



PLAY IN CHILDREN'S DEVELOPMENT, HEALTH AND WELL-BEING

JEFFREY GOLDSTEIN
FEBRUARY 2012



Toy Industries of Europe

ABOUT THE AUTHOR

Jeffrey Goldstein, Ph.D. (J.Goldstein@uu.nl) has been at Utrecht University (Utrecht, The Netherlands) since 1992. He is currently research associate at the Research Institute for History and Culture, Utrecht University. Among his 16 books are *Toys, Games and Media* (with David Buckingham and Gilles Brougère. Taylor and Francis, 2004), *The Handbook of Computer Game Studies* (with Joost Raessens. MIT Press, 2005); *Toys, Play and Child Development* (Cambridge University Press 1994); and *Why We Watch: The Attractions of Violent Entertainment* (Oxford University Press, 1998). In 2011 his chapter on Technology and Play appeared in A. D. Pellegrini (editor), *Oxford Handbook of the Development of Play* (Oxford University Press).

Goldstein is chairman of the National Toy Council (London. www.btha.co.uk/value_of_play/toy_council.php) and serves on boards of the Netherlands Institute for the Classification of Audiovisual Media (www.kijkwijzer.nl), and PEGI, the European video games rating board (www.pegi.info). He is co-founder with Brian Sutton-Smith and Jorn Steenhold of the International Toy Research Association (www.toyresearch.org). In 2001 he received the BRIO Prize (Sweden) for research 'for the benefit and development of children and young people.' He is on the Editorial Board of *Humor: International Journal of Humor Research* and the *International Journal of Early Childhood Education*.

TABLE OF CONTENTS

INTRODUCTION	3
1. WHY PLAY IS IMPORTANT	5
Play and the Brain	
Play and Child Development	
The Role of Toys	
2. VARIETIES OF PLAY	9
3. TALKING, THINKING, CREATING	11
Cognitive Development	
Language and Play	
Play Promotes Creativity	
4. PLAYMATES	15
Social Development	
Age-Mixed Playgroups / Intergenerational Play	
5. SEX DIFFERENCES IN PLAY AND TOY PREFERENCES	19
6. PLAY AND HEALTH	23
Obesity	
Active Play and ADHD	
Play and the Quality of Life	
7. TOO LITTLE PLAY CAN AFFECT CHILD DEVELOPMENT	27
Play Deprivation	
8. PLAY AND TECHNOLOGY	29
9. PLAY AND COMMUNITY	33
Play and Citizenship	
10. TO PROMOTE PLAY	37
Why Toys Are Important	
REFERENCES	39

**PLAY DURING
EARLY CHILDHOOD
IS NECESSARY IF
HUMANS ARE TO
REACH THEIR
FULL POTENTIAL**



INTRODUCTION

Play, games and entertainment have occupied my research and writing, to say nothing of my leisure time, for the 40 years that I have been a psychologist. One happy result of my interest in these pleasurable pursuits was an invitation from Toy Industries of Europe (TIE) to prepare this review of recent research on play.

What drives my professional activities is the belief that people would not devote so much of their lives to entertaining and enjoying themselves if these did not serve some greater purpose beyond their intrinsic merits. Recent developments in biology, psychology and neuroscience lend credence to the importance of play in human evolution and development. Play may even be the cornerstone of society because it requires communication and cooperation among people playing different roles and following agreed-upon rules. My research has focused on how our leisure activities can be put to good use in education, business and medicine, and to improve the quality of life for children and adults (see References).

Developments in science and technology have broadened our views of play. The flourishing of 'cognitive neuroscience' (the study of the relationships between brain activity, thinking and acting) has led to new insights into the role of biology and the brain in play and toy preferences. The importance of play for mind and body has been well-documented.

Some research just stops you in your tracks. That is the effect that Melissa Hines and Gerianne Alexander's research had on me. They found that baby vervet monkeys display sex differences in play styles and toy preferences that mirror those of human children. So it is not only parents' behaviour and marketing that produce boys' and girls' different toy preferences. Hormones and genes also influence children's play. It seems that males, human and nonhuman, are attracted to toys that move.

People play because it is fun. One of the many ways in which play is healthy is that it results in positive emotions, and these may promote long-term health. Even if it did not do this, play improves the quality of life – people feel good while playing. Play has a major contribution to make in keeping an ageing population healthy.

Active play has the paradoxical effect of increasing attention span and improving the efficiency of thinking and problem solving. Two hours of active play per day may help reduce attention deficits and hyperactivity.

The most striking thing about hi-tech toys is that the technology does not in itself drive play. Some modern toys can interact with other toys, with iPads and computers, and can recognise your voice and learn your commands. Yet much of their potential is overlooked by players. Many children play with these toys in traditional ways. In this they resemble adults who make limited use of their computer software, learning how to do what they want to do with their computers and ignoring the many features that are of less interest.

In the Western world, nearly everyone believes that children benefit from free play. Research confirms that children's self-initiated play nurtures overall development, not just cognitive development (such as learning to name colours, numbers or shapes). Abundant research has shown that play during early childhood is necessary if humans are to reach their full potential. Parents, teachers and government bodies all recognise the value of play. Yet opportunities for play continue to diminish, with fewer play spaces, less freedom to roam outdoors, and decreasing school time for free play. The case for play is clear, now the question is what do we do to ensure that children get the play they need and deserve?

Jeffrey Goldstein Ph.D.
Utrecht University



**PLAY IS THE
LENS THROUGH
WHICH CHILDREN
EXPERIENCE
THEIR WORLD
AND THE WORLD
OF OTHERS**

1 WHY PLAY IS IMPORTANT

Play has been defined as any activity freely chosen, intrinsically motivated, and personally directed. It stands outside 'ordinary' life, and is non-serious but at the same time absorbing the player intensely. It has no particular goal other than itself. Play is not a specific behaviour, but any activity undertaken with a playful frame of mind. Psychiatrist Stuart Brown writes that play is *'the basis of all art, games, books, sports, movies, fashion, fun, and wonder – in short, the basis of what we think of as civilization.'* (Brown 2009). As the noted play theorist Brian Sutton-Smith remarked, the opposite of play is not work, but depression.

All types of play, from fantasy to rough-and-tumble, have a crucial role in children's development. Play is the lens through which children experience their world, and the world of others. If deprived of play, children will suffer both in the present and in the long-term. With supportive adults, adequate play space, and an assortment of play materials, children stand the best chance of becoming healthy, happy, productive members of society.

PLAY AND THE BRAIN

A behaviour that is present in the young of so many species must have an evolutionary advantage, otherwise it would have been eliminated through 'natural selection'. What might be the advantages of play? Play increases brain development and growth, establishes new neural connections, and in a sense makes the player more intelligent. It improves the ability to perceive others' emotional state and to adapt to ever-changing circumstances. Play is more frequent during the periods of most rapid brain growth. Because adult brains are also capable of learning and developing new neural circuits, adults also continue to play.

Play theorist Brian Sutton-Smith believes that the human child is born with a huge neuronal over-capacity, which if not used will die. *'Not only are children developing the neurological foundations that will enable problem solving, language and creativity, they are also learning while they are playing. They are learning how to relate to others, how to calibrate their muscles and bodies and how to think in abstract terms. Through their play children learn how to learn. What is acquired through play is not specific information but a general mind set towards solving problems that includes both abstraction and combinatorial flexibility where children string bits of behaviour together to form novel solutions to problems requiring the restructuring of thought or action... A child who is not being stimulated, by being ... played with, and who has few opportunities to explore his or her surroundings, may fail to link up fully those neural connections and pathways which will be needed for later learning.'* (Sutton-Smith 1997).

In play we can imagine situations never encountered before and learn from them. Toy aeroplanes preceded real ones.

Neuroscientist Jaak Panksepp found that play stimulates production of a protein, 'brain-derived neurotrophic factor', in the amygdala and the prefrontal cortex, which are responsible for organising, monitoring, and planning for the future. In one study, two hours a day of play with objects produced changes in the brain weight and efficiency of experimental animals (Panksepp 2003, Rosenzweig 1976).

Play has immediate benefits, such as cardiovascular fitness, and long-term benefits, including a sense of morality. An article in the American Psychological Association *Monitor on Psychology* examines the positive effects and utter necessity of play. The most common theory is that juveniles play at the skills they will need as adults.

Some newer thinking proposes it is more than that. Play seems to have some immediate benefits, such as aerobic conditioning and fine-tuning motor skills, as well as long-term benefits that include preparing the young for the unexpected, and giving them a sense of morality. How? Learning to play successfully with others requires 'emotional intelligence,' the ability to understand another's emotions and intentions. Play helps to level the playing field and promotes fairness. Justice begins with healthy social play (Azar 2002).

Paediatrician Dr. Ari Brown stressed that unstructured play time is the best way to stimulate the developing brain. '*When babies are engaged in unstructured free play with toys, they are learning to problem-solve, to think creatively, and develop reasoning and motor skills,*' she said. '*Free play also teaches children how to entertain themselves, which is certainly a valuable skill.*' (American Academy of Pediatricians 2011).

PLAY AND CHILD DEVELOPMENT

Play is essential to development because it contributes to the cognitive, physical, social, and emotional well-being of children and youth. Play also offers an ideal opportunity for parents to engage fully with their children. Despite the benefits derived from play for both children and parents, time for free play has been markedly reduced. Children today receive less support for play than did previous generations in part because of a more hurried lifestyle, changes in family structure, and increased attention to academics and enrichment activities at the expense of recess or free play.

What are the benefits of play in a child's life? According to play therapist O. Fred Donaldson, a child who has been allowed to develop play resources receives many enduring advantages. She develops a universal learning skill. Play maximises her potential by developing creativity and imagination. Play promotes joy, which is essential for self-esteem and health. The learning process is self-sustained based as it is on a natural love of learning and playful engagement with life. (www.originalplay.com/develop.htm)

Emotional-behavioural benefits of play

- Play reduces fear, anxiety, stress, irritability
- Creates joy, intimacy, self-esteem and mastery not based on other's loss of esteem
- Improves emotional flexibility and openness
- Increases calmness, resilience and adaptability and ability to deal with surprise and change
- Play can heal emotional pain.

Social benefits of play

- Increases empathy, compassion, and sharing
- Creates options and choices
- Models relationships based on inclusion rather than exclusion
- Improves nonverbal skills
- Increases attention and attachment

Physical benefits

- Positive emotions increase the efficiency of immune, endocrine, and cardiovascular systems
- Decreases stress, fatigue, injury, and depression
- Increases range of motion, agility, coordination, balance, flexibility, and fine and gross motor exploration

A review of more than 40 studies found that play is significantly related to creative problem-solving, co-operative behaviour, logical thinking, IQ scores, and peer group popularity. Play enhances the progress of early development from 33% to 67% by increasing adjustment, improving language and reducing social and emotional problems (Fisher 1992). As the developmental biologist Jean Piaget observed, *'We can be sure that all happenings, pleasant or unpleasant, in the child's life, will have repercussions on her dolls'* (Piaget 1962).

