

Together

Everyone

Achieves

More!

1. *The Visionary Director*. Margret Carter and Deb Curtis Redleaf Press c. 1998
2. *The Anti-Ordinary Thinkbook* Bonnie Neurebauer Exchange Press Inc. c. 1991
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7. *Why Do You Do the Crazy things You Do?* Jack Agatti
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The Connection Between Play and Character

by David Elkind

Free, spontaneous, and self-initiated play was once the norm for young children. This is no longer the case. Even toys for infants both talk and move with little left to the child's imagination. The fastest selling softwares for toddlers are so-called Lapwares® which are no more than stimulus-response computer programs. Both parents and early childhood educators, who once encouraged young children to choose their own activities, are being pressured to replace them with adult directed games, sports, and academic instruction.

All of this reflects a changed conception of the meaning and value of play. Free, spontaneous, and self-initiated play was once welcomed as a measure of healthy growth and development. Today, however, true play is often looked upon as frivolous and a waste of time. Only toys and games that are educational, in the sense of teaching concepts such as colors, or tool skills such as reading, are worthwhile. In short, even for young children, promoting academic and athletic achievement is now seen to be more important than the encouragement of imagination and creativity.

This change in the valuation of free, spontaneous play is to be regretted for many reasons. True play is fun, whereas learning is often serious business. When we make toys and games educational, we take much of the joy out of childhood. Joyless childhood may be unavoidable in some third world countries (where children nonetheless play with homemade rag dolls and tools) but it is inexcusable in America. Even more significant and less recognized, is the effect of a joyless childhood upon character development.

Character can be defined as the disposition to make socially responsible choices. That is to say, we have the choice to be honest or dishonest, to be truthful or deceitful, compassionate or insensitive. The disposition to make socially responsible choices is not inborn and must be learned. When children have the opportunity to engage in true play, they are learning to consider options and make choices. Children who play with blocks, to illustrate, have to choose among the blocks and decide just what structure they want to build. In dramatic play children must select the clothes they will wear and the roles they will take. Children who play their own games learn

to take the other child's point of view. True play thus encourages character building, problem solving, decision making, and perspective taking skills.

Of course it might be argued that character is best learned from the behavior of others, namely parents. And this is certainly true. Consider the message parents convey when they encourage and support children's true play. They are telling their children that they trust them to make socially responsible choices. When parents give their children the opportunity to play freely with toys and games this shows their confidence that the children will play constructively, rather than destructively, with the materials. Children, who are given these opportunities internalize the sense that they are competent to act independently and responsibly. It becomes part of their self-concept. Children learn the same things when they are given choices in early childhood educational settings. In contrast, when parents and/or teachers provide adult-structured toys and activities, they convey the opposite message. This directive approach tells children that they are not able to make socially responsible choices on their own. Children make this part of their self-conception as well.

While this relation between play and character sounds good in theory, is there any data to back it up? While we don't have many direct studies, there is a lot of indirect evidence to support this contention. For one thing, we have become increasingly less playful as a nation. Our national sports are so professional, and so monetary in their goals, that the original fun of playing the game is all but gone. This emphasis upon goals, rather than fun, is equally true for children who are



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BEGINNINGS WORKSHOP

participating in organized team sports. Much of our theater, art, music, television, and movies has become so commercialized that freedom and spontaneity are all but absent from them as well. The profit motive drives the joyfulness out of these activities.

As we have become less playful and less joyous as a nation, we have also become less civil. Recent surveys suggest that a majority of people feel that our society is becoming increasingly rude and disrespectful. While correlation is not causation, it is not improbable that as we become less playful with one another we are also less willing to take the perspective of others, the basis of civility.

In this connection, it is interesting that as the amounts of time children spend in true play goes down, the amount of time they spend in character education programs goes up. The number of character education programs in our schools seems to have increased in direct proportion to the decline in the time children spend in free play. Perhaps the most direct evidence of this relation between true play and character come from the longitudinal studies of the long-term effects of quality early childhood programs. These programs allow plenty of time for free play. One of the best examples is the Chicago longitudinal study of some 1,500 inner city young people followed from kindergarten through graduation from high school. The children were in high quality kindergarten (teacher/child ratio was 2 to 17 in kindergarten and 2 to 25 in first and second grade). There was no uniform curriculum but activities were aimed at promoting language and reading skills as well as social and psychological development. There was considerable parent involvement as well.

The results were impressive. Children who participated in the program had higher reading and math scores than those who did not participate. Children in the program were also less likely to be retained than those not in the program. Only 12% of the participating children were in special need classes as opposed to 21.3% for those who were not. Participants in the program had a 37% lower arrest rate by age 18 than did non-participants. In general, the longer a child was in the program the better the results on all of the measures described above. For our purposes, perhaps the most interesting data comes from a survey conducted when the participants were in 10th grade. The students were asked, "If you attended a Child-Parent Center, what do you remember most about it?" The most frequent response was *fun*, followed by *teacher*, *friends/kids*, and *play*. *Learning* and *taking tests* were listed in seventh and eighth place. Other longitudinal studies have come up with similar results. That *fun* is what these young remember

most of their early childhood experience is the best evidence I can offer regarding the connection of play and character.

Free, spontaneous, and self-initiated play is neither frivolous nor a waste of time. Rather, it is that part of our human nature that helps us be more thoughtful and considerate of others.

As parents, grandparents, and teachers we can do much to encourage children's true play. First, we can encourage children to make their own toys out of a variety of otherwise discarded objects. I have a young niece who was delighted with a discarded phone on which she makes make-believe calls to her friends and relatives. When we do purchase toys, we need to choose those which encourage children to use their imagination such as blocks, paints, and clay. Likewise, when we read to children we can also ask them to make up their own stories, which we can write down and read back to them. These are but a few of the ways that we can encourage both joyful play and healthy character development.

Using Beginnings Workshop to Train Teachers by Kay Albrecht

Joyless Childhoods: The concern that children are not getting enough play time with the right kinds of toys, open-ended materials, and character-building experiences is raised in Elkind's article. Ask teachers to carefully analyze their daily schedules to determine how much time is devoted to this character-building kind of play. Discuss what they discover and create a plan to make this kind of play a priority in your classrooms.

