ENCYCLOPEDIA on Early Childhood Development

Cognitive Development in Play-Based Learning

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Introduction

The important role of play-based learning in fostering young children's cognitive development has been discussed by early theorists, educators, and researchers such as Plato (p. 24),[1] Froebel,[2] and Gesell;[3] later theorists and researchers such as Bruner,[4] Erikson,[5] Piaget,[6] and Vygotsky;[7] and more recent theorists and researchers such as Bodrova and Leong,[8] DeVries,[9] Fein,[10] and Singer & Singer.[11] However, in recent years, time for child active, play-based learning has been shortened in many preschool classrooms because, with increasing emphasis on academic skill readiness, play's importance has been minimized by some educators, curriculum designers, policy makers, and by the general public. The thesis of this discussion is that play-based learning provides an excellent environment for fostering young children's cognitive development, especially for those thinking skills essential for cognitive depth. Because the research evidence is mixed on play's role in fostering such development, robust longitudinal studies are needed to investigate the extent and long term cognitive effects of early play-based learning.

Subject

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The role of play as a learning medium[12] has been advocated by many early childhood professionals ever since preschool programs were begun in the early 20th century. However, there always has been debate about the role that play-based learning has in fostering young children's cognitive development, especially in specific areas such as reading or mathematics learning.

Problems

Although the present-day emphasis on the importance of early education is laudable, and increased funding for preschool programs that permit many more children to attend is a positive step, recent advocates for preschool have not always been grounded in early childhood education theory and practice and thus have viewed "learning" as a teacher-directed, highly structured, and difficult activity that needs to be imposed on young children. This view is especially problematic in discussions of how play can foster cognitive development because play usually involves child-initiated types of learning that are not easily quantified and, thus, adults are often unclear about how to provide such opportunities and evaluate the learning that occurs during extended and rich play experiences.

Research Context

The ways that the relationship between play and cognitive development have been studied have varied, including observational studies, experimental studies, and self-report types of data collection. However, most studies of play, including those related to potential play/cognition experiences, have been minimally funded, and therefore most are small scale, short-term, and they usually have not been replicated. Thus, the research on play-based learning has not been especially robust and much has shown mixed results, depending on the many differing variables in the studies and the issues faced by researchers.[13]

Key Research Questions

Because of the need to justify children's playtime in preschool programs, researchers have attempted to study potential effects of pretense, games, and constructive play on specific types of learning, such as language growth, reading, and mathematics, as well as on other cognitive skills such as executive functioning, creativity, social/moral development, and theory of mind (i.e., the ability to understand one's own mental states and to realize that other people also have such mental states that may be similar to or different from one's own). Numerous researchers

have investigated aspects of these questions and reported various types of cognitive growth related to playful ways of learning.[14]

Recent Research Results

In relation to academic types of skills, good examples of the role of play in literacy learning have been described.[15] These studies have found many positive learning results for children's playful engagement with literacy materials. Kami[16] has demonstrated that various types of mathematical knowledge, such as numeracy, classification, and spatial/temporal relationship understanding can be fostered by children's playful interaction with materials and games that foster such knowledge. Also, Griffin, Case, and Siegler[17] have connected playful mathematics activity to increase development of the "central conceptual structures" of thought. Other researchers have reported on theory of mind enhancement through play[18,19] and found a relationship between pretense abilities and theory of mind skills, although whether young children see pretense as involving mental action is not clear.[20] Wyver and Spence[21] who studied problem solving in play, noted that there was a reciprocal rather than a unidirectional relationship between cooperative play and problem solving. In a recent review of studies of pretense, Lillard and colleagues[22] have reported that the evidence showed some effects of play on language skills but inconsistent results on reasoning, creativity, and various academic skills. Although these studies were all labelled "play," many were adult controlled activities rather than child-controlled play. Also, most play studies are short term so results related to long term cognitive gains are often unclear or absent.

Longitudinal research has shown some relationships. For example, Wolfgang and colleagues[23] reported that preschoolers who engaged in complex block play showed long term gains in mathematical cognition, and Bergen and Mauer[24] reported that preschoolers with high levels of play with literacy materials were more likely to be spontaneous readers of signs and have greater pretend language in a "town-building activity" at age 5. In a self-report study of college age subjects' memories of childhood play, Davis and Bergen[25] found that high levels of reported pretense and game play at early ages were significantly related to higher levels of adult moral reasoning. Interestingly, Root-Bernstein and Root-Bernstein[26] have noted that McArthur "genius" grant recipients often reported a high level of "small worlds" pretend play during childhood.

Research Gaps

There are many gaps in investigations of play-based learning due to at least four reasons. First, both educators and researchers vary in their definitions of play-based learning so the play experiences may differ in length of time, amount of adult direction/interference, materials available, and methods of data collection. Thus, what one educator/researcher calls play-based learning may differ greatly from that of another. Often curricula called play-based are still highly teacher directed and time available for child self-directed play is not extensive. Second, many studies of play-based learning focus only on academic skill learning rather than on play's role in fostering other types of cognitive growth. Third, most studies are short term and they should be longitudinal in nature (at least over the course of a preschool year) to measure cognitive change. However, in longitudinal studies, there also are factors of general growth that may affect cognitive growth. Fourth, because preschool programs serve children with diverse home play experiences, different play themes, varied skills, and a range of economic backgrounds, these differences also may affect the results of play-based studies of cognitive growth. Nevertheless, because the theoretical and experiential bases that suggest the importance of play-based learning are so strong, greater funding and attention to research on this issue should be a priority.

Conclusion

The interest in and support for play-based learning in preschool has varied over the past 75-100 years and it is promising that there is presently support and interest in supporting children's play. Young children's play is valuable for strengthening many developmental areas, not only those related to specific academic skills, and thus, the study of play-based learning should include a wide focus that is theoretically-based and scientifically rigorous. It should include study of children's self-directed play as well as of play experiences directed by adults, and longitudinal studies are needed.

Implications for Parents, Services, and Policy

Decisions by all relevant groups related to services and policies should be built upon a deep understanding of play and its crucial role in the lives of young children. Parents should be especially vigilant about monitoring the amount of playtime their young children spend with technology-augmented devices and make sure their children's play includes both traditional play materials and outdoor time. While play-based learning is an important aspect of preschool classrooms, it should be valued not only for learning academic skills but also for supporting

children’s learning of self-regulation, emotional control, executive functioning, social understanding, creativity, and other cognitive skills, as well as being valued just for the joy play brings to children.

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