THE ROLE OF TOYS

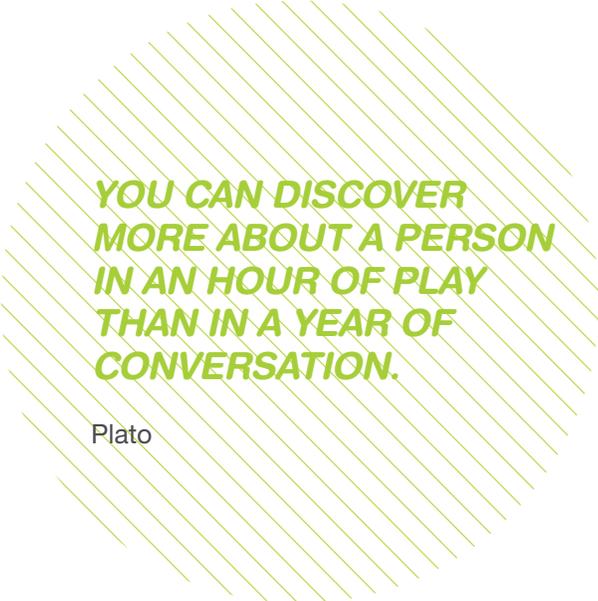
In addition to being purpose-built for children's play, toys invite play and prolong play. Children will play longer when suitable play objects are available, and stand to gain the greatest benefits that play has to offer.

According to research conducted in homes, the two most powerful factors related to cognitive development during infancy and the preschool years are the availability of play materials and the quality of the mother's involvement with the child.

The availability of toys in infancy is related to the child's IQ at three years of age. Children with access to a variety of toys were found to reach higher levels of intellectual achievement, regardless of the children's sex, race, or social class (Bradley 1985, Elardo 1975).

In one study, the availability of toys intended for social play increased social interaction by disabled children in an inclusive preschool (Driscoll 2009).

It is abundantly clear that play is of vital importance in children's health and development, and in becoming responsible citizens. Yet despite the wide spread belief that play is beneficial to children, opportunities and encouragement for free play are increasingly limited. Among child development experts and education professionals there are growing calls for reintroducing play into early childhood education (Elkind 2007, Fisher 2011).



**YOU CAN DISCOVER
MORE ABOUT A PERSON
IN AN HOUR OF PLAY
THAN IN A YEAR OF
CONVERSATION.**

Plato



**EARLY PLAY
EXPERIENCES
SET THE
STAGE FOR ALL
SUBSEQUENT
DEVELOPMENT**

2 VARIETIES OF PLAY

It is widely accepted that play changes across early childhood. The infant's first experiences of play are when adults try to elicit smiling and laughter through tickling, or playing peek-a-boo. But these are not initiated by the infant and do not constitute true play. Baby's first play is solitary, exploring objects in her surroundings. Toddlers can experiment with their environment ('exploratory play') while older children can manipulate and control their environment ('mastery play'). Solitary play is followed by parallel play - playing 'next to' but not 'with' other children - at around two or three years of age. This sets the stage for social play, at around age three or four. Social play is diverse and complex, and includes everything from simple activities, like working together to build a sand castle, to 'rough-and-tumble' play (chasing, play fighting), and complex 'socio-dramatic play', in which children enact roles in fantasy scenarios that they themselves create.

This sequence of play development, which extends from solitary exploration to sensorimotor play to pretend play, has received extensive empirical support and correlates with children's cognitive abilities (Brown 2009, Else 2009, Smith 2010). The emergence of pretend play, in particular, is a critical achievement of toddlers as it allows them to practice symbolic thought.

Virtually every aspect of the growing child's life is affected by play. Early play experiences set the stage for all subsequent development. For example, being able to substitute one object for another - using a sponge as a 'boat' in the bath - is a necessary step in language development, where words stand for something other than themselves.

A study by Levine, Huttenlocher and Cannon (2011) examined the relation between children's early puzzle play and their spatial skill. Individual differences in spatial skill emerge prior to preschool entry.

However, little is known about the early experiences that may contribute to these differences. 53 children and parents were observed at home for 90 minutes every four months (six times) between the ages of two and four years. When children were four and a half years old, they completed a spatial task involving mental transformations of two-dimensional shapes. Children who were observed playing with puzzles performed better on this task than those who did not, controlling for parent education and income. Among those children who played with puzzles, frequency of puzzle play predicted performance on the spatial transformation task.

By preschool age, children's imagination, language, and communication skills permit communicating about social pretend play. Children can plan and manage their fantasy play easily and can modify the script as it progresses. During social play children acquire knowledge and information (such as colour names and word spelling), learn personal limits and social rules. Social play requires the play partners to share the same understanding of the situation, to agree on the rules of play. A 'tea party' requires the children to agree on the imaginary scene, and to pretend that there is tea in the empty teapot and tea cups.

Children benefit most by varying their play activities, sometimes playing alone but also with others, playing quietly on the floor as well as actively outdoors. In order to stimulate and prolong play, adults should support and encourage it by providing sufficient space in which to play, and a broad assortment of toys and other play objects to enable the broadest range of play possibilities. This will ensure that neural pathways in the brain are developed and strengthened, that every muscle is exercised, and that great feats of imagination are displayed.



**PLAYING
WITH BLOCKS
PROMOTES
LANGUAGE
DEVELOPMENT**

3 TALKING, THINKING, CREATING

The growing child learns nearly everything through play. Play helps build strong learning foundations because later levels of learning are built upon earlier ones, a process referred to as 'scaffolding'. The qualities of spontaneity, wonder, creativity, imagination, and trust, are best developed in early childhood play. In play, the learning process is self-sustained because the natural love of learning is preserved and strengthened. The power of play also enhances self-esteem and interpersonal relationships.

COGNITIVE DEVELOPMENT AND LANGUAGE

The cognitive processes involved in play are similar to those involved in learning: motivation, meaning, repetition, self-regulation, and abstract thinking. Contemporary toys and games, by virtue of their electronic functions and possibilities, invite exploration and discovery - learning activities *par excellence*.

Attention is essential for reading and for many kinds of learning and performance. Attention span during free play depends almost solely on the type and number of toys available (Moyer 1955).

Children's explorations during free play support learning (Schulz 2008). The ability to read, speak and do maths ultimately rests upon the child's capacity to use symbols, for example, a block to represent a truck or a telephone. Play at an early age (13-24 months) facilitates language (Hall 1991, Ungerer 1986).

Various forms of pretend play can enhance school readiness, social skills, and creative accomplishment.

Children's early exposure to and participation in pretend play in the preschool years is related to their emergent literacy skills when they reach kindergarten (Katz 2001, Roskos 2007, Singer 2002).

Children's toys provide a rich arena for investigating causal understanding because objects are understood at different levels of abstraction. For example, many dolls and action figures can be construed either as characters from a fictional world or as physical objects in the real world. In two experiments, 72 four and five year olds understood that characters shared certain properties even though they did not have the same name. Children's understanding of an object's abstract character identity enabled them to use it in multiple ways (Rhemtulla 2009).

'Children at play begin to learn essential math skills such as counting, equality, addition and subtraction, estimation, planning, patterns, classification, volume and area, and measurement. Children's informal understanding provides a foundation on which formal mathematics can be built' (Fisher 2011, p. 344).

Researchers, educators, and parents have long believed that children learn cause and effect relationships through exploratory play. In one study, four to five year olds explored novel toys in an effort to understand how they work (Schulz 2007).

'To learn in a formal school environment, children must be able to regulate their behaviours and emotions and communicate and engage with others in socially appropriate ways. Research clearly highlights a relationship between playful learning experiences, social and self-regulatory skills, and academic achievement' (Fisher 2011).

'Playful learning' refers to the use of free play and adult-guided play activities to promote academic and social skills (Fisher 2011). For example, Montessori schools create classrooms in which children choose from a number of playful activities that have been prearranged by adults. Research shows that Montessori kindergarten children are significantly more likely to use a higher level of abstract reasoning by referring to justice or fairness to convince another child to relinquish an object, and are more likely to be involved in positive shared peer play than are children from traditional schools (Lillard 2006).

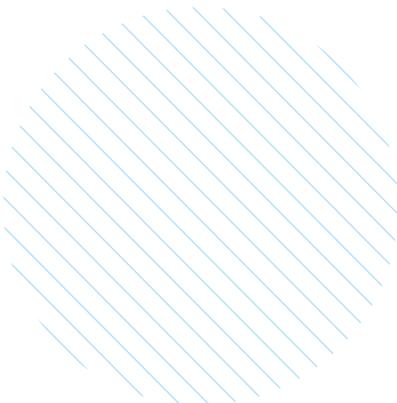
LANGUAGE AND PLAY

Studies from many countries show a relationship between early social play and later communication skills. Maternal responses to infant toy initiations, as well as manipulation and labelling of toys at age 11 months were related to infant language at 14 months. In Finland, Lyytinen (1999) reported that symbolic play at age 14 months predicts children's development at the age of two years.

Playing with blocks promotes language development. In one study, children aged one and a half to two and a half who were provided with sets of moulded plastic building bricks with which to play had significantly higher language scores six months later, compared with a control group (Christakis 2007).

Gunhilde Westman of Uppsala University (Sweden) sees play as an arena for developing language and communication. Play is demanding for children because they have to pay attention to each other's words and actions. They have to concentrate on their own use of language in order to communicate clearly. Children learn these by listening to each other when they play. Through play children learn to reach agreement and to reciprocate words and actions. One of the functions of preschools and schools is to educate children to become citizens who can participate in discussions and reach mutual agreements. Westman (2003) believes there may be a link between children's confidence and motivation when playing, and their language development. Children who are motivated by play and try to expand their play actions tend to be more linguistically developed and confident.

Much research has pointed to the importance of children's negotiations in peer pretend play for preschool children's social, cognitive and literacy development. However, few studies have investigated the relations between talk about play in preschool and children's language skills when entering school. In a study by Rydland (2009), a group of children four to five years old, who had Turkish as their first language and Norwegian as their second language, was followed for two years, from preschool to first grade, and videotaped in play with peers. In the first part of the analysis, relations between talk about play in preschool and vocabulary skills and story comprehension in first grade were investigated. The main findings indicate that preschool children's talk about their play is related to language skills in first grade.



PLAY PROMOTES CREATIVITY

Creativity increases following free play. According to research by Anthony Pellegrini, providing children with play breaks during the school day maximises their attention to cognitive tasks (Pellegrini 2005).

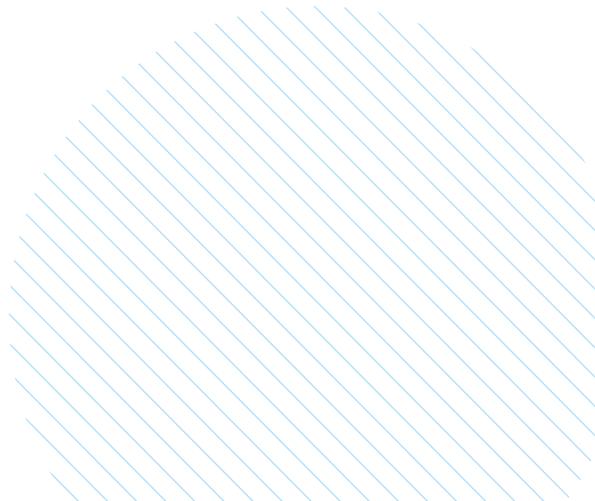
Children produced more colourful and complex art after being allowed to play, compared to children who first followed a structured exercise. Fifty-two English school children six to seven years old were randomly assigned to two groups. The first group was allowed to play for 25 minutes, while the other group copied text from the board. All children were then asked to produce a collage of a creature, using a controlled range of tissue-paper materials. Ten judges assessed the creative quality of the resulting work. The range of colours and total number of pieces used by each child was recorded. The results revealed a significant positive effect of unstructured play upon creativity (Howard-Jones 2002).