Four Ways to Build Skills: Character building, problem solving, decision making, and perspective taking are the four skills encouraged by true play. Work with teachers to document the emergence and practice of these skills in the classroom with photos, anecdotal notes, observations of children at play, audiotapes, or videotapes. Share your discoveries about how children are practicing and building skills with parents at a parent meeting or during parent conferences.

Play Teaches Reading!: Elkind reports on a longitudinal study that documents the results of high quality early childhood programs with certain characteristics. Locate this study, review its conclusions, and learn to talk about how this research supports having plenty of play time at school. Use this knowledge to help parents and other stakeholders embrace the importance of quality early childhood education as well as to support the inclusion of considerable playtime in the classroom schedule.

Strategy

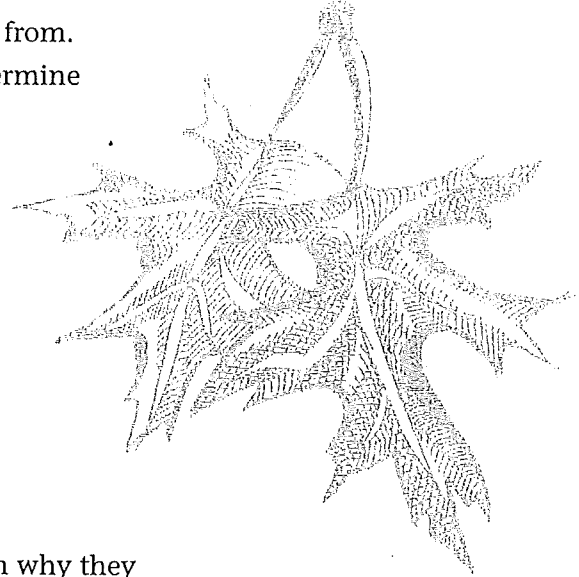
Play true confessions in four corners

To help people talk about their experiences and points of view, tell them it's time for some playful "true confessions." Have people get up and move for this activity. Tell the group that you are going to ask a question and then designate each corner of the room with a possible answer to choose from. There is no "right" answer and everyone gets to determine their own meaning for going to a particular corner.

Learning something new

When it comes to learning something new I usually:

- *read a book or a manual,*
- *seek out advice,*
- *look for a model, or*
- *jump in and try it.*



Once people get to a corner ask them to explain why they are there. They will usually be forthcoming about what works best for them and often have stories that offer an example of why they or their co-workers are standing in a particular spot. This is an easy, playful way to acknowledge differences on your staff. Remind everyone to make a mental note of how each of their co-workers needs to be supported in their learning process.

Follow this first round of "four corners" with one that acknowledges another potential area of difference among staff members. To keep things playful, while encouraging deeper thinking, make use of metaphors. For example, try a category like the following one:

Relating to authority figures

My family or my cultural values have taught me to respond to authority figures like one of the following animals:

- *a German shepherd*
- *a giraffe*
- *a parrot*
- *an ostrich*

The initial response to metaphors is often puzzlement, though some people immediately identify with one and rush to a corner. You may need to again stress that there is no right answer and that their task is to make their own meaning. If they still stand with a confused look, suggest they first think about what their family or culture has taught them about responding to people in authority. Then consider which of these animals might remind them of this way of being.

Ask people to explain why they have chosen a particular animal. If the group is large and your time is limited, you can have them do this in pairs and then ask for highlights to be shared with the whole group. The issue of how people approach someone in a position of authority is very relevant to the relationship you as a supervisor will build with them, even if you don't want to be seen as an authority figure. In the debriefing of this round you will likely discover who has loyalty as a primary value, who has been taught to question, obey, or ignore authority figures. This will give you insight into behaviors you might witness and hopefully spark more self-awareness on the part of staff members themselves.

Finally, try exploring people's dispositions towards change. Again, tell them to make their own meaning and go to the corner that represents what's typically true for them, as you read the following choices.

Responding to requests to change

When I'm asked to make a change, this is the song you'll hear me singing:

- *"Hi Ho, Hi Ho, it's off to work I go"*
- *"Nobody knows the trouble I've seen"*
- *"The itsy-bitsy spider went up the water spout"*
- *"If I had a hammer, I'd hammer in the morning,
I'd hammer in the evening, all over this land"*

The debriefing of this final round can bring insight as well as laughter. In any given group there is usually a wide range of how people respond to someone who is bringing about changes. Some find it easy to roll with things, while others have to be dragged kicking and screaming. Many people like the change process to be slow and drawn out, and others want to quickly get

The Candy Bar

Personality Test

To Administer this test, you can either give out the candy bars when people enter the room by asking them which one they relate to or you can read the list and ask which one (pick only one) and after all participants have identified you can ask them to form groups and then walk around reading the descriptions.

It is a good way to get people up and moving and getting to know each other. You can have people see which people they would like to be friends with.

Remember this is all in fun and for fun. So have a great time.

Baby Ruth or Snickers YOU ARE SWEET and loving. You are a cuddly person who loves hugs and all warm, fuzzy items. Stuffed animals and fleece clothing are your friends. You can be a little nutty! Sometimes you need a little treat like an ice cream bar at the end of a stressful day.

3 musketeers YOU ARE ADVENTUROUS and brave. You love new ideas and you often come up with them. You stick up for people who can't stick up for themselves. You have the personality to succeed in challenging endeavors! When tempers flare up, you are never afraid to leap into battle.

butterfingers YOU ARE SMOOTH and articulate. You express yourself well and you would make a terrific actress or public speaker. You are also a natural teacher. Others sometimes think you are a bit fluffy, but they just don't understand you.

Hersheys BAR YOU ARE WARM and romantic. You have a loving personality by nature. You care about other people and can be counted on in a crisis. You are pretty mushy and you probably cry at sad movies. You can be mushy, especially in relationships. You love cuddling

almond JO YOU ARE FLIRTATIOUS and energetic. You are highly attractive to the opposite sex. You have a sexy presence and you know your own power. You are always ready to give and take in love. You are fun-loving and really like to get into life.

clark YOU ARE SPORTY and energetic. You love watching and participating in your favorite sports, whether baseball, football, basketball, soccer or cheerleading. The more active you are, the happier you will be. You throw yourself into life with energy. When watching TV, you don't like to give up the remote control.

