

Research on Children's Play: Analysis of Developmental and Early Education Journals from 2005 to 2007

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Abstract Our review examined four early childhood journals (*Early Child Development and Care*, *Early Childhood Education Journal*, *Journal of Research in Childhood Education*, and *Early Childhood Research Quarterly*) and four developmental science journals (*Child Development*, *Developmental Psychology*, *Journal of Applied Developmental Psychology*, and *Merrill Palmer Quarterly*) from 2005 to 2007. Only 57 articles out of over 1,000 (conservative estimate) included the term 'play' in the title, abstract or as a key word. Of these 57 articles, only 19 were primarily focused on play, 16 from ECE journals and only three from developmental science journals ($Z = 2.43, p < .05$). While the ECE journals drew implications for practice, the developmental science journals did not. Seven ECE journal articles dealt with the concept of play in education and four other ECE journal articles covered play and literacy. The findings suggest the need for more careful use of the term play in early education and child development studies and a reevaluation of rationales and methods for its study.

Keywords Play research · Early education · Child development

Introduction

Many studies concerning children's play have been published in early education and developmental journals, and there have been many research reviews in secondary sources, e.g., *Young Children* (Nourot and Hoorn 1991) and

tertiary sources, e.g., *Encyclopedia on Early Childhood Development* (Smith and Pellegrini 2008). In the educational field, play remains a topic of interest, and many researchers have surveyed the study of play. For example, Sutton-Smith (1983) reviewed play research articles and books cited in *Children's Play* (Herron and Sutton-Smith 1971) and in the chapter on play in *Handbook of Child Psychology* (Rubin et al. 1983) from before 1900 to the 1970s. He found that there was a jump in play studies beginning in the 1930s, and that the 1970s had the greatest quantity of research on play, about 200 articles. This play research can be categorized according to five aspects—psychodynamic, correlational, pragmatic, Piagetian, and experimental studies. Sutton-Smith also emphasized that there were many play studies in other areas, e.g. anthropological-folkloric, animal, socio-psychological, gestalt, historical, theoretical, and communicational fields, were not included in his study.

Roskos and Christie (2001) more recently conducted a play-literacy review by examining their interface based on four criteria: (1) implicit or explicit assumption of play-literacy connections; (2) publications in the PsychINFO and ERIC online databases and edited books (e.g., Roskos and Christie 2000; Spodek and Saracho 1998) between 1992 and 2000; (3) presentation as a research report; and (4) emphasis on early childhood. They used critical analysis to evaluate these studies, challenging both what was said (i.e., the claims) and also what was not said or addressed. Their results showed that the major claims in 12 out of the 20 articles were sound and complete. These 12 studies had strong evidence supporting the claim that play can serve literacy, because play (1) provides settings that promote literacy activity, skills, and strategies; (2) serves as a language experience that can build connections between oral and written modes of expressions; and (3) provides opportunities to teach and

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learn literacy. However, they also found that there were limitations and unsolved issues in these studies, e.g., concerns about definitions, theories, and methodology; a lack of progress in establishing causal connections with development; and the dominance of “play as progress” rhetoric.

Ahn and Johnson (2005) reviewed 37 play articles from three child developmental journals and three early childhood education journals from 2000 to 2004. The purposes of the study were to examine how well these studies situated play and described specified play materials. By analyzing participants, research questions, play situations, play materials, and research methods, they found that: (1) more than half of these studies observed children’s play during classroom free play period in early childhood education settings, which was good because it meant that children could initiate their own play; (2) most studies were cross-sectional rather than longitudinal designs; and (3) play materials were not specified adequately—many studies did not even provide information about toys. In conclusion, Ahn and Johnson advocated better descriptions of materials and longitudinal studies in the future.