When four to five year old children were asked to 'play with' or 'to remember' 16 common objects, they recalled the items better when instructed to play with, rather than to remember them (Newman 1990).

Adults, too, are more creative when they imagine themselves as children at play. With the responsibilities of adulthood, playful curiosity is sometimes lost. In a 2010 study by Zabelina and Robinson, 76 university students were randomly assigned to one of two conditions before creative performance was assessed with a version of the Torrance Test of Creative Thinking. In a control condition, participants wrote about what they would do if school was cancelled for the day.

In an experimental condition, the instructions were identical except that participants were to imagine themselves as seven year olds in this situation. Individuals imagining themselves as children subsequently produced more original responses on the test of creativity. Further results showed that the manipulation was particularly effective among more introverted individuals, who are typically less spontaneous and more inhibited in their daily lives. The results establish that there is a benefit in thinking like a child for subsequent creative originality, particularly among introverted individuals.

In A Mandate for Playful Learning in Preschool: Presenting the Evidence, a review of play research confirms that children's self-initiated play nurtures overall development, not just cognitive development (such as learning to name colours, numbers, or shapes). In fact, research builds a very strong case that childhood play is a required experience in order to become a civilised, fully-realised human being (Hirsh-Pasek 2006). Abundant research has shown that play during early childhood is necessary if humans are to reach their full potential. For children, and in fact, for society's well-being, true play is a critical need, not a fanciful frill. And so it requires early childhood programmes to advocate for and insist upon including play as part of their daily curriculum and teaching strategy (Stevens 2009).





**CHILDREN'S
FIRST STEPS
TOWARD
INDEPENDENCE
COME WITH THEIR
ATTACHMENT TO
SOFT CLOTHES
OR FURRY TOYS**

4 PLAYMATES

The infant's first experiences of play are with parents and siblings, who try to elicit interest and laughter from baby. Play helps infants and toddlers gain a sense of independence and identity. Their first steps toward independence come with their attachment to soft clothes or furry toys. Children with 'transitional objects' which they cling to at bedtime or when distressed have fewer sleep disturbances and are reported in three out of four studies to be more agreeable, self-confident, and affectionate (Litt 1986, Singer 1990, Winnicot 1971).

As infants develop, their social play develops with them: At six months, babies tend to be passive; the adult must do all the work. At around six months the infant is able to sustain interest in the performance of the adult but remains passive. At about nine months, the infant can initiate the game but there is no evidence of taking turns in the game. Beginning at about one year of age, when the infant shows awareness of the different play roles, infants will alternate with their mothers shifting from agent to recipient. In the second year toddlers can create variations within the game, showing an understanding not only of its basic structure, but its limits and possibilities. Examples are rolling a ball back and forth, and peek-a-boo.

During play children form enduring bonds of friendship, including with their adult playmates (Goldstein 1996, Mos and Boodt 1991).

Children age five to seven years with proficient pretend play skills are socially competent with peers and are able to engage in classroom activities. Children who scored poorly on the play assessment were more likely to have difficulty interacting with their peers and engaging in school activities. Social competence is related to a child's ability to engage in pretend play (Uren 2009).

Psychiatrist Stuart Brown (2009) discovered that the absence of social play was a common link among murderers in prison. They lacked the normal give-and-take necessary for learning to understand others' emotions and intentions, and the self-control that one must learn to play successfully with others.

Some toys promote social play. Two to six year olds at day-care and nursery centres in Nashville, Tennessee, were observed during play. Dress-up clothes, toy wagons, balls and a puppet stage were far more likely to be played with in co-operative social play than were puzzles, a toy sink and pull toys, all of which were used primarily in isolated play (Hendrickson 1981).

Isn't play naturally competitive? Doesn't competition help children better learn to compete in the adult world? Play isn't naturally competitive. In fact, it is the opposite - naturally cooperative. Children agree on when to begin and end play, what the rules and roles are, and then play according to the rules they have agreed upon.

AGE-MIXED PLAYGROUPS / INTERGENERATIONAL PLAY

Mixed-age play offers opportunities for learning and development not present in play among those close in age, suggests psychologist Peter Gray (2011). Mixing ages has advantages for younger children, who are likely to play above their typical level, and for older children, who expand their understanding by teaching younger children.

Mother-child pretend play with toddlers aged 8 to 17 months is related to higher IQ at age five years (Morrissey 2009).

Play is an essential activity of early childhood as it contributes to the cognitive, social, and emotional development of children. Through play, children are able to create and explore a world they can master. Moreover, within the context of play children learn, develop, and practice innovative behaviours and social competencies (Bruner 1972, Pellegrini 2007). Fathers and mothers each play differently with their children and each contributes to the child's language, cognitive, and social development. During the first few years of life, parents have a critical role in influencing children's play and developing social and communication skills (Slade 1987, Tamis-LeMonda 2004).

Playing with children may sound simple, but it isn't easy. It is difficult to resist putting pressure on a child to succeed or do something well or the right way, rather than allow them to just play with the task at hand. At other times we impose tasks that meet adult needs rather than those of the child. Adults are often afraid of playing with children, afraid of being embarrassed, looking funny and childish, of not being professional, of hurting and being hurt, of being accused of inappropriate touch, and simply not knowing how to play with children.

The adult's role is critical, but it is neither as an idle bystander nor as an overbearing adult. Adults can take on the role of a true partner or playmate. Playing with a child is the easiest and most beneficial approach. In traditional play adults take certain prescribed roles such as coach, manager, teacher, director, parent, and referee in order to maintain safety. In all of these roles the adults are separate from the children. Instead of standing apart, an adult playmate is fully engaged in the play itself. It is the adult's concern for the child rather than their rules that create safety. Parents, teachers and other caretakers should join in children's play, not have them conform to our play.

Most species do not live long enough to become grandparents. So having and being grandparents may have benefits for us, and it is not difficult to imagine that play between children and their grandparents is the delivery system for these advantages. Playing with grandchildren could offer advantages to both the developing child and the aging adult, to keep minds flexible and agile.



**PLAY IS AN ESSENTIAL
ACTIVITY OF EARLY
CHILDHOOD AS IT
CONTRIBUTES TO
THE COGNITIVE, SOCIAL,
AND EMOTIONAL
DEVELOPMENT OF
CHILDREN.**

'Parents directly affect the behaviour of their young children when they engage the children in play. When playing with parents, infants' and toddlers' behaviour is more complex, more conventional, of longer duration, and more symbolic than when playing with peers, siblings, or alone... When parents play with infants and young children, the complexity of children's behaviour increases substantially, both in the length of the social interactions, and in the developmental level of children's social behaviour' (Power 2000, pp. 362, 375).

Play develops the brain of the growing child and delays dementia in the elderly. Exercise causes the release of growth factors, proteins that increase the number of connections between neurons, and the birth of neurons in the hippocampus, a region of the brain important for memory (Wang 2008). For elderly people, play carries health benefits different from those for the growing child. Whereas active play helps children grow in strength and co-ordination, in elderly adults it helps to maintain these skills and retard their inevitable deterioration.

Hypothesised functions/effects of parent-child play (from Power 2000):

- Cognitive stimulation and learning
- Promoting general cognitive development
- Promoting linguistic skills
- Providing information about the physical environment
- Social development
- Establishing social relationships
- Facilitating social perspective-taking skills
- Facilitating self-regulation and control
- Facilitating gender role development

**YOU DON'T STOP
PLAYING BECAUSE
YOU GROW OLD,
YOU GROW OLD
BECAUSE YOU
STOP PLAYING.**

George Bernard Shaw

**CHILDREN AS
YOUNG AS EIGHT
MONTHS MAY
ALREADY SHOW A
PREFERENCE FOR
'BOYS' OR 'GIRLS'
TOYS**



5 SEX DIFFERENCES IN PLAY AND TOY PREFERENCE

Why do boys and girls tend to prefer different toys and why are there so clearly differences in the play styles of boys and girls? Do these come only from socialisation, marketing and advertising? What role does biology play?

Boys are typically more physically active than girls and this is reflected in their play. *'While children will still express their individuality, on the whole girls prefer to play more quietly and in smaller groups, boys will run around and tend to make more noise. Group play with girls can still be competitive, but it tends to be expressed emotionally rather than physically,'* writes Perry Else of Sheffield Hallam University (2009). Efforts to suppress boys' rough-and-tumble play and play fighting are usually unsuccessful (Holland 2003).

Children as young as eight months may already show a preference for 'boys' or 'girls' toys. Sex differences in toy preferences were noted in research as early as the 1930s (Parten 1932). And they apply as well to American, Dutch, English, Italian, and Japanese children (Cherney 2010, Suito 1992, Zammuner 1987). Even adult male and females display preferences for male-typical and female-typical toys (Alexander and Charles 2009).

Developmental psychologist Catherine Garvey (1990) traces the origins of sex-typed toy preferences to parental behaviour, to the parents' influence as models. Children who choose traditional sex-typed toys are more likely to have parents who hold traditional gender role attitudes (Rheingold 1975). Toys and games are often designed specifically for boys or girls.

Evidence from patients with endocrine disorders suggests that biological factors during early development (levels of androgens) are influential in children's toy preferences (Pasterski 2005).