This information courtesy of Janet Lifshin, Certified Laughter Leader
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Scientific American Mind - January 28, 2009

The Serious Need for Play

Free, imaginative play is crucial for normal social, emotional and cognitive development. It makes us better adjusted, smarter and less stressed

By Melinda Wenner

On August 1, 1966, the day psychiatrist Stuart Brown started his assistant professorship at the Baylor College of Medicine in Houston, 25-year-old Charles Whitman climbed to the top of the University of Texas Tower on the Austin campus and shot 46 people. Whitman, an engineering student and a former U.S. Marine sharpshooter, was the last person anyone expected to go on a killing spree. After Brown was assigned as the state's consulting psychiatrist to investigate the incident and later, when he interviewed 26 convicted Texas murderers for a small pilot study, he discovered that most of the killers, including Whitman, shared two things in common: they were from abusive families, and they never played as kids.

Brown did not know which factor was more important. But in the 42 years since, he has interviewed some 6,000 people about their childhoods, and his data suggest that a lack of opportunities for unstructured, imaginative play can keep children from growing into happy, well-adjusted adults. "Free play," as scientists call it, is critical for becoming socially adept, coping with stress and building cognitive skills such as problem solving. Research into animal behavior confirms play's benefits and establishes its evolutionary importance: ultimately, play may provide animals (including humans) with skills that will help them survive and reproduce.

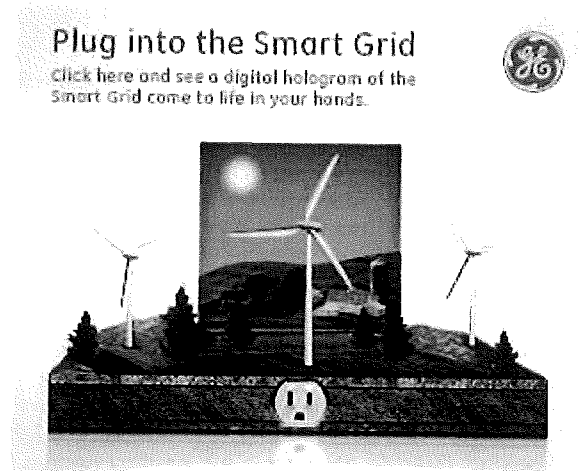
Most psychologists agree that play affords benefits that last through adulthood, but they do not always agree on the extent to which a lack of play harms kids—particularly because, in the past, few children grew up without ample frolicking time. But today free play may be losing its standing as a staple of youth. According to a paper published in 2005 in the *Archives of Pediatrics & Adolescent Medicine*, children's free-play time dropped by a quarter between 1981 and 1997. Concerned about getting their kids into the right colleges, parents are sacrificing playtime for more structured activities. As early as preschool, youngsters' after-school hours are now being filled with music lessons and sports—reducing time for the type of imaginative and rambunctious cavorting that fosters creativity and cooperation.

A handful of studies support Brown's conviction that a play-deprived childhood disrupts normal social, emotional and cognitive development in humans and animals. He and other psychologists worry that limiting free play in kids may result in a generation of anxious, unhappy and socially maladjusted adults. "The consequence of a life that is seriously play-deprived is serious stuff," Brown says. But it is never too late to start: play also promotes the continued mental and physical well-being of adults.

Worries over the demise of play began surfacing as far back as 1961, when the International Play Association was founded in Denmark to protect, preserve and promote play as a fundamental right for all children. But the idea became more popular a little over a decade ago, when many more nonprofit foundations—such as the National Institute for Play in Carmel Valley, Calif., started by Brown, and other organizations, including the Alliance for Childhood and the Association for the Study of Play—began forming around the globe to promote the value of play and to raise concerns over its demise.

Freedom Counts

But kids *play* soccer, Scrabble and the sousaphone—so why are experts concerned that these games and more structured activities are eating into free play? Certainly games with rules are fun and sources of learning experiences—they may foster better social skills and group cohesion, for instance, says Anthony D. Pellegrini, an educational



psychologist at the University of Minnesota. But, Pellegrini explains, “games have a priori rules—set up in advance and followed. Play, on the other hand, does not have a priori rules, so it affords more creative responses.”

This creative aspect is key because it challenges the developing brain more than following predetermined rules does. In free play, kids use their imagination and try out new activities and roles.

The child initiates and creates free play. It might involve fantasies—such as pretending to be doctors or princesses or playing house—or it might include mock fighting, as when kids (primarily boys) wrestle and tumble with one another for fun, switching roles periodically so that neither of them always wins. And free play is most similar to play seen in the animal kingdom, suggesting that it has important evolutionary roots. Gordon M. Burghardt, author of *The Genesis of Animal Play*, spent 18 years observing animals to learn how to define play: it must be repetitive—an animal that nudges a new object just once is not playing with it—and it must be voluntary and initiated in a relaxed setting. Animals and children do not play when they are undernourished or in stressful situations. Most essential, the activity should not have an obvious function in the context in which it is observed—meaning that it has, essentially, no clear goal.

Face Time

How do these seemingly pointless activities benefit kids? Perhaps most crucially, play appears to help us develop strong social skills. “You don’t become socially competent via teachers telling you how to behave,” Pellegrini says. “You learn those skills by interacting with your peers, learning what’s acceptable, what’s not acceptable.” Children learn to be fair and take turns—they cannot always demand to be the fairy queen, or soon they have no playmates. “They want this thing to keep going, so they’re willing to go the extra mile” to accommodate others’ desires, he explains. Because kids enjoy the activity, they do not give up as easily in the face of frustration as they might on, say, a math problem—which helps them develop persistence and negotiating abilities.

