, we do believe that inquiry into the play-literacy interface would benefit from selective use of these under-utilized qualitative methods.

- Causal connections between play and development -- One issue that was not addressed very effectively by this set of studies concerns the impact of literacy play on children's development. Only two studies covered in this review supplied credible evidence about literacy play's developmental impact. Neuman and Roskos (1993) and Vukelich (1994) found that, when children play in literacy-enriched settings with a supportive adult, they learn to read environmental print that is in the play setting. So it does appear that literacy play can improve children sight recognition of words connected with the play. A third study offered at least the possibility of a link between play and oral language acquisition. Neuman and Gallagher (1994) discovered that their family literacy program, with its emphasis on parental play mediation strategies, resulted in gains in PVVT scores. However, the researchers were careful to point out that there was not a clear causal connection between the parental play mediation strategies and these gains in receptive vocabulary.

There is a definite need for further research into causal connections between literacy play and development. Ideally, future studies should feature: (a) long-term exposure to literacy play activities, (b) longitudinal designs that can track the effects of interventions over time, and (c) rigorous control over other variables that may impact development. In addition, we hope that future studies will expand the range of dependent variables beyond narrow conceptions of literacy. By spotlighting only literacy, there may be other outcomes of literacy play that we are *not* seeing. For example, what effect does flooding play settings with literacy materials have on structural properties of the play itself? Does this literacy infusion enhance or degrade the quality of children's sociodramatic play? Neuman and Roskos (1992) was the only study in this review that attempted to address this issue. Results were positive, showing the length and complexity of play episodes increased as a result of adding print to play settings. We need to examine how other qualities of play (e.g., narrative structure, social interaction, and imaginativeness) are affected by large infusions of print props. It would also be interesting to see how other areas of development, such as oral language development, problem-solving skills, etc., are affected by literacy play intervention strategies.

- "Play as Progress" rhetoric -- Sutton-Smith (1995, 1997) has written extensively about the tendency of social science researchers to assume that play is a positive force in child development. He refers to this idealistic view as the "play as progress" rhetoric. He claims, somewhat light-heartedly, "Since the death of Puritanism it has not been easy to find a self-respecting scholar of childhood who would announce that play is of no damn use whatsoever" (1995, pp. 279-280). However, Sutton-Smith also points out the danger of this rhetoric. It can lead researchers to assume that everything about play is good and cause them to overlook or ignore the less positive and sometimes negative aspects of play. And these negative aspects do exist. Children occasionally resort to physical aggression during play and more commonly use verbal and social forms of hostility, such as ridicule and exclusion, to hurt their playmates. His point is that, in order to get a true picture of play's role in development, researchers have to focus on all facets of play, not just the positive aspects.

We see this "play as progress" rhetoric as dominating the discourse in all of the studies covered in this review. Not one study reported any negative aspects of play's role in literacy learning. Yet, these negative influences may be there, along with the positive influences identified by the researchers. It is possible, for example, that some children may learn misconceptions about literacy during play. It is also possible that some of the social interaction connected with literacy play may be of a negative character. For example, a child might ridicule a peer's use of an emergent form of literacy (e.g., scribble writing) during play.

We are not proposing that researchers make a point of focusing on negative aspects of the play-literacy interface (though this might be an intriguing project). What we do advocate is that researchers be open to other rhetorics of play, such as "play as power" (play as means of expressing and gaining power) and "play as frivolity" (play as an optional, non-serious, non-productive activity), and be on the lookout for negative and neutral, as well as positive, aspects and outcomes of playing with literacy.

Conclusion

In retrospect, we learned quite a bit about ourselves through this critical analysis of play/literacy research. While it is difficult to examine and critically analyze one's own research, it is also quite enlightening. We became more aware of our own stance toward science and doing research and of the ways that we have viewed play and literacy. We discovered that we are both "middle-of-the-road" when it comes to the interpretist/positivist dichotomy. This centrist leaning manifests itself in our respect for Miles and Huberman's (1994) guidelines for

qualitative research, which emphasize both inductive and deductive approaches to data collection and analysis. We came to realize that we have defined play rather vaguely as any activity that occurs in classroom play centers. In line with the "play as progress" rhetoric, we have tended to only focus on positive aspects of play activity and have not look for any negative outcomes. Finally, we discovered that we have been closely wedded to "school literacy," focusing on a rather narrow spectrum of literacy promoted in educational settings. While our stance toward scientific inquiry will remain the same, our future research will likely encompass broader, more carefully defined views of play and literacy.