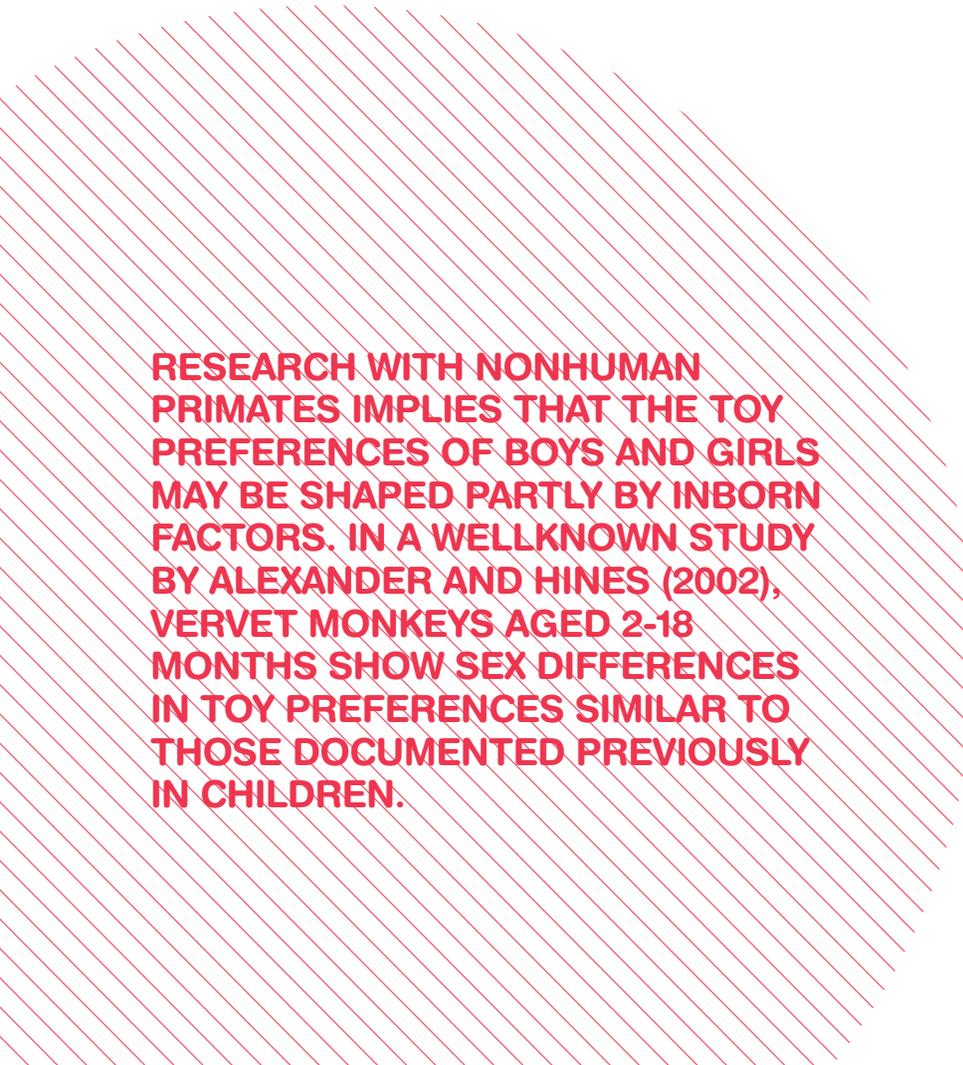
Research with nonhuman primates implies that the toy preferences of boys and girls may be shaped partly by inborn factors. In a well-known study by Alexander and Hines (2002), vervet monkeys aged 2-18 months show sex differences in toy preferences similar to those documented previously in children. The percent of contact time with toys typically preferred by boys (a car and a ball) was greater in male vervets than in female vervets, whereas the percent of contact time with toys typically preferred by girls (a doll and a pot) was greater in female vervets than in male vervets. In contrast, contact time with toys preferred equally by boys and girls (a picture book and a stuffed dog) was comparable in male and female vervet monkeys. These differences may have evolved based on the different roles of males and females.

Preferences for sex-linked toys seems to emerge in children before any sense of gender identity. In order to test this hypothesis, interest in a doll and a toy truck was measured in 30 infants ranging in age from three to eight months using eye-tracking technology that provides precise indicators of visual attention. Sex differences in visual interest in sex-typed toys were found: girls showed a visual preference for the doll over the toy truck and boys compared to girls looked more often at the truck. The findings suggest that the categories of 'masculine' and 'feminine' toys are preceded by sex differences in the preferences for certain features of these toys, such as their colour, shape, or purpose.

These innate preferences for certain features of toys, coupled with social influences may explain why toy preferences are among the earliest expressions of sex-linked social behaviour (Alexander 2009).

Recent research by Vasanti Jadva, Melissa Hines, and Susan Golombok, of Cambridge University (2010) adds to our understanding of children's toy preferences. They explored whether colour or shape was behind children's sex-typed toy preferences. *'We used looking time to examine preferences for different toys, colours, and shapes in 120 infants, ages 12, 18, or 24 months.'* Children looked at combinations of paired images of cars and dolls in different colours.

Girls looked at dolls significantly more than boys did and boys looked at cars significantly more than girls did, irrespective of colour, particularly when brightness was controlled. These outcomes did not vary with age. There were no significant sex differences in infants' preferences for different colours or shapes. Instead, both girls and boys preferred reddish colours over blue and rounded over angular shapes. *'We did not see sex differences in preferences for pink or reddish colors over blue, nor did we see sex differences in preferences for angular versus rounded shapes.'*



RESEARCH WITH NONHUMAN PRIMATES IMPLIES THAT THE TOY PREFERENCES OF BOYS AND GIRLS MAY BE SHAPED PARTLY BY INBORN FACTORS. IN A WELLKNOWN STUDY BY ALEXANDER AND HINES (2002), VERVET MONKEYS AGED 2-18 MONTHS SHOW SEX DIFFERENCES IN TOY PREFERENCES SIMILAR TO THOSE DOCUMENTED PREVIOUSLY IN CHILDREN.

'Our observation that 12 to 24 month old boys show more interest than girls do in cars, and that girls of this age show more interest than boys do in dolls, resemble observations of sex differences in toy preferences in older children, and add to evidence that these sex differences emerge at a very young age. Such early sex differences could reflect inborn tendencies for girls and boys to prefer different toys. This interpretation is consistent with findings linking prenatal androgen exposure to toy preferences in children and with findings of similar sex differences in toy preferences in non-human primates'. The study concludes that indeed there are early sex-typed toy preferences, but that apparently colour and shape are not the reasons for them.

She writes, *'In fact, the direction of influence could be the opposite. Girls may learn to prefer pink, for instance, because the toys that they enjoy playing with are often coloured pink'.*

In their drawings, girls tend to draw butterflies, flowers and humans, while boys draw moving objects like cars and trains. It may be that the key to sex differences in toy preferences comes, not from the colour or shape of a toy, but from its function, that is, what the toy can do. Boys may inherently prefer toys that (can) move, while girls show no such preference (Bennenson 2011).

**PLAY IS THE
HIGHEST FORM
OF RESEARCH.**

Albert Einstein

**PREFERENCES FOR
SEX-LINKED TOYS
SEEM TO EMERGE IN
CHILDREN BEFORE
ANY SENSE OF
GENDER IDENTITY.**

**ALL CHILDREN
NEED TO
SPEND SOME
TIME PLAYING
OUTDOORS**



6 PLAY AND HEALTH

'Perhaps, even more than being smart and getting along with others, parents want their children to be happy ...' (Burdette 2005). Play has the potential to improve many aspects of emotional well-being, such as reducing anxiety, depression, aggression, and sleep problems.

How children play reveals their interests, abilities, desires and fears. That is why play has been used as a routine part of assessment, training, and therapy with children and adults. Play therapy has been available to children and families for decades. The play therapist's toy chest today includes traditional toys and games, dolls, interactive toys and digital games (Brezinka 2007).

The amount of public space devoted to playgrounds and sports fields continues to diminish, reducing children's opportunities for active and social play. This contributes to the sedentary lifestyle of young people and the problems, such as obesity and attention deficits, that accompany it. Encouraging active play and participation in sport thus become of vital importance.

All children need to spend some time playing outdoors. In Northern European countries, schools are equipped with outdoor facilities where children can play during breaks between lessons. The Italian school system does not attach as much importance to play for preschool age children and Italian preschools are not so well equipped for children's active play, according to Vitale (2011). Furthermore, Italian teachers and parents worried that while playing outdoors, children might catch a cold or hurt themselves, and discourage active play outside. Providing preschools with open spaces with games, where children can play in the morning or after school, resulted in children's increased time of playing outdoors.

These playgrounds are also used during vacation day time by children to play and in the evenings, for theatrical and animation events.

OBESITY

If obesity is the problem, play may be the solution. Young animals living in an environment with a surplus of food rarely develop obesity – they simply play more. *'Animals play so that they burn up energy that might otherwise be stored as fat... By engaging in energy-burning play, animals remain lean and fit, making them less susceptible to predators.*

If excess calories were not burnt off in play, then the resulting obesity might increase the risk of predation by impeding escape ability through increasing balance problems, fatigue, muscle strain, inability to enter narrow spaces, and amount of non-propulsive tissue. Moreover, because play activity raises basal body temperature, it could decrease the young animal's susceptibility to cold stress and pathogens.... The amount of play varies with the amount of food available. Young animals living in an environment with a surplus of food rarely develop obesity – they simply play more' (Power 2000, p. 154).

ACTIVE PLAY AND ADHD

In recent years there has been more recognition of the health benefits and uses of play, from dealing with depression and obesity, to reducing ADHD (attention deficit hyperactivity disorder).

A regimen of social rough and tumble play might help children with ADHD, which is characterised by an inability to concentrate on one task, hyperactivity, and impulsivity. It is the fastest-growing behavioural problem among young people, estimated to affect 8% of school-age children. Its rise has coincided with a reduction in outdoor spaces for play and recreation (Panksepp 2003).

Neuroscientist Jaak Panksepp believes that 'one reason for the increasing incidence of ADHD may be the diminishing availability of opportunities for pre-school children to engage in natural self-generated social play. The idea that intensive social play interventions, throughout early childhood, may alleviate ADHD symptoms remains to be evaluated. As an alternative to the use of play-reducing psychostimulants, society could establish play "sanctuaries" for at-risk children in order to facilitate frontal lobe maturation and the healthy development of pro-social minds' (Panksepp 2007).

Recent research documents a reduction in disruptive behaviour after play (O'Connor 2011, Pellegrini 1997).

Mother-child play of maltreating and non-maltreating families was analysed when infants were 12 months old and again at two years old. Children from abusing families engaged in less child-initiated play than did children from non-maltreating families, and they later demonstrated less socially competent behaviour (Valentino 2011).

Physical activity has important benefits for children's physical health and mental well-being, but many children do not meet recommended levels. Research suggests that active play has the potential to make a valuable contribution to children's overall physical activity, whilst providing additional cognitive, social and emotional benefits.

Yet international surveys find that children do not engage in the recommended levels of physically active play. A US survey of four to twelve year olds found low levels of active play (less than six times per week) and high levels of screen time (more than two hours per day). 37% had low levels of active play, and 65% had high screen time (Anderson 2008).

A qualitative study with 10-11 year old children was conducted in the UK by Brockman and colleagues (2011). Eleven focus groups were conducted with 77 children from four primary schools in Bristol. Focus groups examined factors that motivate children to take part in active play, and those that limit children's active play. Results: Children were motivated to engage in active play because they perceived it to be enjoyable, to prevent boredom, to have physical and mental health benefits and to provide freedom from adult control, rules and structure. However, children's active play was constrained by a number of factors, including rainy weather and fear of groups of teenagers in their play spaces. Some features of the physical environment facilitated children's active play, including the presence of green spaces and cul-de-sacs in the neighbourhood.

Additionally, children's use of mobile phones when playing away from home was reported to help alleviate parents' safety fears, and therefore assist children's active play. Conclusions: Children express a range of motivational and environmental factors that constrain and facilitate their active play.

Preventing the decline in physical activity which occurs around 10-11 years of age is a public health priority. Physically active play can make unique contributions to children's development which cannot be obtained from more structured forms of physical activity.

Encouraging active play in children's leisure time has potential to increase physical activity levels while promoting optimal child development. Aspired wisdom states that contemporary British children no longer play outdoors, but systematic evidence for this is lacking.