Keeping things friendly requires a fair bit of communication—arguably the most valuable social skill of all. Play that transpires with peers is the most important in this regard. Studies show that children use more sophisticated language when playing with other children than when playing with adults. In pretend play, for instance, “they have to communicate about something that’s not physically present, so they have to use complicated language in such a way that they can communicate to their peer what it is that they’re trying to say,” Pellegrini explains. For example, kids can’t get away with just asking, “Vanilla or chocolate?” as they hand a friend an imaginary cone. They have to provide contextual clues: “Vanilla or chocolate ice cream: Which one would you like?” Adults, on the other hand, fill in the blanks themselves, making things easier for kids.

If play helps children become socialized, then lack of play should impede social development—and studies suggest that it does. According to a 1997 study of children living in poverty and at high risk of school failure, published by the High/Scope Educational Research Foundation in Ypsilanti, Mich., kids who enrolled in play-oriented preschools are more socially adjusted later in life than are kids who attended play-free preschools where they were constantly instructed by teachers. By age 23, more than one third of kids who had attended instruction-oriented preschools had been arrested for a felony as compared with fewer than one tenth of the kids who had been in play-oriented preschools. And as adults, fewer than 7 percent of the play-oriented preschool attendees had ever been suspended from work, but more than a quarter of the directly instructed kids had.

Animal studies lend support to the idea that play deprivation leads to poor social skills. According to a study published in 1999 in *Behavioural Brain Research*, rats that are kept isolated during the two weeks of development when they most frequently play—the fourth and fifth weeks after birth—are much less socially active when they later encounter other rats as compared with rats that are not isolated during the same two-week period. And a study published in *Developmental Psychobiology* in 2002 revealed that male rats reared in isolation during their youth fail to display normal avoidance behaviors when introduced to dominant male rats that repeatedly attack them. Could play deprivation specifically cause these behavioral problems—or could social isolation in general have been the culprit?

Another study suggests that play promotes neural development in “higher” brain areas involved in emotional reactions and social learning. Scientists reported in 2003 that play fighting releases brain-derived neurotrophic factor (BDNF)—a protein that stimulates the growth of new neurons—in these regions. The researchers allowed 13 control rats to play freely with companions for three and a half days and kept 14 other rats isolated for the same period. On examining the rats’ brains, the researchers found that the cortex, hippocampus, amygdala and pons of the rats that had played contained much higher levels of BDNF than those of the rats that had not. “I think play is the major mechanism whereby higher regions of the brain get socialized,” says Washington State University neuroscientist Jaak Panksepp, who co-authored the study.

Stress Relief

Research suggests that play is also critical for emotional health, possibly because it helps kids work through anxiety and

stress. In a 1984 study published in the *Journal of Child Psychology and Psychiatry*, researchers assessed the anxiety levels of 74 three- and four-year-old children on their first day of preschool as indicated by their behavior—whether they pleaded, whined and begged their parents to stay—and how much their palms were sweating. Based on the researchers' observations, they labeled each child as either anxious or not anxious. They then randomly split the 74 kids into four groups. Half of the kids were escorted to rooms full of toys, where they played either alone or with peers for 15 minutes; the other half were told to sit at a small table either alone or with peers and listen to a teacher tell a story for 15 minutes.

Afterward, the kids' levels of distress were assessed again. The anxiety levels of the anxious kids who had played had dropped by more than twice as much as compared with the anxious kids who had listened to the story. (The kids who were not anxious to begin with stayed about the same.) Interestingly, those who played alone calmed down more than the ones who played with peers. The researchers speculate that through imaginative play, which is most easily initiated alone, children build fantasies that help them cope with difficult situations.

Animal studies also support the idea that play helps to alleviate stress—a concept known in neuroscience as social buffering. In a study published in 2008, Gettysburg College neuroscientist Stephen Siviy put rats into a chamber by themselves and exposed them to a collar previously worn by a cat, which made them visibly anxious. Later, the chamber was cleaned so it no longer smelled of the cat, the rats were put back in without the cat collar, and the rats immediately became anxious again, probably because they associated the space with the cat. But if Siviy and his colleagues then introduced another rat into the chamber—one that had never been exposed to the cat collar and was not afraid—the two would begin playing by chasing each other, tumbling and pretend fighting. And shortly thereafter, the first rat would relax and become calm, suggesting that play helped the rat to lessen its anxiety.

Play to the Head of the Class

Relieving stress and building social skills may seem to be obvious benefits of play. But research hints at a third, more counterintuitive area of influence: play actually appears to make kids smarter. In a classic study published in *Developmental Psychology* in 1973, researchers divided 90 preschool children into three groups. One group was told to play freely with four common objects—among the choices were a pile of paper towels, a screwdriver, a wooden board and a pile of paper clips. A second set was asked to imitate an experimenter using the four objects in common ways. The last group was told to sit at a table and draw whatever they wanted, without ever seeing the objects. Each scenario lasted 10 minutes. Immediately afterward, the researchers asked the children to come up with ideas for how one of the objects could be used. The kids who had played with the objects named, on average, three times as many nonstandard, creative uses for the objects than the youths in either of the other two groups did, suggesting that play fosters creative thinking.

Play fighting also improves problem solving. According to a paper published by Pellegrini in 1989, the more elementary school boys engaged in rough-housing, the better they scored on a test of social problem solving. During the test, researchers presented kids with five pictures of a child trying to get a toy from a peer and five pictures of a child trying to avoid being reprimanded by his mother. The subjects were then asked to come up with as many possible solutions to each social problem; their score was based on the variety of strategies they mentioned, and children who play-fought regularly tended to score much better.

Pellegrini does question, however, how much cause and effect one can glean from these studies. "What does play do? Is it the vanguard of learning something—so does play precede those sorts of skills—or is it merely practice or consolidation of skills that are already developing?" he asks. Although no one knows, "either way, at some level, it would be beneficial," he concludes.

Does lack of play, then, impede the development of problem-solving skills? Perhaps, according to animal studies. In a paper published in *Developmental Psychobiology* in 1978, experimenters separated young rats by mesh partitions—they could see, smell and hear other rats but could not play with them—for the 20 days during development when they would have most frequently played. The researchers taught these rats, and a group that had been allowed to play without constraints, to pull a rubber ball out of the way to get a food treat. A few days later they switched the setup so the rats would have to push the same ball to get the treat. The isolated rats took much longer to try new approaches, and thus solve the problem, than did the rats that had played. The authors speculate that through play, animals learn to try new things, and animals that do not play simply do not acquire this same behavioral flexibility.