Aside from these self-discoveries, we hope that this critical review will be helpful to others researchers. Credible evidence supports the claim that play can serve literacy in several ways by:

- providing settings that promote literacy activity, skills, and strategies,
- serving as a language experience that can build connections between oral and written modes of expression, and
- providing opportunities to teach and learn literacy.

At the same time, our review highlighted a number of limitations and unresolved issues connected with this line of inquiry, including concerns about definitions, theories, research methodology, lack of progress in establishing causal connections with development, and dominance of the "play as progress" rhetoric. We hope that future research will zero in on these concerns and provide even richer, more insightful information about the play-literacy interface.

References

- Adler, M.J. & van Doren, C. (1972). How to read a book. New York: Simon & Schuster.
- Barker, R. (1978). Stream of individual behavior. In R. Barker & Associates (Eds.), Habitats, environments, and human behavior (pp. 3-16). San Francisco: Jossey-Bass.
- Bergen, D., & Mauer, D. (2000). Symbolic play, phonological awareness, and literacy skills at three age levels. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 45-62). Mahwah, NJ: Lawrence Erlbaum.
- Branscombe, N. A., & Taylor, J. (2000). "It would be as good as Snow White": Play and prosody. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 169-188). Mahwah, NJ: Lawrence Erlbaum.
- Bronfenbrenner, U. (1995). Developmental ecology through space and time: a future perspective. In P. Moen, G. Elder, & K. Luscher (Eds.), Examining lives in context (pp. 619-648). Washington, D.C.: American Psychological Association.
- Brown, G.A. & Armstrong, S. (1984). Explaining and explanations. In E.C. Wragg (Ed.), Classroom teaching and skills (pp. 121-223). New York: Nichols Publishing Co.
- Bruner, J. (1972). Nature and uses of immaturity. American Psychologist, August, 687-708.
- Bruner, J. (1990). Acts of meaning. Boston, MA: Harvard University Press.
- Christie, J. (1991). Psychological research on play. In J. Christie (Ed.), Play and early literacy development (pp. 27-43). Albany, New York: State University of New York Press.
- Christie, J., & Enz, B. (1992). The effects of literacy play interventions on preschoolers' play patterns and literacy development. Early Education and Development, 3, 205-220.
- Christie, J., & Johnsen, E. P. (1983). The role of play in social-intellectual development. Review of Educational Research, 53, 93-115.
- Christie, J., & Johnsen, E. P. (1987). Preschool play. In J. Block & N. King (Eds.), School play (pp. 109-142). New York: Garland.
- Christie, J., & Stone, S. (1999). Collaborative literacy activity in print-enriched play centers: Exploring the "zone" in same-age and multi-age groupings. Journal of Literacy Research, 31, 109-131.
- Clay, M. (1972). Reading: The patterning of complex behaviour. London: Heinemann.
- Dever, M., & Wishon, P. (1995). Play as a context for literacy learning: A qualitative analysis. Early Childhood Development and Care, 113, 31-43.
- Dunn, L., Beach, S., & Kontos, S. (1994). Quality of the literacy environment in day care and children's development. Journal of Research in Childhood Education, 9, 24-34.
- Einarsdottir, J. (1996). Dramatic play and print. Childhood Education, 72, 352-357.
- Fein, G. (1981). Pretend play in childhood: an integrative review. Child Development, 52, 1095-1118.
- Fein, G., Ardilla-Rey, A., & Groth, L. (2000). The narrative connection: Stories and literacy. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 27-43). Mahwah, NJ: Lawrence Erlbaum.
- Gandini, L. (1998). Educational and caring spaces. In C. Edwards, L. Gandini & G. Forman (Eds.), The hundred languages of children (pp. 161-178). Greenwich, CT: Ablex Publishing Co.
- Göncü, A., & Katsarou, E. (2000). Commentary: Constructing sociocultural approaches to literacy education.
- Gump, P. (1989). Ecological psychology and issues of play. In M. Bloch & A. Pellegrini (Eds.), The ecological context of children's play (pp. 35-56). Norwood, NJ: Ablex.
- Hall, N. (1987). The emergence of literacy. Portsmouth, NH: Heinemann.

Hall, N. (2000). Literacy, play, and authentic experience. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 189-204). Mahwah, NJ: Lawrence Erlbaum.