In another recent study, Oliver and Klugman (2007) performed an electronic search using Google Scholar on children’s play research from the 1990s to 2005. They found that more than 1,500 play studies were published in the 1990s, and this number increased by almost the same pace in 2000 to 2005, with approximately 200 articles published per year. However, cognitive and school-related early childhood topics (e.g., No Child Left Behind, school readiness, and early literacy) were topics that increased rapidly, much more so than play research. They concluded that, in order to respond to federal legislation requirements and to build a play research agenda, play studies have to ask new questions in two directions: (1) What works and what does not work, before taking the chance of experimenting in the classroom? (2) How can we best incorporate what we know about play into teacher training so early childhood educators can make better use of play in the classroom and show results?

Kuschner (2007) analyzed play articles in the journal of *Young Children* from 1973 to 2002 to see how play was explicitly or implicitly portrayed and why it was valued. He identified 101 articles as play articles because they specifically focused on the topic of play itself or on a material typically provided for children’s play, and he excluded articles mentioned or discussed within the context of other topics. In other words, he selected only those articles that by title or primary content were specifically about some aspect of children’s play. He was interested in underlying themes or images of play being communicated in these articles, and his results showed that three themes emerged: (1) Why should play be included in the curriculum? The majority of articles emphasized the value of play

for the purpose of enhancing intellectual and academic development. (2) There was an emphasis on the universal child; very few articles related to cultural differences, multicultural education, or diversity. (3) Play that conforms to the behavioral and academic expectations of school is valued over the sometimes unruly, messy, and aggressive play that often emerges naturally from children’s interests and experiences. And finally, he raised the question about whether we can support the developmental values of play and use it in education without destroying its very nature.

Recently, two Canadian early childhood organizations, The Early Childhood Learning Knowledge Centre (ECLKC; website: <http://www.ccl-cca.ca/CCL/AboutCCL/KnowledgeCentres/EarlyChildhoodLearning>) and the Centre of Excellence for Early Childhood Development (CEECD; website: www.excellence-earlychildhood.ca) worked on identifying key research on learning through play. They built a data base of 84 play-related articles from 2000 to 2007 and asked us to serve as consultants to check the accuracy and thoroughness of their work. We found that there were 34 articles that were not related to children’s play, even though some of them included play as a key word (Cheng and Johnson 2008).

All of these studies of play studies attest to the fact that play has been a topic of immense importance in early education and child development research and practice throughout the twentieth century and into the present decade. Moreover, the Office of Applied Research, a new part of the National Association for the Education of Young Children (NAEYC) working with the Society for research in Child Development (SRCD) to narrow the gulf between what we know from research and what we are using in practice, has focused on play in its first publication urging this mission. *A Mandate for Playful Learning in Preschool: Presenting the Evidence* by Hirsh-Pasek et al. (2009) cites many recent studies, some published in peer reviewed journals, but many others in books or edited book chapters. On the other hand, since the turn of the century a number of significant trends have conspired to demote play in early childhood education. Roskos and Christie (2007), for example, have noted that the rise in standards-based education and an emphasis on learning and skill development have affected the status of play in a negative direction.

To build on what we have learned from previous looks at the play archives, this study extends and complements previous reviews. We are interested in data based articles in peer reviewed journals only. This is different from the recent review of *Young Children* play articles by Kuschner and the reviews recently conducted by ECLKC and CEECD in Canada. The present review follows Ahn and Johnson continuing a review of play studies in juried journals up to a point closer to the present. In order to clarify the current status of play in studies, the purpose of this article is to

explore the focus of play study conducted by educational and developmental researchers over the recent 3 year period, 2005–2007. Research questions include: (1) How is play treated in studies? Is it a means or an end in the research? (2) Is there a difference in the focus of investigation between educational and developmental researchers? (3) What topics and themes are coming up in recent articles about play in peer reviewed journals?

Methods

Data Collection

This study analyzed research articles on children's play published from 2005 to 2007 in eight journals, including four developmental journals—*Child Development (CD)*, *Developmental Psychology (DP)*, *Journal of Applied Developmental Psychology (JADP)*, and *Merrill Palmer Quarterly (MPQ)*; and four educational journals—*Early Child Development and Care (ECDC)*, *Early Childhood Education Journal (ECEJ)*, *Journal of Research in Childhood Education (JRCE)*, and *Early Childhood Research Quarterly (ECRQ)*.