The same eleven UK focus groups also examined children's perceptions of play, and the frequency and nature of their active play. The results demonstrate that children's perceptions of play were broad and included both physically active and sedentary behaviours. Children reported that they frequently engaged in active play (unfortunately, the researchers do not quantify how much active play children engage in) and valued both the physical and social benefits it provided. Whereas boys frequently reported having a 'kick about' or riding bikes as their preferred forms of active play, girls were less likely to report a specific activity. Additionally, boys reported greater independent mobility in their active play compared to girls. Finally, boys were more likely to report playing with neighbourhood friends but girls more frequently reported playing with family members. Brockman concludes that promoting active play in children's leisure time may increase the physical activity of children, but interventions may need to be tailored according to gender (Brockman 2011).

Playing with toys has long been considered important in early child development. However, children with significant disabilities often engage in toy play less frequently than their peers without disabilities and frequently need specialised support to promote toy play. A study by DiCarlo and others (2009), first identified two- to three-year old children's preferred sensory attributes (auditory, visual, tactile).

Once identified, those attributes were embedded into a toy that the children had previously rejected. Four toys were presented, and the child was given a choice. The adult prompted the child and offered praise for completion of effective toy play. Results indicated that the addition of a preferred sensory attribute increased selection of that toy with two of three children and resulted in increased independent functional toy play for all three children (DiCarlo 2009).

Do special-needs children play differently from other children? Experts often write that special-needs children cannot or do not play like normally developing children. All children can play, says Dr. Fred Donaldson. *'As a playmate I adapt the play to include whoever comes to play. It is not the child's special need or culture with which I play'*. (www.originalplay.com)

PLAY AND THE QUALITY OF LIFE

One undeniable feature of play is fun. Enjoyment is the main reason for playing. Positive emotions contribute significantly to a sense of well-being and health, and improve the quality of life for children and adults.



**WITHOUT PLAY,
OPTIMAL LEARNING
AND NORMAL SOCIAL
FUNCTIONING MAY
NOT MATURE
PROPERLY**

7 TOO LITTLE PLAY CAN AFFECT CHILD DEVELOPMENT

PLAY DEPRIVATION

'A child who is not being stimulated, by being ... played with, and who has few opportunities to explore his or her surroundings, may fail to link up fully those neural connections and pathways which will be needed for later learning.' (Sutton-Smith 1997, p. 17).

Because play promotes brain growth and development, *'children who do not have sufficient opportunities to play will experience impaired brain development and flexibility. These conclusions are based on animal studies, though work with extremely deprived children indicates a similar effect'* (Else 2009, p. 85).

Children who do not play or who do not have the opportunity to play are at increased risk for abnormal development and deviant behaviour. Without play, self-control does not develop adequately.

'When we are in peril, play will disappear. But studies show that if they are well fed, safe, and rested, all mammals will play spontaneously' (Brown 2009, p. 42).

Panksepp believes that there is an optimum level of active social play necessary every day. Like sleep deprivation, play deprivation has adverse consequences. Without play, optimal learning, normal social functioning, self-control, and other cognitive functions may not mature properly.

Over the past half century, in the Western world, children's free play with other children has declined sharply (Chudacoff 2007). Over the same period, anxiety, depression, suicide, feelings of helplessness and narcissism have increased sharply in children, adolescents, and young adults.

Psychologist Peter Gray (2011) contends that the decline in play has causally contributed to the rise in the psychopathology of young people. Play functions as the major means by which children (1) develop intrinsic interests and competencies; (2) learn how to make decisions, solve problems, exert self-control, and follow rules; (3) learn to regulate their emotions; (4) make friends and learn to get along with others as equals; and (5) experience joy. Through all of these effects, play promotes mental health. *'Restoring children's free play is not only the best gift we could give our children, it is also an essential gift if we want them to grow up to be psychologically healthy and emotionally competent adults.'*¹

A review by Play Wales of studies of play deprivation concludes: *'Clearly play is of extreme importance to human children, particularly during the 0-7 sensitive period. There is little doubt that children deprived of play suffer considerable physical and psychological consequences, consequences which may be devastating to those affected. Children will adapt through their play to many changes in circumstances, like, for example the proliferation of computer toys, and may evolve new skills as a consequence. However, play deprivation is not about change but about an absence of those sensory inputs essential for the maintenance of humanness. Chronic play deprivation may have the effect of gradually dehumanising the children it affects, with a consequent loss of their ability to care, to empathise and exercise compassion, or share the same reality as other children. The available evidence suggests that play deprived children become disturbed, aggressive and violent adults'* (Play Wales).

¹ See 'A World without Play: A Literature Review', 2011. www.playengland.org.uk



**SMART TOYS
CAN FACILITATE
CHILDREN'S
SPEECH,
VOCABULARY,
AND PRE-READING
SKILLS**

8 PLAY AND TECHNOLOGY

Toys have always reflected the latest developments in science and technology, from music boxes to electric trains to computer games and robots. Today's toys contain embedded electronics that appear to have the capacity to adapt to the abilities or actions of the player, seem to interact with one another or with a computer or smart phone.

The first 'smart toys' appeared in the UK in 1996. Smart toys share three essential purposes: they are designed to teach a skill, make learning fun, and engage the child in doing rather than passively watching something. The technology should not just be for show; it should have a purpose. How a toy impacts a child's development depends on how it is used, the interaction it promotes, the language used to discuss the toy, and the level of pretend play it generates. There is little research on whether smart toys increase children's cognitive or social skills, although some toys are designed with these goals in mind.

A variety of toys have been developed to teach phonics, vocabulary and fluency to preschool and early school age children. The use of 'speaking' toys in preschool has been shown to facilitate children's speech, vocabulary, and pre-reading skills. There is little research on whether 'smart' toys increase children's IQ or later success in life. Studies are beginning to look at what can be learned with some of these devices. Some benefits of smart toys occur because they engage the child in 'open-ended' play. Electronic toys and digital games keep children on task for a longer period of time.

Children often use new media in traditional ways, bypassing the technology. Technology is rarely the most important feature of a toy. If a toy is no fun to play with, no amount of technology will increase its desirability as a play object. Children are discriminating users of technology (Goldstein 2004, 2011, Plowman 2004).

For example, whether a toy 'talks' did not appear to affect how boys and girls aged 3 and a half to 5 years played with the toy (Bergen 2004).

Doris Bergen and colleagues (2010) conducted research in cooperation with a toy manufacturer to investigate how the features of a technology-enhanced toy were used by 26 infant-parent pairs during six play sessions with the toy. The researchers were interested in the features of toys that resulted in the most parent-child play. The blocks, ball, mailbox, puppy, and door features elicited more interactions than any other features.

Technology in toys can support children with severe physical impairments. In one case, a ride-on vehicle was fitted with a Global Positioning System to prevent collisions, designed for children who are blind or partially sighted (Fabregat 2004). One robot system even helps physically impaired children interact with traditional toys (Kronrief 2007).

Autism is a complex neuropsychological disorder characterised by qualitative alterations in social interaction and interpersonal communication. Giannopulu and Pradel (2010) observed the interaction between autistic children and a mobile toy robot during free spontaneous game play. The duration of different criteria including eye contact, touch, manipulation, and posture were considered. The children with autism took an interest in playing with the robot. This study suggests the potential of the mobile toy robot to reduce the impairment of autistic children's skills related to social understanding and interaction.

What can children learn by play with electronic and digital toys? Like all entertainment, games and play are fun, and help children cope with the world as they understand it. Children bring their imaginations with them to each play experience. Regardless of whether the toy contains a microchip or not, play nourishes development on every level: cognitive, emotional, physical and social.



**SMART TOYS SHARE THREE
ESSENTIAL PURPOSES:
THEY ARE DESIGNED TO
TEACH A SKILL,
MAKE LEARNING FUN, AND
ENGAGE THE CHILD IN DOING
RATHER THAN PASSIVELY
WATCHING SOMETHING.**

New kinds of toys do not necessarily displace older ones so much as add to the range of play options available. Children learn to use new technologies largely through trial and error — through exploration, experimentation, and play — and in collaboration with others, both face to face and online.

Hi-tech toys may introduce children to technology at an early age, but they also keep adults and the elderly playing beyond their youth. Adults benefit from play in many ways: it is emotionally satisfying, helps maintain cognitive skills, such as problem solving and strategic thinking, and has benefits for health and well-being (Goldstein 1997). Play helps individuals manage stress and cope with change.



***PLAY IS THE HIGHEST
EXPRESSION OF HUMAN
DEVELOPMENT IN
CHILDHOOD, FOR IT
ALONE IS THE FREE
EXPRESSION OF WHAT
IS IN A CHILD'S SOUL.***

Friedrich Froebel

**THROUGH PLAY,
CHILDREN
EXPLORE AND
LEARN THE RULES
AND SYMBOLS
OF THEIR
COMMUNITIES**



9 PLAY AND COMMUNITY

'Culture' refers to the traditions and values of our communities. Children need to know the 'rules' of their community if they are to be engaged citizens. Some aspects of culture, such as language, are obvious, but others are more subtle. *'For example, the colour white has different meanings in different cultures. English children know that white is the colour of the bride's dress in a traditional Christian wedding, yet for Indian children white is the colour used for funerals.'* The same things may have different symbolic meanings to different children. Through play, children explore and learn the rules and symbols of their communities (Else 2009, pp. 44-45).

PLAY AND CITIZENSHIP

Because of its significance in development, play may provide a foundation of fairness and cooperation that is advantageous to communal living. Questions about the evolutionary roots of cooperation, fairness, trust, forgiveness, and morality are best answered by attention to what happens during social play – how do players negotiate agreements to cooperate, to forgive, to behave fairly, and to develop trust. There is much to learn about the evolutionary origins of morality – behaving fairly – by studying social play in groups of mammals. Careful analysis of social play reveals rules of engagement that guide animals in their social encounters. Researchers Bekoff and Allen (2005) conclude that *'there is likely to be strong selection for cooperative fair play because there are mutual benefits when individuals adopt this strategy and group stability may also be fostered. Numerous mechanisms have evolved to facilitate the initiation and maintenance of social play, to keep others engaged, so that agreeing to play fairly and the resulting benefits of doing so can be readily achieved'*.

'Through play, children recreate roles and situations that reflect their sociocultural world, where they learn how to subordinate desires to social rules, cooperate with others willingly, and engage in socially appropriate behaviour. Over time, these competencies are transferred to children's everyday behaviours' (Fisher 2011, p. 348).

Even two to three year old children have a sense of fairness, of playing by the rules. Once children agree on the rules of their pretend play, some acts become inappropriate. In a study by Hannes Rakoczy (2008) the awareness of two and three year old children of these rules was explored. Would the children protest against rule violations by a third party? After the child and a second person had set up a pretence scenario, a third character (a puppet controlled by the experimenter) joined the game and performed acts either appropriate or inappropriate to the scenario. Children in both age groups protested specifically against inappropriate acts, indicating they were able not only to follow pretence rules and act in accordance with them but to understand their implications. This effect was more pronounced in the three year olds than in the two year olds.