Hall, N., May, E., Moores, J., Shearer, J. & Williams, S. (1987). The literate home-corner. In P. Smith (Ed.), Parents and teachers together (pp. 134-144). London: Macmillan.

Hodder, I. (2000). The interpretation of documents and material culture. In N. Denzin & Y. Lincoln (Eds.), Handbook of qualitative research (pp. 703-716). Thousand Oaks, CA: Sage Publishing Co.

Johnson, J. (2000). Play, literacy, and ecology: Implications for early educational research and practice. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 139-150). Mahwah, NJ: Lawrence Erlbaum.

Johnson, J., Christie, J., & Yawkey, T. (1999). Play and early childhood development (2nd ed.). New York: Longman.

Jupp, V. (1996). Documents and critical research. In R. Sapsford & V. Jupp (Eds.), Data collection and analysis (pp. 299-317). Thousand Oaks, CA: Sage Publishing Co.

Jupp, V., & Norris, C. (1993). Traditions in documentary analysis. In M. Hammersley (Ed.), Social research: philosophy, politics and practice. Thousand Oaks, CA: Sage Publishing Co.,

Katz, L. (1998). What can we learn from Reggio Emilia? In C. Edwards, L. Gandini & G. Forman (Eds.), The hundred languages of children (pp. 27-48). Greenwich, CT: Ablex Publishing Co.

King, N. (1979). Play: The kindergartners' perspective. Elementary School Journal, 80, 81-87.

Leont'ev, A.N. (1978). Activity, consciousness and personality. Englewood Cliffs, NJ: Prentice-Hall.

Lubeck, S. (2000, April). On reassessing the relevance of the child development knowledge base to education: a response. Paper presented at the Early Education/Child Development SIG, AERA, New Orleans, LA.

Makin, L., Hayden, J., & Diaz, C. (2000). High-quality literacy programs in early childhood classrooms: An Australian case study. Childhood Education, 76, 368-373.

Miles, M., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. Thousand Oaks, CA: Sage.

Morrow, L. (1990). Preparing the classroom environment to promote literacy during play. Early Childhood Research Quarterly, 5, 537-544.

Neuman, S. (2000). Social contexts for literacy development: A family literacy program. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 153-168). Mahwah, NJ: Lawrence Erlbaum.

Neuman, S., & Gallagher, P. (1994) Joining together in literacy learning: Teenage mothers and children. Reading Research Quarterly, 29, 382-401.

Neuman, S., & Roskos, K. (1990). The influence of literacy-enriched play settings on preschoolers' engagement with written language. In S. McCormick & J. Zutell (Eds.), Literacy theory and research: Analyses from multiple perspectives (pp. 179-187). Chicago: National Reading Conference.

Neuman, S., & Roskos, K. (1993). Access to print for children of poverty: Differential effects of adult mediation and literacy-enriched play settings on environmental and functional print tasks. American Educational Research Journal, 30, 95-122.

Neuman, S., & Roskos, K. (1997). Literacy knowledge in practice: Contexts of participation for young writers and readers. Reading Research Quarterly, 32, 10-32.

Pellegrini, A. (1980). The relationship between kindergartners' play and achievement in prereading, language, and writing. Psychology in the Schools, 17, 530-535.