The rationales to choose these eight journals are (a) they are widely read and, if not the leading ones, (b) they are representative of first tier peer-reviewed journals in the fields of early childhood education and child development. Further, we were not interested in finding chapters on play from edited books and non-peer reviewed periodicals so picking up references using data bases of this type would not fit our purpose. We know that play is a popular topic to write about but wondered how often play articles appear that are data-based from disciplined inquiry and have made it through a rigorous blind peer review.

The primary focus of the four selected child development category journals is communicating research results that advance our understanding of the development of children. An exclusive focus on infancy through adolescence is not necessary, only that the journal is known to publish many articles that focus on child development (for example, *JADP* is a life course/span journal but the majority of articles are on child development). The title and the editorial policy statement of these journals are consistent with their reputation as child development journals. The other four journals classified as early education were also data based but dealt primarily on child development as it occurs or is affected by early childhood education as a setting, institution or process.

The data collection process consisted of first searching for the key word “play” in the title, descriptors, and abstracts from these eight journals from 2005 to 2007 in the ERIC database; results showed that there were 57

play-related articles. We printed out hard copies of these articles and each of us independently read them and later discussed how to code and analyze them. In doing this we were guided by a concern with answering our research questions concerning how play is defined and studied and to what end.

Data Analysis

There were three steps involved in analyzing these 57 articles. First, we categorized the types of play studies according to the way that play was featured in these studies. The criteria to categorize the type of play-related research included: (1) researchers of these articles indicated the term ‘play’ in the title, descriptors, and abstract, and discussed it in the literature review, methods, results and discussion; (2) the way that play was featured across the sections of the article. The articles with the term ‘play’ associated with it were read carefully with special note taken of (a) the literature cited in the introduction (e.g., were there other play or studies included?), of the way play was treated in the (b) methods section (e.g., were there definitions of play given, descriptions of play materials?), and of the way play was discussed in the (c) results and (d) discussion sections (e.g., did these sections include a focus on play results and an interpretation of them?). Inter-rater reliability was 100% since we jointly discussed the articles until consensus was reached in coding.

Second, we calculated the percentage of each type of study in educational or developmental journals in order to find the difference between the two fields. Third, we conducted a content analysis based on the articles that treated play as their main research purpose and focused on children to find the trends in recent play study. Content analysis done by the first author was checked with the second author. A consensus was reached whenever there was initial disagreement. Few disagreements occurred and they were easily resolved.

Results

Four Types of Play-Related Research

After reviewing these articles carefully, we found that they could be categorized into four types (see Table 1). *Type One* studies treated play as one of the main purposes of the study and focused on normal developing children. *Type Two* studies treated play as a relevant variable in the studies but not a major focus. In *Type Three* studies, play was treated as the research context serving to study other variables. In the last category, *Type Four* studies, play was related to special children and intervention strategies.

Table 1 Number of articles in four types of play-related studies from 2005 to 2007

Study type/journal name	Type one: play as a major role	Type two: play as a minor role	Type three: play as a research context	Type four: play related to intervention and special children	Total
Child Development (CD)	1	2	3	1	7
Developmental Psychology (DP)	0	2	4	1	7
Journal of Applied Developmental Psychology (JADP)	0	2	3	1	6
Merrill Palmer Quarterly (MPQ)	2	0	0	0	2
Early Child Development and Care (ECDC)	6	1	7	2	16
Early Childhood Education Journal (ECEJ)	5	0	1	1	7
Journal of Research in Childhood Education (JRCE)	3	0	3	1	7
Early Childhood Research Quarterly (ECRQ)	2	1	1	1	5
Total	19	8	22	8	57
Percentage	33	14	39	14	100

About 39% of these articles treated play as a research context (*Type Three*), followed by 33% that treated play as a major focus (*Type One*), 14% that gave play a minor role (*Type Two*), and 14% that addressed play related to intervention and special children (*Type Four*).