Generally speaking, children from all cultures tend to play in similar ways and at roughly similar ages. A study of play between mothers from South America, Japan, and European immigrants in the United States and their 20-month old children found very few cultural differences in the exploratory or symbolic play of either the children or the mothers. Regardless of their culture, boys engaged in significantly more exploratory and less symbolic play than did girls when they played by themselves (Cote 2009).

One study compared 33 French and 39 European American 20 month old children and their mothers on exploratory, symbolic, and social play and interaction. French children engaged in more exploratory play, whereas US children engaged in more symbolic play. French and US mothers engaged in similar amounts of exploratory and symbolic play, and equally frequently solicited exploratory play. French mothers less frequently solicited symbolic play and offered less verbal praise than US mothers. Developmental play levels and activities also varied according to children's sex. Boys engaged in more exploratory play; girls engaged in more symbolic play. Girls received more physical affection from their mothers; boys received more verbal praise. These results suggest the coexistence of universal and culturally specific aspects of mother-child interactions and children's developmental processes (Bornstein 2006).

Although nearly all countries recognise children's right to play, they differ in their support of children's free play. In some countries the play is often teacher-led. There are national and cultural differences in the degree to which play is used in preschool to aid learning. Play is held to be essential for early years learning and socio-emotional development, yet this is not always reflected in practice (Ashabi 2007). A study by Synodi (2010) looked at play and pedagogy in Norway, Sweden, Japan, and New Zealand.

These countries were selected because, while they have to provide for children's right to play, they cover different geographical and cultural parts of the world - Europe, Asia and Oceania. Their curricula were examined because they express the official-state expectations regarding young children's play and learning. Play might be child-led, where the role of the teacher is as stage manager. Or it can be teacher-directed and highly structured. Play may also be mutually directed, when teachers become involved in children's free play in an unobtrusive manner. Synodi examined official documents concerning play in each country.

Play is mentioned and encouraged in each country, but the analysis reveals differences in the approach to play. In Japan the focus is on child-initiated and teacher-directed play. In New Zealand, the curriculum is made into a programme by each preschool, with contributions from the local community, whose views regarding play may vary from place to place. Norway and Sweden take a more holistic and responsive view of play than the other countries.

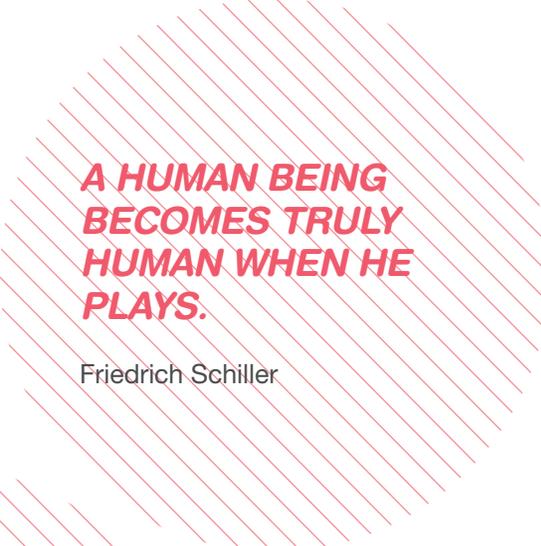
Children's attachment to their preschool teachers is related to the amount of contact they have with other children and with the teacher during free play (Cugmas 2011).

Izumi-Taylor and others (2010) discuss differences and similarities in perspectives on play among early childhood educators in Japan, the United States, and Sweden. Analysis of survey data collected from educators in those nations yielded six themes regarding the meanings and uses of play:

- process of learning
- source of possibilities
- empowerment
- creativity
- child's work and
- fun activities

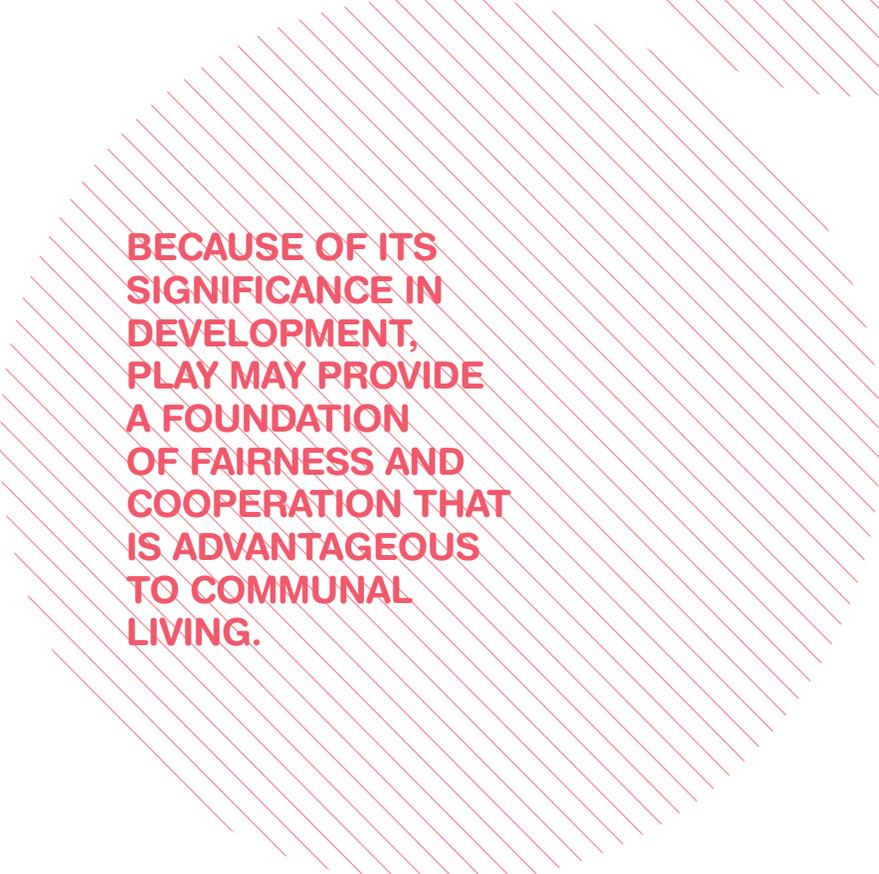
Processes of learning, fun activities, and creativity were the universal themes of play that emerged during analysis. The theme 'play as the child's work' was represented in the American and Swedish teachers' notions of play but not in those of the Japanese teachers. The theme of play as empowerment differentiated Japanese teachers from the others. Japanese and Swedish teachers reported offering unstructured play to children, while their American counterparts did not. Teachers from all three nations did, however, agree that playfulness involves and promotes positive feelings.

Despite the nearly universal belief that play is vital to children's development, health and well-being, there are diminished opportunities to play outdoors and during school hours.



**A HUMAN BEING
BECOMES TRULY
HUMAN WHEN HE
PLAYS.**

Friedrich Schiller



**BECAUSE OF ITS
SIGNIFICANCE IN
DEVELOPMENT,
PLAY MAY PROVIDE
A FOUNDATION
OF FAIRNESS AND
COOPERATION THAT
IS ADVANTAGEOUS
TO COMMUNAL
LIVING.**

**SOCIETY SHOULD
SEEK EVERY
OPPORTUNITY TO
SUPPORT PLAY**



10 TO PROMOTE PLAY

'Society should seek every opportunity to support play....Play is so critically important to all children in the development of their physical, social, mental, emotional and creative skills that society should seek every opportunity to support it and create an environment that fosters it... The child's capacity for positive development will be inhibited or constrained if denied free access to the broadest range of environments and play opportunities.' - Welsh Assembly Government Play Policy 2002, available at www.wales.gov.uk

In today's primary schools instruction and test preparation have replaced art, music, physical education and play. Many believe that play and academics are polar opposites and fundamentally incompatible. But 'a wealth of research demonstrates that play and academic learning are not incompatible. From dress-up to board games, from stacking blocks to art activities, research suggests that children's free-play fosters mathematics, language, early literacy, and social skills for children from both low- and higher income environments' (Fisher 2011, p. 342). Fisher says that adults can help children get the most out of their play by providing play materials such as books, pencils, paper, art materials, and costumes, and by involvement in the form of questions, comments and suggestions.

The manner in which toys are presented to children can influence how they play. For example, providing books, pencils, paper, crayons, and signs can increase older children's literacy play (Welsch 2008). A study by Shohet and Klein (2010) examined the effects of variations in presentation of play materials on social behaviour of 18 to 30 month old children. The study group included 102 children attending infant and toddler classes in 14 public childcare centres in Israel.

Play materials were presented to the children either in a random manner, or in a 'suggestive manner'.

'The suggestive presentation was based on the idea that the organisation of play materials in familiar scenarios based on children's daily experiences may create a visual stimulus which could function as an invitation to play. Since the scenarios were well known to the children, the assumption was that the familiar context will ease the play and communication among the children. This was expected particularly when verbal abilities of the children were not developed sufficiently for sustaining social interactions or cooperative play with peers. Another objective of the suggestive presentation was to create a context that will allow expression of existing and new social skills, by bridging the gap between the behaviours that a child is able to carry out without an adult's support, and behaviours that he or she is capable of carrying out only with the help of an adult. This form of bridging can be achieved through creation of meaningful play environments, which according to Vygotsky's (1978) conception of the Zone of Proximal Development, create for the child the assistance needed to express their best performance.' In other words, adults should intervene when they are needed or requested.

Toys were displayed on the carpet of the room. The toys used in the study included dolls, miniature plates, cups and eating utensils, pillows, scarves and picture books. Four items, one of each type, were introduced, thus ensuring that each participating child could choose one.

The social behaviour of the two age groups was differentially affected by the manner in which play materials were presented. More social play was observed when a play scenario was suggested. Toddlers showed a decline in aggressive behaviour following the suggestive presentation, whereas infants showed an increase in aggressive behaviour, such as grabbing a toy from another child. Overall *'there was more positive social behaviour, such as smiling and laughing, when toys were presented in a suggestive way. The researchers suggest the possibility of affecting children's social behaviour through the display of toys. Suggestive presentation might be used as a strategy for enhancing positive social interaction among peers.'*

Another way to encourage toy play is to turn off the television. An experiment by Schmidt (2008) found that turning off the television enhanced young children's play behaviour. The experiment tested the hypothesis that background, adult television is a disruptive influence on very young children's behaviour. Fifty 12, 24, and 36 month olds played with a variety of toys for one hour. For half of the hour, a game show played in the background on a TV set. During the other half hour, the TV was off. The children looked at the TV for only a few seconds at a time and less than once per minute. Nevertheless, background TV significantly reduced toy play episode length as well as attention during play. Thus, background television disrupts very young children's play behaviour even when they pay little attention to it.

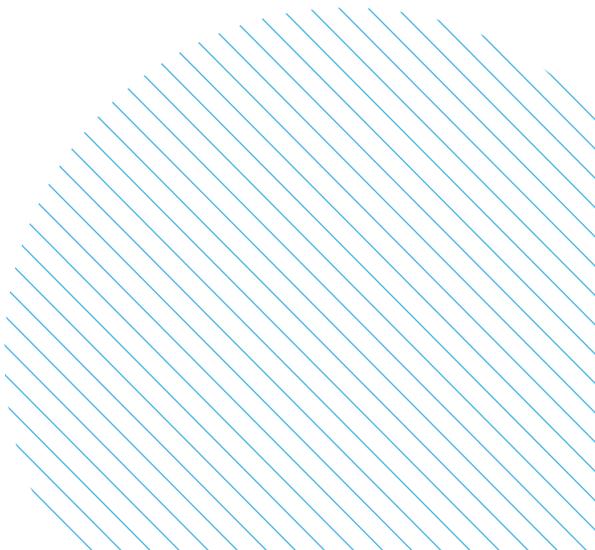
Play can be promoted for each child with adult encouragement and supervision (but not intervention unless necessary). Provide space, time, and a variety of toys and other objects to play.