- Pellegrini, A., & Galda, L. (1993). Ten years after: A reexamination of symbolic play and literacy research. Reading Research Quarterly, 28, 163-175.
- Pellegrini, A., & Galda, L. (2000). Cognitive development, play, and literacy: Issues of definition and developmental function. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 63-74). Mahwah, NJ: Lawrence Erlbaum.
- Pellegrini, A., Galda, L., Dresden, J., & Cox, S. (1991). A longitudinal study of the predictive relations among symbolic play, linguistic verbs, and early literacy. Research in the Teaching of English, 25, 215-235.
- Piaget, J. (1962). Play, dreams and imitation in childhood. New York: Norton.
- Pickett, L. (1998). Literacy learning during block play. Journal of Research in Childhood Education, 12, 225-230.
- Rogoff, B. (1990). Apprenticeship in thinking: Cognitive development in social context. New York: Oxford University Press.
- Roskos, K., & Neuman, S. (1993). Descriptive observations of adults' facilitation of literacy in play. Early Childhood Research Quarterly 8, 77-97.
- Roskos K., & Christie J. (Eds.). Play and literacy in early childhood: Research from multiple perspectives. Mahwah, NJ: Lawrence Erlbaum.
- Rowe, D. (1998). The literate potentials of book-related dramatic play. Reading Research Quarterly, 33, 10-35.
- Schrader, C. (1990). Symbolic play as a curricular tool for early literacy development. Early Childhood Research Quarterly, 5, 79-103.
- Smith, P., & Vollstedt, R. (1985). On defining play: An empirical study of the relationship between play and various play criteria. Child Development, 56, 1042-1050.
- Sonnenschein, S., Baker, L., Serpell, R., & Schmidt, D. (2000). Reading is a source of entertainment: The importance of the home perspective for children's literacy development. In K. Roskos & J. Christie (Eds.) Play and literacy in early childhood: Research from multiple perspectives (pp. 107-124). Mahwah, NJ: Lawrence Erlbaum.
- Spodek, B., & Saracho, O. (Eds.) (1998). Multiple perspectives on play in early childhood. Albany, NY: SUNY.
- Spradley, J. (1979). The ethnographic interview. New York: Holt, Rinehart & Winston.
- Street, B. (1995). Social literacies: Critical approaches to literacy in development, ethnography and education. London: Longman.
- Sutton-Smith, B. (1995). Conclusion: The persuasive rhetorics of play. In A. Pellegrini (Ed.), The future of play theory: A multidisciplinary inquiry into the contributions of Brian Sutton-Smith, (pp. 275-306). Albany, NY: SUNY press.
- Sutton-Smith, B. (1997). The ambiguity of play. Cambridge, MA: Harvard University Press.
- Teale, W., & Sulzby, E. (1986). Emergent literacy as a perspective for examining how young children become writers and readers. In W. Teale & E. Sulzby (Eds.), Emergent literacy: Writing and reading. Norwood, NJ: Ablex.
- Tharp, R. & Gallimore, R. (1988). Rousing minds to life: Teaching, learning and schooling in social context. New York: Cambridge University Press.
- Vedeler, L. (1997). Dramatic play: A format for 'literate' language? British Journal of Educational Psychology, 67, 153-167.
- Vukelich, C. (1991, December). Learning about the functions of writing: The effects of three play interventions on children's development and knowledge about writing. Paper presented at the meeting of the National Reading Conference, Palm Springs.
- Vukelich, C. (1994). Effects of play interventions on young children's reading of environmental print. Early Childhood Research Quarterly, 9, 153-170.
- Vygotsky, L. (1976). Play and its role in the mental development of the child. In J. Bruner, A. Jolly, & K. Sylva (Eds.), Play: Its role in development and evolution (pp. 537-554). New York: Basic Books.

Vygotsky, L. (1978). Mind in society: The development of psychological processes. Cambridge, MA: Harvard University Press.

Weir, R. (1962). Language in the crib. The Hague: Mouton.

Wells, G. & Chang-Wells, G. (1992). Constructing knowledge together: Classrooms as centers of inquiry and literacy. Portsmouth, NH: Heinemann Educational Books.

Whitehurst, G.J. & Lonigan, C.J. (1998). Child development and emergent literacy. Child Development, 69, 848-872.

Wolfgang, C. (1974). An exploration of the relationship between the cognitive area of reading and selected developmental aspects of children's play. Psychology in the Schools, 11, 338-343.

Yaden, D., Rowe, D., & MacGillivray, L. (2000). Emergent literacy: A matter (Polyphony) of Perspectives. In M. Kamil, P. Mosenthal, P. D. Pearson, & R. Barr (Eds.), Handbook of reading research (vol. III). Mahwah, NJ: Erlbaum

Table 1
Design Features of Play-Literacy Studies

Study Interface	Subjects	Setting	Duration	Methodology	Focus on Play/Literacy
Bergen & Mauer (2000)*	14 children (age 4)	free play centers (year 1) clinical play sessions (year 2) parent phone interview about outdoor play (year 3)	3 years	quantitative	symbolic play phonological awareness print awareness reading achievement
Branscombe & Taylor (2000) *	5 children (age 5)	kindergarten classroom	8 months	qualitative	narrative development
Christie & Stone (1999)	22 children (age 5) 27 children (age 5-7)	literacy-enriched play centers in a kindergarten (Year 1) and a K-2 multi-age classroom (Year 2)	4 weeks	qualitative	peer collaboration
Dever & Wishon (1995)*	3 children (age 6)	literacy enriched play center in a grade 1 classroom	8 weeks	qualitative	adult mediation literacy/play behaviors
Dunn, Beach, & Kontos (1994) environment development	30 teachers & 60 children (age 3-4)	30 child-care classrooms	1 day per site	quantitative	classroom literacy language and cognitive
Einarsdottir (1996)*	20 children (age 5)	literacy-enriched play settings in 2 preschools (Iceland)	2 years	quantitative	literacy/play behaviors interest in reading literacy development
Fein, Ardilla-Rey & Groth (2000)* chair	37 children (age 5)	2 kindergarten classrooms	12 weeks	quantitative	shared enactment & author's fantasy play literacy activity