Playing also appears to help with language development, according to a 2007 study in the *Archives of Pediatrics & Adolescent Medicine*. Researchers at the University of Washington gave a box of toy blocks to children from middle- and low-income families aged 18 months to two and a half years. Parents of these kids, as well as parents of a similar group of kids who had no blocks, kept track of how often the children played. After six months, the kids who had played with blocks scored significantly higher on language tests than the others did. The researchers are not sure, however, whether these improvements resulted from playing with blocks per se—because by playing with blocks, the youngsters

were spending less time in unproductive activities such as watching television.

But why might play help kids excel? Animal researchers believe that play serves as a kind of training for the unexpected. "Play is like a kaleidoscope," says evolutionary biologist Marc Bekoff of the University of Colorado at Boulder, in that it is random and creative. The bottom line, he posits, is that play encourages flexibility and creativity that may, in the future, be advantageous in unexpected situations or new environments. Some child psychologists, such as Tufts University child development expert David Elkind, agree. Play is "a way in which children learn," Elkind says, "and in the absence of play, children miss learning experiences."

Let Loose

If play is so crucial, what happens to children who are not playing enough? Ultimately, no one knows—but many psychologists are worried. Because play is somewhat risky—animals that are not alert and watchful are at risk of being attacked by predators—it probably evolved and persists because it confers survival advantages. "If it wasn't important, it wouldn't have evolved in its elaborate form," Bekoff says.

Indeed, evidence indicates that play is evolutionarily quite ancient. Rats that have had their neocortex removed—a large brain region that is involved in higher-order thinking such as conscious thought and decision making—still engage in normal play, which suggests that play motivation comes from the brain stem, a structure that precedes the evolution of mammals. "This means that the core, genetically-provided circuitry for play is situated in very ancient regions of the brain," explains Panksepp, who led the experiment in 1994.

Of course, many parents today believe they are acting in their kids' best interests when they swap free play for what they see as valuable learning activities. Some mothers and fathers may also hesitate to let their kids play outside unattended, and they may fret about the possibility of the scrapes and broken bones that sometimes arise during play fighting or rambunctious fantasy play, says Sergio M. Pellis, a behavioral neuroscientist at the University of Lethbridge in Alberta. Although those instincts are natural, protecting kids "simply defrays those costs to later, when those same children will have difficulty in dealing with an unpredictable, complex world," Pellis says. "A child who has had a rich exposure to social play experiences is more likely to become an adult who can manage unpredictable social situations."

Parents should let children be children—not just because it should be fun to be a child but because denying youth's unfettered joys keeps kids from developing into inquisitive, creative creatures, Elkind warns. "Play has to be reframed and seen not as an opposite to work but rather as a complement," he says. "Curiosity, imagination and creativity are like muscles: if you don't use them, you lose them."

Further Reading

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Play Time!—And Other Stories from *MIND*

February 17, 2008

Taking Play Seriously

By ROBIN MARANTZ HENIG

On a drizzly Tuesday night in late January, 200 people came out to hear a psychiatrist talk rhapsodically about play -- not just the intense, joyous play of children, but play for all people, at all ages, at all times. (All species too; the lecture featured touching photos of a polar bear and a husky engaging playfully at a snowy outpost in northern Canada.) Stuart Brown, president of the National Institute for Play, was speaking at the New York Public Library's main branch on 42nd Street. He created the institute in 1996, after more than 20 years of psychiatric practice and research persuaded him of the dangerous long-term consequences of play deprivation. In a sold-out talk at the library, he and Krista Tippett, host of the public-radio program "Speaking of Faith," discussed the biological and spiritual underpinnings of play. Brown called play part of the "developmental sequencing of becoming a human primate. If you look at what produces learning and memory and well-being, play is as fundamental as any other aspect of life, including sleep and dreams."

The message seemed to resonate with audience members, who asked anxious questions about what seemed to be the loss of play in their children's lives. Their concern came, no doubt, from the recent deluge of eulogies to play. Educators fret that school officials are hacking away at recess to make room for an increasingly crammed curriculum. Psychologists complain that overscheduled kids have no time left for the real business of childhood: idle, creative, unstructured free play. Public health officials link insufficient playtime to a rise in childhood obesity. Parents bemoan the fact that kids don't play the way they themselves did -- or think they did. And everyone seems to worry that without the chance to play stickball or hopscotch out on the street, to play with dolls on the kitchen floor or climb trees in the woods, today's children are missing out on something essential.

The success of "The Dangerous Book for Boys" -- which has been on the best-seller list for the last nine months -- and its step-by-step instructions for activities like folding paper airplanes is testament to the generalized longing for play's good old days. So were the questions after Stuart Brown's library talk; one woman asked how her children will learn trust, empathy and social skills when their most frequent playing is done online. Brown told her that while video games do have some play value, a true sense of "interpersonal nuance" can be achieved only by a child who is engaging all five senses by playing in the three-dimensional world.

This is part of a larger conversation Americans are having about play. Parents bobble between a nostalgia-infused yearning for their children to play and fear that time spent playing is time lost to more practical pursuits. Alarming headlines about U.S. students falling behind other countries in science and math, combined with the ever-more-intense competition to get kids into college, make parents rush to sign up their children for piano lessons and test-prep courses instead of just leaving them to improvise on their own; playtime versus résumé building.

Discussions about play force us to reckon with our underlying ideas about childhood, sex differences, creativity and success. Do boys play differently than girls? Are children being damaged by staring at computer screens and video games? Are they missing something when fantasy play is populated with

characters from Hollywood's imagination and not their own? Most of these issues are too vast to be addressed by a single field of study (let alone a magazine article). But the growing science of play does have much to add to the conversation. Armed with research grounded in evolutionary biology and experimental neuroscience, some scientists have shown themselves eager -- at times perhaps a little too eager -- to promote a scientific argument for play. They have spent the past few decades learning how and why play evolved in animals, generating insights that can inform our understanding of its evolution in humans too. They are studying, from an evolutionary perspective, to what extent play is a luxury that can be dispensed with when there are too many other competing claims on the growing brain, and to what extent it is central to how that brain grows in the first place.