WHY TOYS ARE IMPORTANT.

Play contributes directly to children's education and development. But it is toys that stimulate and prolong play. If children are to discover what they are good at, what they like, and what they are like, then they will need variety in their play, and a broad assortment of toys to make it possible.

Variety is the key. Children play longer when a variety of toys is available. The careful selection of toys can lead children to play with others, to cooperate, or to develop particular skills. For example, dress-up clothes, toy wagons, balls and a puppet stage are more likely to be played with in co-operative social play than are puzzles or pull toys, which were used primarily in solitary play. Toys are important, but they are no substitute for warm, loving, dependable relationships. You are the most important play equipment.

Parents, teachers and government bodies all recognise the value of play. Yet opportunities for play continue to diminish, with fewer play spaces, less freedom to roam outdoors, and decreasing school time for free play (Guldberg 2009). The case for play is clear, now the question is how to promote it.



REFERENCES

- Alexander, Gerianne M., and Hines, Melissa. (2002). Sex differences in response to children's toys in nonhuman primates (*Cercopithecus aethiops sabaeus*). *Evolution and Human Behaviour*, 23, 467-479.
- Alexander, Gerianne, Wilcox, Teresa, and Woods, Rebecca. (2009). Sex differences in infants' visual interest in toys. *Archives of Sexual Behaviour*, 38, 427-433.
- Alexander, Gerianne M., and Charles, Nora. (2009). Sex differences in adults' relative visual interest in female and male faces, toys, and play styles. *Archives of Sexual Behaviour*, 38, 434-441.
- Anderson, S. E., Economos, C. D., and Must, A. (2008). Active play and screen time in US children aged 4 to 11 years in relation to sociodemographic and weight status characteristics: A nationally representative cross-sectional analysis. *BMC Public Health*, 8, 366.
- Ashabi, G. S. (2007). Play in the preschool classroom: Its socioemotional significance and the teacher's role in play. *Early Childhood Education Journal*, 35, 199-207.
- Azar, Beth. (2002). It's more than fun and games. *Monitor on Psychology*, Mar.
- Bekoff, M., and Allen, C. (2005). Animal play and the evolution of morality: An ethological approach. *Topoi*, 24, 125-135.
- Benenson, Joyce F., Tennyson, Robert., and Wrangham, Richard W. (2011). Male more than female infants imitate propulsive motion. *Cognition*, 121, 262-267.
- Bergen, Doris. (2004). Preschool children's play with 'talking' and 'nontalking' Rescue Heroes: Effects of technology-enhanced figures on the types and themes of play. In J. Goldstein, D. Buckingham, and G. Brougère (Eds.), *Toys, Games, and Media*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Bergen, Doris, Hutchinson, Kathleen, Nolan, Joan T., and Weber, Deborah. (2010). Effects of infant-parent play with a technology-enhanced toy: Affordance-related actions and communicative interactions. *Journal of Research in Childhood Education*, 24, 1-17.
- Bogers, S., Sijbrandij, K., Wiegers, M., and Goldstein, J. (2003). Computer games in the workplace. *Digital Games Research Association conference*, Utrecht. November. <http://www.gamesconference.org/2003/index.php?Abstracts/Bogers%2C+et+al>
- Bornstein, M., and Suizzo, M. (2006). French and European American child-mother play: Culture and gender considerations. *International Journal of Behavioural Development*, 30, 498-508.
- Bradley, R. H. (1985). Play materials and intellectual development. In C. C. Brown and A. W. Gottfried (Eds.), *Play Interactions*. Skillman, NJ: Johnson and Johnson.
- Brezinka, Veronika, and Hovestadt, Ludger. (2007). Serious games can support psychotherapy of children and adolescents. *Lecture Notes in Computer Science*, 4799, 357-364.
- British Toy and Hobby Association. (2010). *Play and Physical Health*. <http://www.btha.co.uk/consumers/playandphysicalhealth.php>
- Brockman, R., Fox, K. R., and Jago, R. (2011). What is the meaning and nature of active play for today's children in the UK? *International Journal of Behavioural Nutrition and Physical Activity*, 8, 15. <http://www.ijbnpa.org/content/8/1/15>
- Brockman, R., Jago, R., and Fox, K. R. (2011). *BMC Public Health*, 11 (supplement 4), 461-468. <http://www.biomedcentral.com/bmcpublihealth>
- Brown, Stuart. (2009). *Play*. Penguin.
- Bruner, J. S. (1972). The nature and uses of immaturity. *American Psychologist*, 27, 687-708.
- Burdette, Hillary L., and Robert C. Whitaker, Robert C. (2005). Resurrecting free play in young children looking beyond fitness and fatness to attention, affiliation, and affect. *Archives of Paediatrics and Adolescent Medicine*, 159, 46-50.
- Cherney, Isabelle D., and Dempsey, Jessica. (2010). Young children's classification, stereotyping and play behaviour for gender neutral and ambiguous toys. *Educational Psychology*, 30, 651-669.
- Christakis, Dimitri A., Zimmerman, Frederick J., and Garrison, Michelle M. (2007). Effect of block play on language acquisition and attention in toddlers: A pilot randomized controlled trial. *Archives of Pediatric and Adolescent Medicine*, 161, 967-971.
- Chudacoff, Howard. P. (2007). *Children at Play: An American History*. New York University Press.
- Cote, Linda R., and Bornstein, Marc H. (2009). Child and mother play in three US cultural groups: Comparisons and associations. *Journal of Family Psychology*, 23, 355-363.
- Cugmas, Zlatka. (2011). Relation between children's attachment to kindergarten teachers, personality characteristics and play activities. *Early Child Development and Care*, 181, 1271-1289.
- DiCarlo, Cynthia F., Schepis, Maureen M., and Flynn, Linda. (2009). Embedding sensory preference into toys to enhance toy play in toddlers with disabilities. *Infants and Young Children*, 22, 188-200.
- Donaldson, O. Fred. <http://www.originalplay.com/develop.htm>
- Doosje, S., M. de Goede, M., van Doornen, L., and Goldstein, J. H. (2010). Measurement of occupational humor coping. *Humor: International Journal of Humor Research*, 23, 275-305.
- Driscoll, Coralie, and Carter, Mark. (2009). The effects of social and isolate toys on the social interaction of preschool children with disabilities. *Journal of Developmental and Physical Disabilities*, 21, 279-300.
- Elardo, R., Bradley, R., and Caldwell, B. M. (1975). The relation of infants' home environments to mental test performance from 6 to 36 months: A longitudinal analysis. *Child Development*, 46, 71-76.
- Elkind, David. (2007). *The Power of Play: Learning What Comes Naturally*. Da Capo
- Eise, Perry. (2009). *The value of play*. London: Continuum.
- Fabregat, M., Costa, M., and Romero, M. (2004). Adaptation of traditional toys and games to new technologies: New products generation. In J. Goldstein, D. Buckingham, and G. Brougère (Eds.), *Toys, Games, and Media*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Fisher, E. P. (1992). The impact of play on development: A meta-analysis. *Play and Culture*, 5, 159-181.
- Fisher, K., Hirsh-Pasek, K., Golinkoff, R. M., Singer, D. G., and Berk, L. (2011). Playing around in school: Implications for learning and educational policy. In A. D. Pellegrini (Ed.), *Oxford Handbook of the Development of Play*. Oxford University Press.
- Garvey, Catherine. (1990). *Play*. Cambridge MA: Harvard University Press.
- Giannopolu, Irini, and Pradel, Gilbert. (2010). Multimodal interactions in free game play of children with autism and a mobile toy robot. *NeuroRehabilitation*, 27, 305-311.