Makin, Hayden, & Diaz (2000)* environment	158 child-care staff & an unspecified number of parents on literacy literacy/play behaviors	79 early childhood classrooms (Australia)	7 months	quantitative	classroom literacy staff & parent perspectives
Neuman (2000)	30 mothers (mean age = 19) and 6 of their children (ages 1.5-4)	literacy-enriched play center in a lab preschool connected with an Adult Basic Education program	6 months	quantitative	adult mediation
Neuman & Gallagher (1994) literacy play development	6 mothers (mean age = 20) and their 6 children (ages 3-4)	literacy-enriched prop boxes used in the home	12 weeks	quantitative	adult mediation child participation in vocabulary
Neuman & Roskos (1992) behaviors complexity	91 children (age 3-5)	literacy-enriched play centers in 2 day-care centers	6 months	quantitative & qualitative	literacy/play play duration and
Neuman & Roskos (1993) behaviors reading knowledge	177 children (age 3-5)	literacy-enriched play centers in 8 Head Start classrooms	5 months	quantitative & qualitative	adult mediation literacy/play environmental print functional print
Neuman & Roskos (1997) behaviors	30 children (age 3-4)	literacy-enriched play centers in an Even Start classroom	7 months	quantitative & qualitative	literacy/play literacy knowledge purposes for reading & writing
Pickett (1998)* behaviors	10 children (age 6-7)	literacy-enriched play center (blocks) in a grade 1 classroom	3 weeks	qualitative	adult mediation literacy/play

Roskos & Neuman (1993)	6 teachers & 45 children (age 3-5)	literacy-enriched play centers in a day-care classroom	6 weeks	qualitative	adult mediation
Rowe (1998) play	16 children (age 2-3) & author's child	preschool classroom & author's home	9 months	qualitative & case study	book-related dramatic literary response
Sonnenschein, Baker, literacy Serpel, & Schmidt (2000) activities	40 children (age 5) & their parents	home	3 years	quantitative	parent attitudes about home literacy literacy development
Vedeler (1997) play activity language)	6 children (age 6)	play room in a kindergarten (Norway)	11 weeks	quantitative	sociodramatic play & other syntax (literate)
Vukelich (1994)	56 children (age 5)	literacy-enriched play settings in 3 kindergarten classrooms	15 weeks	quantitative	adult mediation concepts about print environmental print reading
Walker (1999)*	17 children (age 4-5)	Head Start classroom	8 weeks	qualitative	narrative features of play process writing-like behaviors

*Studies in which we disagreed with the authors' claims

Appendix 1
Coding Matrix

Probes			
1.0 The problem is...			
2.0 Explained by...			
2.1 direct statement			
2.2 comparison			
2.3 providing a rationale			
2.4 conditional inferring			
2.5 evaluating			
3.0 The theory is...			
4.0 The preferred solution path is...			
5.0 The setting is...			
6.0 Data are analyzed by...			
6.1 Quantitative statistics			
6.2 classifying/categorizing			
6.3 ranking/weighting			
6.4 summarizing/generating themes			
6.5 computing/tabulating			
6.6 competing matrices			
7.0 Conclusions based on...			
7.1 counting			
7.2 patterns/themes			
7.3 plausibility			
7.4 clustering			
7.5 making metaphors			
7.6 splitting variables			
7.7 subsuming particulars			
7.8 factoring			
7.9 noting relations between variables			
7.10 finding intervening variables			
7.11 building logical chain of evidence			
7.12 making			

conceptual/theoretical coherence			
8.0 Conclusions confirmed by...			
8.1 representativeness			
8.2 check for bias			
8.3 triangulating			
8.4 weighting evidence			
8.5 making contrasts			
8.6 checking outliers			
8.7 using extreme cases			
8.8 ruling out spurious relations			
8.9 replicating a finding			
8.10 checking out rival explanations			
8.11 looking for negative evidence			
8.12 getting feedback from informants			