Scientists who study play, in animals and humans alike, are developing a consensus view that play is something more than a way for restless kids to work off steam; more than a way for chubby kids to burn off calories; more than a frivolous luxury. Play, in their view, is a central part of neurological growth and development -- one important way that children build complex, skilled, responsive, socially adept and cognitively flexible brains.

Their work still leaves some questions unanswered, including questions about play's darker, more ambiguous side: is there really an evolutionary or developmental need for dangerous games, say, or for the meanness and hurt feelings that seem to attend so much child's play? Answering these and other questions could help us understand what might be lost if children play less.

"See how that little boy reaches for a pail?" Stuart Brown asked one morning last fall, standing with me on the fringes of a small playground just north of the Central Park Zoo. "See how he curves his whole body around it?" Brown had flown to New York from his home in California to pitch a book about play to publishers. (He sold the idea to an editor at Penguin.) He agreed to meet me at the zoo while he was in town, to help me observe playfulness in the young members of many animal species, including our own.

Social play has its own vocabulary. Dogs have a particular body posture called the "play bow" -- forelegs extended, rump in the air -- that they use as both invitation and punctuation. A dog will perform a play bow at the beginning of a bout, and he will crouch back into it if he accidentally nips too hard and wants to assure the other dog: "Don't worry! Still playing!"

Other species have play signals, too. Chimps put on a "play face," an open-mouthed expression that is almost like a face of aggression except that the muscles are relaxed into something like a smile. Baboons bend over and peer between their legs as an invitation to play, beavers roll around, goats gambol in a characteristic "play gait." In fact, most species have from 10 to 100 distinct play signals that they use to solicit play or to reassure one another during play-fighting that it's still all just in fun. In humans, the analogue to the chimp's play face is a child's smile, an open expression that indicates there is no real anger involved even in gestures that can look like a fight.

The day Brown met me in the park was a cold one, and the kids were bundled up like Michelin Men, adding more than the usual heft and waddle to their frolicking. Even beneath the padding, though, Brown could detect some typical gestures that these 2- and 3-year-olds were using instinctively to let one another know they were playing. "Play movement is curvilinear," he said. "If that boy was reaching for something in a nonplay situation, his body would be all straight lines. But using the body language of play, he curves and embraces."

In their play -- climbing up a slide, running around, passing buckets back and forth -- the kids we watched were engaging in a pattern of behavior that many scientists believe is hard-wired. Their mothers and nannies were watching, too, no doubt having dragged the kids out of comfortable Upper East Side apartments because they thought daily play was important somehow, perhaps the first step

in the long march toward Yale. To me all that little-kid motion looked just a bit silly -- because play is, in many ways, a silly thing. Indeed, an essential component of play is its frivolity; biologists generally use phrases like "apparently purposeless activity" in their definitions of play. The definition proposed by Gordon Burghardt, an evolutionary psychologist at the University of Tennessee, refines that phrase a little. In his 2005 book, "The Genesis of Animal Play," he wrote that play is an activity of "limited immediate function."

Burghardt included several other factors in his definition too. Play is an activity that is different from the nonplay version of that activity (in terms of form, sequence or the stage of life in which it occurs), is something the animal engages in voluntarily and repeatedly and occurs in a setting in which the animal is "adequately fed, healthy and free from stress." That last part of the definition -- that play requires that an animal be stress-free and secure -- suggests that play is the biological equivalent of a luxury item, the first thing to go when an animal or child is hungry or sick.

This makes evolutionary scientists prick up their ears. How can a behavior be crucial and expendable at the same time? And play is indeed expendable. Studies of vervet monkeys found that playtime decreased to almost zero during periods of drought in East Africa. Squirrel monkeys won't play when their favorite food sources are unavailable. In humans under stress, what happens with play is more complicated. Even under devastating circumstances, the drive to play is unquenchable. As George Eisen wrote in "Children and Play in the Holocaust": "Children's yearning for play naturally burst forth even amidst the horror. . . . An instinctual, an almost atavistic impulse embedded in the human consciousness."

Yet play does diminish when children suffer long-term, chronic deprivation, either one at a time in abusive or neglectful homes, or on a massive scale in times of famine, war or forced relocation. And children can still survive, albeit imperfectly, without it.

For humans and animals alike, truly vigorous, wholehearted, spontaneous play is something of a biological frill. This suggests one possible evolutionary function: that in its playfulness, an animal displays its own abundant health and suitability for breeding. But a skeptic might see it differently: if a behavior is this easy to dispense with when times are hard, it might suggest that the behavior is less essential than some advocates claim.

If play is an extravagance, why has it persisted? It must have some adaptive function, or at least a benefit that outweighs its cost, or it would have been winnowed out by the forces of natural selection. One answer can be found through ethology, the study of animal behavior, which takes as one of its goals the explication of how and why a behavior evolved. Nonhuman animals can be more easily studied than humans can: the conditions under which they are raised can be manipulated, their brains altered and probed. And if there is an evolutionary explanation for a human behavior, it could reveal itself in the study of the analogous behavior in animals. Because of nature's basic parsimony, many aspects of the brain and behavior have been conserved through evolution, meaning that many of the observations that ethologists make in rats, mice and monkeys could apply to humans too.

When it comes to animal play, scientists basically agree that it's mostly mammals that do it, and they basically agree that it's a mystery why they do it, since there are so many good reasons not to. It all seems incredibly wasteful, and nature does not usually tolerate waste.