Type One studies treated play as the main purpose of the study and focused on normally developing children. The researchers of these articles put play in the title, descriptors, and abstract, and discussed it in the literature review, methods, results and discussion. There were 19 articles identified in this category. For example, Pramling-Samuelsson and Johansson (2006) argued that play and learning were inseparable dimensions in preschool practice, based on their theoretical discussion and empirical study. In the beginning, they discussed literature regarding play and learning in detail. Then, they illustrated the prior theoretical discussion with two observations that revealed the playful processes of interaction between children and teachers. The purpose, method, results, and discussion of these two observations showed that both play and learning were inseparable dimensions in preschool practice. Clearly, a better understanding of children's play is the primary purpose of this study. The articles of *Type One* studies are listed in the "Appendix": List of *Type One* Articles in Eight Journals.

Type Two studies viewed play as a related variable but not the main purpose of the investigation, though play was a key word. For example, Jones and Lagace-Seguin (2006) examined the relationships among parental pessimism, child affect, and children's well-being. Although they listed play as a descriptor, mentioned it in the abstract, and discussed it briefly in the body of the paper, play merely served as an indicator of children's well-being. In other words, play had only a minor role in this study. We learn much less about play itself reading *Type Two* relative to

Type One studies; *Type Two* articles were focused on another construct, not play.

In *Type Three* studies, play was treated as a research context in order to study other variables, although play was included in the title, descriptors, abstract, or content. For example, Schulz and Bonawitz (2007) investigated how preschoolers learned cause-effect relations through exploratory play but still included play as a key word; actually the cause-effect relationship was the main focus of this study. Free-play was a research context, but studying play per se was not the research purpose.

Our content analysis revealed a fourth category of play research. *Type Four* studies were all related to special children or used play as an intervention strategy with special or at risk child. Studies of this type had a clear focus: either their participants were special children, or the purpose was to compare normative children with special or at risk children, or the study used play as an intervention strategy. *Type Four* studies viewed play as a tool to assess or to intervene with special or at risk children but did not try to cast light on the phenomena of play itself. To illustrate, Valentino et al. (2006) compared the mother-child play of infants from maltreating and non-maltreating families and suggested that the analysis of mother-child play was useful as a preverbal window into the cognitive development and representational capacity of both typical and atypical children.

Focus on Educational and Developmental Journals

The second step of analysis was to compare the focus of educational and developmental journals (see Table 2). 39% of the play-related articles appeared in the four developmental journals, and 61% of the articles appeared in the educational journals. Play-related articles appeared more in

Table 2 Number and percentage of four types of articles in developmental and educational journals

Study type/journal type (journal name)	Type one: play as a major role		Type two: play as a minor role		Type three: play as a research context		Type four: play related to intervention and special children		Total	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Developmental journals—CD, DP, JADP, & MPQ	3	16%	6	75%	10	45%	3	38%	22	39%
Educational journals—ECDE, ECEJ, JRCE, ECRQ	16	84%	2	25%	12	55%	5	62%	35	61%
Z score		2.43*		1.27		.46		.66		1.62
Total	19	100%	8	100%	22	100%	8	100%	57	100%

* $p < .05$

educational journals than in developmental ones over the 3 years, although this is not statistically significant. The percentage varied across different types of studies. *Type One* studies appeared significantly more ($Z = 2.43$, $p < .05$) in educational journals (84%) than in developmental journals (16%). The results of comparing the percentage of journal articles from the two fields for *Type Two*, *Type Three*, and *Type Four* studies were not statistically significant due to the small sample size.

Content Analysis of Type One Studies

Type One research viewed children's play as a major research purpose and focused on normally developing children; analysis of the content of these studies sought to identify their characteristics on several categories over the 3 years (see Table 3).