- Goldstein, J. (1987). Therapeutic effects of laughter. In W. F. Fry and W. A. Salameh (Eds.), *Handbook of Humor and Psychotherapy*. Sarasota FL: Professional Resource Exchange.
- Goldstein, J. (1996). Intergenerational play: Benefits of play for children and adults. *International Play Journal*, 4, 129-134.
- Goldstein, J. (2004). Electronic games in and out of school. *International Journal of Early Childhood Education*, 10, 77-87.
- Goldstein, J. (2011). Play and technology. In A. D. Pellegrini (Ed.), *Oxford Handbook of the Development of Play*. Oxford University Press.
- Goldstein, J., and others. (1997). Video games and the elderly. *Social Behavior and Personality*, 25, 345-352.
- Goldstein, Jeffrey, Buckingham, David, and Brougère, Gilles. (2004). Introduction: Toys, games, and media. In J. Goldstein, et al., *Toys, Games, and Media*.
- Goldstein, J., Mantell, M., Derks, P., and Pope, B. (1989). Humor and the coronary-prone behavior pattern. *Current Psychology*, 7, 115-121.
- Gray, Peter. (2011). The special value of children's age-mixed play. *American Journal of Play*, 3, 500-522.
- Gray, Peter. (2011). The Decline of Play and the Rise of Psychopathology in Children and Adolescents. *American Journal of Play*, 3, 443-463.
- Guldberg, Helene. (2009). *Reclaiming Childhood: Freedom and Play in an Age of Fear*. Routledge.
- Hall, N. (1991). Play and the emergence of literacy. In J. F. Christie (Ed.), *Play and Early Literacy Development*. Albany: State University of New York Press.
- Hendrickson, Jo M., et al. (1981). Relationship between toy and material use and the occurrence of social interactive behaviors by normally developing preschool children. *Psychology in the Schools*, 18, 500-504.
- Hirsh-Pasek, Kathy, Golinkoff, Roberta M., Berk, Laura, and Singer, Dorothy G. (2006). *A Mandate for Playful Learning in Preschool: Presenting the Evidence*. Oxford University Press.
- Holland, Penny. (2003). *We Don't Play with Guns Here. War, Weapon and Superhero Play in the Early Years*. McGraw-Hill.
- Howard-Jones P. A., and others. (2002). The effect of play on the creativity of young children during subsequent activity. *Early Child Development and Care*, 172, 323-328.
- Howes, Carrollee. (2011). Social play of children with adults and peers. In A. D. Pellegrini (Ed.), *Oxford Handbook of the Development of Play*. Oxford University Press.
- Izumi-Taylor, Satomi, Samuelsson, Ingrid Pramling, and Rogers, Cosby Steele Rogers. (2010). Perspectives of play in three nations: A comparative study in Japan, the United States, and Sweden. *Early Childhood Research and Practice*, 12 (1).
- Jadva, Vasanti, Hines, Melissa, and Golombok, Susan. (2010). Infants' preferences for toys, colours, and shapes: Sex differences and similarities. *Archives of Sexual Behaviour*, 39, 1261-1273.
- Katz, Jane. (2001). Playing at home: The talk of pretend play. In D. K. Dickinson and P. O. Tabors (Eds.), *Beginning Literacy with Language: Young Children Learning at Home and School*. Baltimore, MD: Paul H. Brookes.
- Kavanaugh, Robert D. (2011). Origins and consequences of social pretend play. In A. D. Pellegrini (Ed.), *Oxford Handbook of the Development of Play*. Oxford University Press.
- Kronreif, G., and others. (2007). Robot assistance in a playful environment. *Proceedings IEEE - International Conference on Robotics and Animation*. Article 4209529. (Photo used with permission)
- Levine, Susan C., Ratliff, Kristin R., Huttenlocher, Janellen, and Cannon, Joanna. (2011). Early puzzle play: A predictor of preschoolers' spatial transformation skill. *Developmental Psychology*, Oct 31.
- Lillard, A. S., and Else-Quest, N. (2006). The early years: Evaluating Montessori education. *Science*, 311, 1893-1894.
- Litt, C. J. (1986). Theories of transitional object attachment: An overview. *International Journal of Behavioural Development*, 9, 383-399.
- Lytinen, P., and others. (1999). The development and predictive relations of play and language across the second year. *Scandinavian Journal of Psychology*, 40, 177-86.
- Morrissey, Anne-Marie, and Brown, P. Margaret. (2009). Mother and toddler activity in the Zone of Proximal Development for pretend play as a predictor of higher child IQ. *Gifted Child Quarterly*, 53, 106-120.
- Mos, L. P., and Boodt, C. P. (1991). Friendship and play: An evolutionary-developmental view. *Theory and Psychology*, 1, 132-144.
- Moyer, K. E., and Gilmore, B. H. (1955). Attention spans of children for experimentally designed toys. *Journal of Genetic Psychology*, 38, 6-7.
- Newman, L. S. (1990). Intentional and unintentional memory in young children: Remembering vs. playing. *Journal of Experimental Child Psychology*, 50, 243-258.
- Oades-Sese, Geraldine V., Esquivel, Giselle B., Kaliski, Pamela K., and Maniatis, Lisette. (2011). A longitudinal study of the social and academic competence of economically disadvantaged bilingual preschool children. *Developmental Psychology*, 47, 747-764.
- O'Connor, Chloe, and Stagnitti, Karen. (2011). Play, behaviour, language and social skills: The comparison of a play and a non-play intervention within a specialist school setting. *Research in Developmental Disabilities*, 32, 1205-1211.
- Panksepp, Jaak. (2007). Can play diminish ADHD and facilitate the construction of the social brain? *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 16, 57-66.
- Panksepp, J., Burgdorf, J., Turner, C., and N. Gordon. (2003). Modeling ADHD-type arousal with unilateral frontal cortex damage in rats and beneficial effects of play therapy. *Brain and Cognition*, 52, 97-105.
- Parten, M. (1932). Social participation among preschool children. *Journal of Abnormal and Social Psychology*, 28, 136-147.
- Pasterski, V. L., and others. (2005). Prenatal hormones versus postnatal socialization by parents as determinants of male-typical toy play in girls with congenital adrenal hyperplasia. *Child Development* 76:264-278.
- Pellegrini, A. D. (2005). Recess: Its Role in Education and Development. Erlbaum / Taylor and Francis.
- Pellegrini, A. D., and Bjorklund, D. F. (1997). The role of recess in children's cognitive performance. *Educational Psychologist*, 31, 181-187.
- Pellegrini, A. D., Dupuis, D., and Smith, P. K. (2007). Play in evolution and development. *Developmental Review*, 27, 261-276.
- Pellis, S., and Pellis, V. (2010). The playful brain. *Oneworld*.

- Piaget, Jean. (1962). *Play, dreams, and imitation in childhood*. NY: Norton.
- Play England. (2011). *A World without Play: A Literature Review*. www.playengland.org.uk
- Play Wales <http://www.playwales.org.uk/downloaddoc.asp?id=1andpage=67andskin=0>
- Plowman, L., Stephen, C., and McPake, J. (2010). *Growing Up with Technology: Young Children Learning in a Digital World*. London: Routledge
- Power, Thomas G. (2000). *Play and Exploration in Children and Animals*. Lawrence Erlbaum Assoc.
- Rakoczy, Hannes. (2008). Taking fiction seriously: Young children understand the normative structure of joint pretence games. *Developmental Psychology*, 44, 1195-1201.
- Rydland, Veslemoy. (2009). 'Whow – when I was going to pretend drinking it tasted coke for real!' Second-language learners' out-of-frame talk in peer pretend play: A developmental study from preschool to first grade. *European Journal of Developmental Psychology* 6, 190-222.
- Reissland, Nadja, Shepherd, John, and Herrera, Eisquel. (2005). Teasing play in infancy: Comparing mothers with and without self-reported depressed mood during play with their babies. *European Journal of Developmental Psychology*, 2, 271-283.
- Rhemtulla, Mijke, and Hall, D. Geoffrey. (2009). Monkey business: Children's use of character identity to infer shared properties. *Cognition*, Vol 113, 167-176.
- Rheinold, Harriet, and Cook, K. V. (1975). The contents of boys' and girls' rooms as an index of parents' behaviour. *Child Development*, 46, 459-463.
- Rosenzweig, M., and Bennett, E. L. (1976). Enriched environments: Facts, factors, and fantasies. In L. Petrinovich and J. L. McGaugh (Eds.), *Knowing, Thinking and Believing*. New York: Plenum.
- Roskos, Kathleen A., and Christie, James F. (2007). *Play and Literacy in Early Childhood*. Routledge.
- Schulz, Laura E, and Bonawitz, Elizabeth Baraff (2007). Serious fun: Preschoolers engage in more exploratory play when evidence is confounded. *Developmental Psychology*, 43, 1045-1050.
- Schmidt, Marie Evans, Pempek, Tiffany A., and Kirkorian, Heather L. (2008). The effects of background television on the toy play behaviour of very young children. *Child Development*, 79, 1137-1151.
- Schulz, Laura E., and Bonawitz, Elizabeth. (2007). Serious fun: Preschoolers engage in more exploratory play when evidence is confounded. *Developmental Psychology*, 43, 1045-1050.
- Schulz, Laura E., Standing, Holly R., and Bonawitz, Elizabeth B. (2008). Word, thought, and deed: The role of object categories in children's inductive inferences and exploratory play. *Developmental Psychology*, 44, 1266-1276.
- Shohet, Cilly, and Klein, Pnina S. (2010). Effects of variations in toy presentation on social behaviour of infants and toddlers in childcare. *Early Child Development and Care*, 180, 823-834.
- Singer, Dorothy, Golinkoff, Roberta Michnick, and Hirsh-Pasek, Kathy. (2009). *Play = Learning: How Play Motivates and Enhances Children's Cognitive and Social-Emotional Growth*. Oxford University Press.
- Singer, Dorothy G., and Singer Jerome L. (1990). *The House of Make-Believe: Play and the Developing Imagination*. Cambridge MA: Harvard University Press.
- Singer, Jerome L., and Lythcott, M. (2002). Fostering school achievement and creativity through sociodramatic play in the classroom. *Research in the Schools*, 9, 43-52.
- Slade, Arietta. (1987). A longitudinal study of maternal involvement and symbolic play during the toddler period. *Child Development*, 58, 367-375.
- Smith, Peter K. (2010). *Children and Play*. Wiley-Blackwell.
- Stevens, Karen. (2009). Imaginative play during childhood: Required for reaching full potential. *Exchange: The Early Childhood Leaders' Magazine*, no. 186, 53-56
- Sutton-Smith, Brian. (1997). *The Ambiguity of Play*. Cambridge, Mass.: Harvard University Press.
- Synodi, E. (2010). Play in the kindergarten: the case of Norway, Sweden, New Zealand and Japan. *International Journal of Early Years Education*, 18, 185-201.
- Tamis-LeMonda, Catherine S., Shannon, Jacqueline D., Cabrera, Natasha J., and Lamb, Michael E. (2004). Fathers and mothers at play with their two and three year olds: Contributions to language and cognitive development. *Child Development*, 75, 1806-1820.
- Ungerer, J. A., and Sigman, M. (1986). The relation of play and sensorimotor behaviour to language in the second year. *Child Development*, 55, 1448-1455.
- Uren, N., and Stagnitti, K. (2009). Pretend play, social competence and involvement in children aged 5-7 years: The concurrent validity of the Child-Initiated Pretend Play Assessment. *Australian Occupational Therapy Journal*, 56, 33-42.
- Valentino, Kristin, Cicchetti, Dante, Toth, Sheree L., and Rogosch, Fred A. (2011). Mother-child play and maltreatment: A longitudinal analysis of emerging social behaviour from infancy to toddlerhood. *Developmental Psychology*, 47, 1280-1294.
- Vitale, Anne. (2011). Children's play: a tool for public health interventions. *International Journal of Pediatric Obesity*, 6, (S2), 57-59.
- Wang Sam, and Aamodt, Sandra. (2008). *Welcome to Your Brain*. Bloomsbury.
- Welsch, J. G. (2008). Playing within and beyond the story: Encouraging book-related pretend play. *Reading Teacher*, 62, 138-150.
- Welsh Assembly Government Play Policy. (2002). available at www.wales.gov.uk
- Westman, Gunhilde. (2003). Lek och kommunikation. [Play and communication.] *Förskoletidningen*, No.1, 11-17. Lego Learning Institute Newsletter, Sept./Oct.
- Winnicot, D. W. (1971). *Playing and Reality*. London: Routledge.
- Wyman, E., Rakoczy, H. and Tomasello, M. (2009). Young children understand multiple pretend identities in their object play. *British Journal of Developmental Psychology*, 27, 385-404.
- Zabelina, Darya L., and Robinson, Michael D. (2010). Child's play: Facilitating the originality of creative output by a priming manipulation. *Psychology of Aesthetics, Creativity, and the Arts*, 4, 57-65.
- Zammuner, V. L. (1987). Children's sex-role stereotypes: A cross-cultural analysis. In P. Shaver and C. Hendrick (Eds.), *Review of Personality and Social Psychology*. Vol. 7. Newbury Park CA: Sage.

Toy Industries of Europe (TIE) (www.tietoy.org) is the trade association for the European toy industry, which comprises over 25% of the total world toy market. Members of TIE include corporate companies (Artsana, Bandai, the Ferrero Group, Hasbro, Hill Toys, Hornby, the Lego Group, Mattel, Schleich and Spin Master) as well as national associations from Bulgaria, France, Germany, Italy, the Netherlands, Spain, Sweden, the UK and the Nordic region.

TIE is proud of the contributions made by toys and play to the psychological, physical and social development of children and to society in general. TIE commissioned Jeffrey Goldstein Ph.D., Utrecht University, to carry out this literature review of the role of play in children's development, health and well-being.



Affiliate Members



Toy Industries of Europe (TIE)
 Boulevard de Waterloo 36
 1000 Brussels
 Tel: + 32 (0)2 213 41 90
 Fax: + 32 (0)2 213 41 99
tie@tietoy.org



Toy Industries of Europe