Play can be costly in terms of energy expenditure. Juveniles spend an estimated 2 to 15 percent of their daily calorie budget on play, using up calories the young animal could more profitably use for growing. Frisky playing can also be dangerous, making animals conspicuous and inattentive, more vulnerable to predators and more likely to hurt themselves as they romp and cavort. Biologists have observed many play-related calamities, like bighorn lambs being injured on cactus plants as they

frolicked. One of the starkest measures of the risk of play was made by Robert Harcourt, a zoologist now at Macquarie University in Sydney, Australia, who spent nine months in 1988 observing seal pups off the coast of Peru. Harcourt witnessed 102 seal pups attacked by southern sea lions; 26 of them were killed. "Of these observed kills," Harcourt reported in the British journal *Animal Behaviour*, "22 of the pups were playing in the shallow tidal pools immediately before the attack and appeared to be oblivious to the other animals fleeing nearby." In other words, nearly 85 percent of the pups that were killed had been playing.

So play can be risky. And, under stress, it tends to disappear. What then would justify, in evolutionary terms, the prevalence of play?

One popular view is the play-as-preparation hypothesis. In this perspective, play evolved because it is good preparation for adulthood. It is a chance for young animals to learn and rehearse the skills they will need for the rest of their lives, and to do so in a secure environment, where mistakes will have few consequences. Proponents of this hypothesis say play is a way -- and, not incidentally, a pleasurable way -- of getting into muscle memory the generalized movements of survival: chasing, running, probing, tussling. Through play, these movements can be learned when the stakes are low and then retrieved in adulthood, when the setting is less safe and the need more urgent.

The play-as-preparation hypothesis seems logical, and each new observation seems to confirm it. Watch wolf pups at play, and it is easy to see how the biting and wrangling could be baby versions of the actions the pups will need later to assert their dominance or to help the pack kill its prey. Watch 2-year-olds playing at a toy workbench with little wooden mallets and blocks, and you can picture them as adults employing those same muscles to wield a full-size hammer.

But one trouble with the hypothesis is that the gestures of play, while similar, are not literally the same as the gestures of real life. In fact, the way an animal plays is often the exact opposite of the way it lives. In play-fighting, if one player starts to edge toward victory, he will suddenly reverse roles and move from the dominant to the submissive posture. Or he will stop fighting as hard, something the ethologists call self-handicapping. This is rarely done in real fighting, when the whole point is winning. The targets of play are different, too. In rats, real fighters try to bite one another on the back and the lower flanks; in play fights, they go for the nape of the neck. The gestures players use to nuzzle the neck are not the same ones they need to rehearse if they are to win a serious fight.

Nor is there much experimental evidence to support a connection between youthful playing and adult expertise. One Scottish study of kittens, for instance, tested the hypothesis that ample object play early in life would lead to better hunting later on. The investigator, a psychologist named T. M. Caro then at the University of St. Andrews, found no difference in hunting skills between one group of 11 cats that had been exposed to toys in their youth and a control group of 8 cats that had not.

Now an alternative view is taking hold, based on a belief that there must be something else going on -- play not as a literal rehearsal, but as something less direct and ultimately more important. It focuses on the way that play might contribute to the growth and development of the brain.

John Byers started thinking about the brain and play almost by accident. A zoologist at the University of Idaho, Byers had spent years studying the playful antics of deer, pronghorn antelopes and the wild mountain goats called ibex. He knew that play was risky -- he had observed ibex kids falling off steep cliffs as they romped -- and at first he thought maybe the animals were taking such risks because the motor training helped them get in physical shape for adulthood. But something about this idea troubled him. Play can be exercise, he reasoned, but it was of too short duration to lead to long-term fitness or build muscle tone.

Byers preferred an alternate theory. In almost every species studied, a graph of playfulness looked like an inverted U, increasing during the juvenile period and then falling off around puberty, after which time most animals don't play much anymore. One winter afternoon in 1993, Byers was roaming the stacks at the University of Idaho library, flipping through books the way you do when you're not quite sure what you're looking for. One book contained a graph of the growth curve of one important region of the brain, the cerebellum, over the juvenile period in the mouse. The growth curve of the mouse cerebellum was nearly identical to the curve of mouse playfulness.

"It was like a light went on in my head," Byers told me from Washington, D.C., where he is temporarily working at the National Science Foundation. "I wasn't thinking specifically about play, but I sort of had a long-term interest in behavioral development." And there it was: a chart that made it look as if rates of play in mice synchronized almost perfectly with growth rates in one critical region of the brain, the area that coordinates movements originating in other parts of the brain.

Intrigued, Byers enlisted the help of a graduate student, Curt Walker, who looked through the scientific literature on cerebellum development in rats and cats. "Then we compared those rates to what was known about the rates of play in those species," Byers said. "And rats and cats showed the same relationship as mice: a match between when they were playing and when the cerebellum was growing."

The synchrony suggested a few things to Byers: that play might be related to growth of the cerebellum, since they both peak at about the same time; that there is a sensitive period in brain growth, during which time it's important for an animal to get the brain-growth stimulation of play; and that the cerebellum needs the whole-body movements of play to achieve its ultimate configuration.

This opened up new lines of research, as neuroscientists tried to pinpoint just where in the brain play had its most prominent effects -- which gets to the heart of the question of what might be lost when children do not get enough play. Most of this work has been done in rats. Sergio Pellis, a neuroscientist at the University of Lethbridge in Alberta, Canada, is one of these investigators. He studies how brain damage in rats affects play behavior, and whether the relationship works in reverse: that is, not only whether brain-damaged rats play abnormally but also whether play-deprived rats develop abnormalities in their brains. Pellis's research indicates that the relationship might indeed work in both directions.

In a set of experiments conducted last year, Pellis and his colleagues raised 12 female rats from the time they were weaned until puberty under one of two conditions. In the control group, each rat was caged with three other female juveniles. In the experimental group, each rat was caged with three female adults. Pellis knew from previous studies that the rats caged with adults would not play, since adult rats rarely play with juveniles, even their own offspring. They would get all the other normal social experiences the control rats had -- grooming, nuzzling, touching, sniffing -- but they would not get play. His hypothesis was that the brains in the experimental rats would reflect their play-deprived youth, especially in the region known as the prefrontal cortex.