Research Purposes

Analyzing the research purposes of these articles, we found three main topics, which included the concept of play, play and other variables, and the individual differences in play. First, seven studies tried to clarify the concept of children's play (#4, #5, #6, #8, #12, #17, & #18) and were about such topics as the following: the relationship between play and learning, the significance of play and the play environment, children's categorizations of play and learning, criteria to categorize subtypes of play, the definition and reasons for nonsocial play, the relationship between superhero toys and play, and playful improvisation as a tool to examine teacher–child interactions. Second, another seven articles (#1, #7, #9, #11, #13, #15 & #16) addressed the relationship between play and other variables, especially literacy (the focus of four articles). The topics included how children construct shared meanings during sibling pretend play, children's literacy-related play, and the narratives used in play. The other three studies addressed play and related factors—parenting styles, negative effects, social interactions, or the delay of gratification. Third, five studies

tried to understand the individual differences in play (#2, #3, 10, #14, & #19). Four studies examined gender differences in fantasy play, parents' or teachers' attitudes toward play, or gendered toys and behaviors. One study aimed at developing a scale to measure the play beliefs of African American mothers.

Definition of Play

Ten out of 19 articles, mostly in educational journals, defined play by its content of the specific purpose of each study and particular types of play, e.g., pretend play, literacy-related play, or non-social play. Three researchers studied “What is play?” as a general research question. The other six implicitly assumed that readers knew what play was and did not provide an explicit definition or illustrate its meaning.

Time

Nine studies included information about time use. Two studies reported the interviewing time, although seven studies reported observation time which ranged from 3 min to 4 months. Four studies observed play for months, three were based on 3- to 15-min observations, and 10 studies did not report time in studying children's play.

Educational Implications

Eleven educational articles discussed their findings not only in relation to research practices and ideas but also in relation to the educational implications. The major educational implications were: (a) promoting play-based learning or interactions (#4, #6, #9, & #18), (b) revealing the narrative in play helps children construct meaning (#13 & #16), (c) understanding the types of nonsocial play to help the teacher decide whether to intervene or not (#12), (d) reflecting gender stereotypes in toy choices and play behaviors (#14), (e) relating play to the delay of gratification (#15), (f) addressing the relationship of superhero

Table 3 Content analysis of type one studies

Number	Category\journal type (name)	Research purposes	Definition of play	Time	Educational implication
1	DJ (CD)	Constructing shared meanings during sibling pretend play	Define “pretend play enactment”	15 min	No
2	DJ (MPQ)	Sex differences in fantasy play	No definition about “fantasy play” Define “imaginary companion”	3-min	No
3	DJ (MPQ)	Mothers’ and fathers’ attitudes regarding pretend play	No definition	NA	No
4	EJ (ECDC)	Play and learning—inseparable dimensions in preschool practices	Define play and its specific character	NA	Yes
5	EJ (ECDC)	1. What is play? 2. What is important in play? 3. Play environment in different time periods (both parents’ and children’s view)	It is one of the research questions	Interview for 35–90 min	No
6	EJ (ECDC)	Children’s categorizations of play and learning based on social context	It is one of the research questions	NA	Yes
7	EJ (ECDC)	The role of a child’s negative affect in the relations between parenting styles and play	Define “reticent”, “solitary-active”, & “rough-and -tumble play”	NA	No
8	EJ (ECDC)	Criteria used by adults and children to categorize subtypes of play	Define “pretend/fantasy play”	NA	No
9	EJ (ECDC)	Young children’s literacy-related play	Define “literacy-related play”	NA	Yes
10	EJ (ECEJ)	Gender differences in preschool teachers’ attitudes toward children’s play	No definition	45–90 min	No
11	EJ (ECEJ)	Video games and social interactions	No definition	2 months	No
12	EJ (ECEJ)	Understanding nonsocial play—definition and reasons	Define “nonsocial play”	NA	Yes
13	EJ (ECEJ)	The narratives in imaginary play and the visual texts created by children	No definition	3 months	Yes
14	EJ (ECEJ)	Preschoolers’ perceptions of gender appropriate toys and parents’ beliefs about gendered behaviors	What toys children identify as “girl” toys and “boy” toys is one of the research question	NA	Yes
15	EJ (JRCE)	Children’s ability to delay gratification and make-believe play	Define “make-believe play”	NA	Yes
16	EJ (JRCE)	Social literacy to sustain and protect the “we” space created in play	Define “play”	4 months	Yes
17	EJ (JRCE)	Superhero/non-superhero toys and boys’ physically active and imaginary play	Define “superhero play”	Two 8-min-play sessions	Yes
18	EJ (ECRQ)	Improvisation as a tool to examine teacher–child interactions	Define “improvisation”	16 weeks	Yes
19	EJ (ECRQ)	To develop and validate a scale measuring play beliefs of African American mothers	No definition	NA	Yes

