

## Play: Fuel for the Brain

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Play is the work of children. It provides the foundation for learning, exploring, and discovering. Through play children begin to control their impulses, plan, negotiate and perfect skills. Communication, motor, and problem solving abilities are developed and refined throughout all aspects of play. Play leads to emotionally healthy, creative, intelligent and self-motivated individuals who will eventually become productive members of society. Parents provide the framework for children to engage in play, including where the play will take place, with whom, for how long and with what. The guidelines for this framework are often influenced on parents past experiences, current cultural trends and marketing strategies. “Those who market toys to children are more interested in creating demand for their products than in meeting children’s socialization needs,” (Elkind, 2007, p. 26).

Birth through the early childhood years are the most influential years of a child’s neurological development. The frequency of play is the foundation upon which this critical period of development occurs. Dr. Stuart Brown, a leading expert on play behavior, describes play as a profound biological process that shapes the brain and makes animals smarter and more adaptable, fostering empathy and facilitating complex social groups in higher animals. In addition, play creates an arena for social interaction and learning. (Brown, 2009).

Brown discusses the prevalence of play during periods of the most rapid brain development and how play promotes neural connections. Manipulative play with objects leads to richer circuits in the brain as manipulative skills develop. Researcher Jaak Panksepp has shown that active play selectively stimulates nerve growth in the amygdale (where emotions are processed) and the dorsolateral prefrontal cortex (where executive decisions are processed).

According to Panskepp, hands that engage in “object play” create a brain that is better suited for understanding and solving problems of all sorts. (as cited in Brown, 2009). Brown delineates how movement structures our knowledge of space, time, and distance as well as our relationships to others. “Movement play lights up the brain and fosters learning, innovation, flexibility, adaptability, and resilience” (Brown, 2009, p. 84).

There is much research demonstrating how playing helps babies and young children learn best in their formative years. Unfortunately this is not the research being highlighted to consumers. Instead, marketers, with the help of the media, claim that products provide the necessary “enrichment” to promote intelligence and “educate” young children. Media interpretation of research findings, rather than interpretations by educators or scientists, can lead to the formulation of these types of cultural myths. For example, the rat study performed by Marian Diamond in the 1960’s at UC-Berkley highlighted the essential role of play in brain development. Because Diamond wanted to be taken seriously as a female neuroscientist she used the term “enrichment” in place of the term “play”. The study did in fact show that rats that were raised in an “enriched” environment had bigger, more complex brains and that the cortex was thicker and more developed. The cortex is where the brain processes data. Overall the rats from the “enriched” environment were smarter. (Diamond, 1960 as cited in Brown, 2009)

Several cultural myths were derived from this study. First of all, many assumed “enrichment” to refer to structured cognitive tasks. In fact the definition of an enriched environment in this study was a variety of interchanging rat toys and socialization with other rats, which did prove to have the most prominent effect on the rats learning. (Brown, 2009). The second myth that was developed was that more stimulation presented as early as possible was better. This led neonatal units to be filled with bright lights and stimulating sounds. Later research found that the pre-

mature babies exposed to these “enriched” environments had an increased risk of attention deficit and hyperactivity. Why? The stimulation was not timed to the infants’ developmental needs. Now neonatal units are designed to as closely replicate the natural environment that is most developmentally appropriate for them as possible (dark, soft, and muffled sounds). (Hirsh-Pasek & Golinkoff, 2003).

Kathy Hirsh-Pasek and Professors Marilou Hyson of the University of Delaware and Leslie Rescorla of Bryn Mawr College examined whether preschools with academic curricula promoted smarter, happier, and more creative children than more socially oriented preschools. One hundred and twenty children participated in the study. The question was if the children who were taught more letters and numbers at age four were the more intelligent, social and creative children at age five and six. These children did know more letters and numbers than their peers did. However, a follow up study by Drs. Rescorla and Betsy Richmond, a private therapist in Ardmore, Pennsylvania, found that the two groups were indistinguishable from one another when they entered school. The more "academically" exposed children were not found to be more intelligent than their peers (using tests of intelligence and creativity) however they did appear to be less creative and less enthusiastic about learning (as cited in Hirsh-Pasek & Golinkoff, 2003, p. 128).

Piaget was a scholar whose ideas opened the doors in developmental psychology. Through studying hundreds of children, he discovered the mistakes they make are far more revealing than the answers they get right on IQ tests. When they get answers right it is often regurgitated information they have previously learned. However, when a child tells you how they got an answer you know if they really understand the concept. Piaget defined intelligence as a kind of adaptation to the environment. He came to the conclusion that children are the engines

behind their own development. Children do not wait passively until encouraged to engage in intellectually stimulating activities, they actively seek out experiences and through play exercise their cognitive development on a daily basis. Parents can breathe a sigh of relief that they in fact are not driving force around their children's cognitive development, necessitating purchasing an onslaught of "enriching" materials. (Hirsh-Pasek & Golinkoff, 2003)

Dr. Irving Sigel, senior scientist at the Educational testing Service in Princeton, New Jersey, has written, "...The teaching of concepts and skills at this very early period is very time-consuming, even for rote learning, because learning is more difficult when understanding does not accompany the learning experience" (as cited in Hirsh-Pasek & Golinkoff, 2003, p. 32) Learning facts outside of a meaningful context leads to learning scattered sets of facts without the understanding and experiences needed to truly build competency. Furthermore, there is no evidence that these types of non-contextual early learning experiences improve the brain. (Hirsh-Pasek & Golinkoff, 2003).

Research shows that typical daily interactions with your child are what promote excellent language development. Talking to your child while you go about your daily routine, listening and responding to what they say, and reading interacting with them over picture books provides the facilitation they need to develop language skills. The language provided within an interaction (especially between child and parent) is much richer and more effective than watching a video, doing flashcards, or playing a computer game could ever be. Language is learned in the context of interactions. (Hirsh-Pasek & Golinkoff, 2003).

There is no need to bombard children with computer programs, television, videos and early academics. Children are designed to learn naturally by experiencing their environment with joy and enthusiasm, spontaneously stimulating multiple developmental areas simultaneously. To

best help your child learn you need to learn to watch, listen, comment and at times interpret. The best learning situations are facilitated by “commentators” not “testers”. Children do not learn by being asked test questions or performing (e.g. what color is this? How many blocks are there? Can you count for mommy/daddy?) They learn through meaningful, positive experiences, especially experiences shared with their caregivers. While building with colored blocks, commenting on the colors they choose or offering choices while labeling the colors provides them with exposure to concepts within a context, naturally facilitating their learning. When this type of information is part of a warm, meaningful interaction the learning potential is multiplied.

Millions of years of evolution have created children who love to play on their own, it’s how nature ensured our survival. Children with loving parents, who enjoy them, play with them and offer guidance and suggestions as they explore their environment will be healthy, emotionally well-adjusted and psychologically advanced. (Hirsh-Pasek & Golinkoff, 2003).

## References

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