DJ developmental journal, *EJ* educational journal

toys and play behaviors (#17), and (g) using a play measure for early assessment and intervention (#19). Not a single developmental article discussed educational or other applied implications. Most educational and developmental articles concluded by addressing research issues and making suggestions for future research (e.g., need to study diverse populations to improve generalizations, or the value of conducting longitudinal designs, etc.).

Discussion

We found 57 play-related articles in eight leading journals published in the 3 year period from 2005 to 2007. It showed that an average of 2.3 articles published per journal per year, not as many (101 play articles/30 years = 3.3) as found by Kuschner (2007). We examined research studies in peer-review journals,

although Kushner examined play articles from *Young Children*, which aims at communicating latest information for early childhood practitioners. In other words, play articles in *Young Children* are more practice-based information related to teacher experience and not reports of evidence-based research.

However, our rate of 2.3 is greater than Ahn and Johnson's (2005) 1.2 articles per journal per year studying six journals (three child development and three early education) over 5 years, 2000–2004. The rate change from 1.2 to 2.3 play articles per journal per year may reflect a lessening of the adverse influence of the mega-trends noted by Roskos and Christie (2007) on the status of play in early childhood education and development. Roskos and Christie noted that the new science of early education and the concern with early literacy and standards become more important than play as we entered the twenty-first century.

Searches for play studies from social-behavioral or educational databases most assuredly will find many more articles than we did. However, we should not assume that a located citation with play in the title or abstract or listed as a key word is in fact primarily focused on play. Our findings suggest that electronic searches may yield overstated interest in play. Even in the review of the 57 play-related articles in our study, 39% of these articles, seemingly aiming to study play, were found to treat play as a research context, but not the focus of the research. Only one third of the articles (19 out of 57 articles) had play as the primary focus of research. As noted earlier, the findings from the researches conducted by the ECLKC and the CEECD were even more telling. Forty percent of the articles listed as play-related were not primarily or even substantially about play. Play studies that are located in data base need to be scrutinized to discern how play is treated and if it is really a focus in the publication. We should not be misled by the number of play studies initially identified when doing a literature review.

Examining educational and developmental journals from 2005 to 2007, we found that play served different roles; we called them *major role*, *minor role*, *as a context*, or *related to special children and intervention*. Twenty-two out of 57 articles used play as a research context to study some other phenomenon without a significant difference between educational and developmental journals. Play as a context seems popular in play studies. This finding is consistent with Power's (2000) who reported a shift in the child development field after 1980 in the study of play from 'a topic of interest' to 'a context to study'. In addition to these 22 articles, eight out of 57 articles are related to use play as a minor role; another eight are related to special children and intervention. These three types of studies stand for 66.7% of total play studies. It means that more than half of the studies used play as a tool to study other

topics, rather than study play itself. The finding is consistent with Roskos and Christie's (2001) play-literacy reviews. They concluded that there was a dominance of "play as progress" rhetoric which implies play serves developmental and educational purposes. Moreover, in Oliver and Klugman's (2007) review, they found that cognitive and school-related early childhood topics increased rapidly, much more so than play research. So they suggested that play studies have to ask new questions in order to respond to federal legislation requirements and to build a play research agenda. All these studies, including ours, found that an instrumental view of play dominates, not play as something that belongs to children, similar to the findings of Kushner (2007).

We found that *Type One* studies appeared significantly more in educational journals than in developmental journals. Perhaps researchers who submitted studies to educational journals are more interested in studying the topic of play itself. Both educational and developmental journals published research related to intervention and special children. Studies related to special education emphasize both children's development and education.

Content analysis showed that the concept of play, the relationship between play and other variables, and the individual differences in play were the three main purposes of *Type One* studies. The concept of play was a popular research purpose. Many educational researchers (i.e., Howard et al. 2006; Pramling-Samuelsson and Johansson 2006) addressed the importance of play itself rather than the usefulness of play. Moreover, some researchers emphasized the relationship between play and other variables, especially literacy (i.e., Ahn and Filipenko 2007; Ghafouri and Wien 2005; Saracho and Spodek 2006). This focus reflects the phenomenon of "preparing the child for the future." These researchers tried to connect play with development or learning. Other studies examined individual differences in play; some research investigated gender differences in parents' and teachers' play beliefs and some research was on children's play behaviors comparing boys and girls.

As for the definition of play, 10 studies defined and discussed specific types of play according to their research purposes, and three studies tried to define what play is or what boys' toys or girls' toys are. The other six articles did not discuss the definition of play at all. Compare their findings with Roskos and Christie (2001) who reviewed play-literacy literature between 1992 and 2000 and found that play was loosely defined as any activity that happened in a play center or in the presence of play materials. Put this next to Rubin et al. (1983) who argued that play was a comprehensive concept that could be defined as disposition, as observable behavior, and as context. Given that it is difficult to conceptually define play comprehensively, it

should perhaps not be surprising that the majority researchers of studies we reviewed in the present study decided to operationalize specific types of play according to their own particular research purposes.

The time that researchers of *Type One* studies spent on measuring children's play varied from 3 min to 4 months in these studies. Only four studies observed children's play for months. Since play occurs when adults provide children with a rich environment and ample time, those studies that measured play in minutes have questionable validity. Other studies involving the use of questionnaires to measure play did not report play time.

Although 11 articles in the educational category discussed how to apply their findings to educational practices, most of the *Type One* studies identified research implications only. Researchers of education but not the researchers of development articles wrote about the implications of their findings for practice. Suggestions included promoting play-based learning, revealing the narrative in play to help children construct meaning, understanding types of non-social play explaining how and when to decide to intervene, recognizing gender stereotype in toys choices and play behaviors, using play to foster delay of gratification, mediating the impact of superhero toys on play, and using play as a method of assessment and/or intervention.

Interestingly, our results are consistent with Sigel and Kim's (1996) review which reported that the usefulness of the research was discussed only twice in a large set of articles from two major developmental psychology journals. Evidently a disconnection between research and practice remains. To be sure, research should follow scientific rules. Still, for practitioners research studies are often viewed then as not user friendly (Sigel 2006); this could improve by researchers' more explicitly drawing out relevance of their findings for practitioners. Underuse of research in educational practices is due to the gap between researchers' and practitioners' conceptual frameworks, research problems and worldviews (Pepper 1970/1942). Responding to the increasing call for applying research to practice (e.g., Hirsh-Pasek et al. 2009) would seem to require that researchers take the first step.

For instance, Strokes (1997) has articulated the importance of "use-inspired basic research," which means grounding research in practice in order to meet societal needs. He suggests that the study of practice is enhanced by the rigor that characterizes basic research methods, and that government would effect change if it supported use-inspired research. Sigel (2006) advocates the same view and proposes a "proximity index" to examine the distance between the readiness for findings to be used and the understanding of the meaning and the comprehensibility of the research report. He elaborated that scientific research requires moving away from linear models and comfort with

complexity and change in order to apply the research into practice. Thus, the usefulness of research needs collaboration from both researchers and practitioners and initiatives by researchers.

Conclusions and Recommendations

This study reviewed play articles from educational and developmental journals between 2005 and 2007. The purposes were to discover the types of play study and to compare the difference between the two research fields and the main themes emerging from the content analysis. To summarize the major findings: (1) There were four types of play study, which included play as a context, play as a major role, play as a minor role, and play related to intervention and special children. Researchers tended to treat play as a context to study other phenomenon more than the other three types. (2) *Type One* studies appeared significantly more in educational journals than in developmental journals. (3) Several themes emerged from the content analysis of *Type One* studies, such as the concept of play itself was a major research purpose in seven studies, play and literacy in particular received research attention, the definition of play varied according to the research purpose, a short time to collect play data results in questionable ecological validity, a focus on play-based learning for early childhood practitioners was common in educational journals, and there was a lack of educational implications for practitioners in child development journals.

We should be careful not to suggest that our results represent the whole picture of the study of play or interest in play. Beyond our chosen educational and developmental journals, other research journals and books exist about play. For example, Pellegrini and Bohn (2005) discussed recess play in the journal of *Educational Researcher*. Raessens (2006) mentioned about computer games in the journal of *Popular Communication*. The NAEYC publishes the journal of *Young Children* which addresses the topic of play frequently as does the childcare magazine, *Child Care Information Exchange*. Moreover, several international journals in early education exist that frequently publish articles about play. For example, the Korean Society for Early Childhood Education publishes the *International Journal of Early Childhood Education*. Furthermore, many recently edited books (i.e., Goncu and Gaskins 2007; Singer et al. 2006; Sluss and Jarrett 2007; Zigler et al. 2004) and authored and co-authored books (i.e., Edmiston 2008; Hirsh-Pasek et al. 2009; Rogers and Evans 2008; Singer and Singer 2005) have focused centrally on play and have addressed different aspects of play. In other words, children's play is alive and well and is a prominent topic receiving attention from researchers and practitioners alike.

Nevertheless, our study suggests that caution is needed because of the way the term ‘play’ is used in both early childhood education and child development literatures. When researchers put the term in their titles and abstracts but are not really investigating play in their studies many readers may be lead astray; many readers may think that play is receiving more research attention than it actually is. Moreover, our review suggests that play has not been a strong research focus resulting in publication in peer reviewed journals. Leading research journals such as *Child Development* and *Early Childhood Research Quarterly* usually publish studies supported by grants from foundations or government agencies. Play’s reputation is such that as a construct it lacks acceptable levels of reliability, validity and clarity. Accordingly, play research projects rarely, if ever, receive significant funding from outside sources. Consequently, play studies are not usually large in scope and are seldom published in juried journals, especially first tier ones, as we have shown in this study. As a telling illustration, the flagship research journal of the NAEYC, *Early Childhood Research Quarterly*, has

published an average of one per year or only 8 studies dealing primarily with play from 2000 to 2007 based on the present results and those of Ahn and Johnson (2005).

Perhaps, rationales and methods for empirical investigation of play in its own right, or as essential factors in development and early education, need to be better developed before play will be taken more seriously by scientific communities. Basic and applied research focused on play can be aided by new technologies and research instruments in the future. Also helpful would be more precise and testable conceptual models from biology and psychology. Until such scientific advancement occurs, the status of research on play may not improve very much and play will remain an ‘ugly duckling’ in child development research even as many regard it as a ‘beautiful swan’ in ECE practice.

Appendix

See Table 4.

Table 4 List of type one articles in eight journals

Items	Journal name	Number of type one articles/number of total play-related articles in the journal	Title of the play article
1	Child Development (CD)	1/7	Howe et al. (2005)
	Developmental Psychology (DP)	0/7	
	Journal of Applied Developmental Psychology (JADP)	0/6	
2	Merrill Palmer Quarterly (MPQ)	2/2	Carlson and Taylor (2005)
3			Gleason (2005)
4	Early Child Development and Care (ECDC)	6/16	Pramling-Samuelsson and Johansson (2006)
5			Vickerius and Sandberg (2006)
6			Howard et al. (2006)
7			Legace-Seguín and d’Entremont (2006)
8			Turnbull and Jenvey (2006)
9			Saracho and Spodek (2006)
10	Early Childhood Education Journal (ECEJ)	5/7	Sandberg and Pramling-Samuelsson (2005)
11			Bacigalupa (2005)
12			Luckey and Fabes (2005)
13			Ahn and Filipenko (2007)
14			Freeman (2007)
15	Journal of Research in Childhood Education (JRCE)	3/7	Cemore and Herwig (2005)
16			Ghafouri and Wien (2005)
17			Parsons and Howe (2006)
18	Early Childhood Research Quarterly (ECRQ)	2/5	Lobman (2006)
19			Fogle and Mendez (2006)

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