At puberty the rats were euthanized so the scientists could look at their brains. What Pellis and his collaborators found was the first direct evidence of a neurological effect of play deprivation. In the experimental group -- the rats raised in a play-deprived environment -- they found a more immature pattern of neuronal connections in the medial prefrontal cortex. (This is distant from the cerebellum; it is part of the cerebrum, which constitutes the bulk of the mammalian brain.) Rats, like other mammals, are born with an overabundance of cortical brain cells; as the animal matures, feedback from the environment leads to the pruning and selective elimination of these excess cells, branchings and connections. Play is thought to be one of the environmental influences that help in the pruning -- and, this research showed, play deprivation interferes with it.

Figuring out what these findings mean in terms of function involves a certain amount of conjecture. Pellis interprets his observation of a more tangled, immature medial prefrontal cortex in play-deprived rats to mean that the rat will be less able to make subtle adjustments to the social world. But maybe the necessary pruning can happen later in life, through other feedback mechanisms having little to do with play. Maybe there were already compensatory changes happening elsewhere in the brains of these young rats where no one had thought to look. Current research in Pellis's lab, in which the brain is damaged first and the rat's playing ability is measured afterward, seems to confirm that the medial prefrontal cortex has an important role in play. But the exact nature of its action is still not clear.

Many of the other important studies on play and the brain have come from the lab of Jaak Panksepp, a behavioral neuroscientist who trained most of the neurological investigators in the field during the three decades he was at Bowling Green State University in Ohio (though Pellis, who studied at Australia's Monash University, was not among them). In the 1980s, Panksepp and a graduate student, Stephen Siviy, located the play drive in the thalamus, a primitive region of the brain that receives sensory information and relays it to the cortex. More recently, Panksepp has been exploring the connections among the play drive and certain human conditions, in particular attention deficit hyperactivity disorder (A.D.H.D.).

Panksepp has been studying A.D.H.D. in rats since the 1990s. In one experiment, to create a rat model of A.D.H.D., he and his colleagues took 32 newborn rats and destroyed in each the right frontal cortex, the region of the brain responsible for paying attention, planning ahead and being sensitive to social cues. (Human studies have shown that in children with A.D.H.D., frontal-lobe development is often delayed.) As a control, they performed sham surgery on 32 other rats, making the incisions but leaving the brain intact to be sure that any observed change would be due to the cortical destruction rather than the surgery itself. When the scientists compared the play behavior of the two groups, they found that the rats with the damaged right frontal cortex had higher levels of overall activity, as well as increased rates of rough-and-tumble play, as compared with the controls. The rats with damaged frontal cortices behaved much like children described as hyperactive.

Panksepp and his colleagues then exposed these superplayers to extra opportunities for play. One extra hour a day of play, which generally took the form of play-fighting during a critical early stage, sufficed to reduce hyperactivity. The scientists thought similar play therapy might work for children with A.D.H.D., particularly if it was undertaken in early childhood -- between ages 3 and 7 -- when the urges are "especially insistent."

Panksepp's current view of human A.D.H.D., he told me from his office at Washington State University, where he moved two years ago, is that it is in part "overactivity of play urges in the nervous system." His ideas have made some impression on the human A.D.H.D. community, but not much. Benedetto Vitiello, the head of child and adolescent treatment and research at the National Institute of Mental Health, remembers hearing Panksepp give a talk at the institute around the time his article appeared in 2003. But he said he has not heard of any clinical studies since then that investigate whether extra play in early childhood helps ease the symptoms of A.D.H.D. Besides, Vitiello adds, there are many differences between a rat with a brain injury and a child with an intact but slowly developing brain. So even though he considers Panksepp's research "interesting," he says that it has not quite led to a complete animal model of A.D.H.D.

Animal-play experiments have focused largely on the most vivid form of play -- social play, in particular the kind of social play known as play-fighting. But it's clear to anyone who thinks about it that play-fighting is a very narrow definition of play. Wrestling is not the same as chasing. For that matter, playing tag is not the same as playing dress up; playing in a soccer league is not the same as shooting hoops in a neighborhood park; and none of these are the same as playing Scrabble or Uno or

video games. For all its variety, however, there is something common to play in all its protean forms: variety itself. The essence of play is that the sequence of actions is fluid and scattered. In the words of Marc Bekoff, an evolutionary biologist at the University of Colorado, play is at its core "a behavioral kaleidoscope."

In fact, it's this kaleidoscopic quality that led Bekoff and others to think of play as the best way for a young animal to gain a more diverse and responsive behavioral repertory. Thus, the currently fashionable flexibility hypothesis, a revival of an idea Bekoff first proposed in the 1970s. If a single function can be ascribed to every form of play, in every playful species, according to this way of thinking, it is that play contributes to the growth of more supple, more flexible brains.

"I think of play as training for the unexpected," Bekoff says. "Behavioral flexibility and variability is adaptive; in animals it's really important to be able to change your behavior in a changing environment." Play, he says, leads to mental suppleness and a broader behavioral vocabulary, which in turn helps the animal achieve success in the ways that matter: group dominance, mate selection, avoiding capture and finding food.

The flexibility hypothesis is something of a bridge between the play-as-preparation hypothesis and more recent findings about play and neurological growth. It works best when explaining play-fighting. With its variable tempo, self-handicapping and role reversals, play-fighting is like the improvisation of a jazz quartet, forcing an animal to respond rapidly to change.

Players riff off one another. One thrusts, the other parries; suddenly the one that was on top is pinned on the bottom and then just as suddenly is on top again. As in jazz, the smoothness of the improvisation matters as much as the gestures themselves. "Ability to use and switch among alternative sequences," Maxeen Biben, an ethologist formerly at the National Institutes of Health, wrote in an essay in "Animal Play," "may be as valuable as getting a lot of practice at the most effective sequences."

The physical movements of playfighting provide the environmental input needed to prune the developing cortex, as Sergio Pellis's research suggested. This pruning is one way an animal achieves the ability to predict and respond to another animal's shifting movements. Some play scholars say that such skills will come in handy in adulthood, not only in fighting but in other real-life situations as well, like evading capture and finding food. A more skeptical view would be that play-fighting might not really teach much at all about an animal's subsequent skills -- there was that Scottish study about object play in kittens, remember, that showed no connection to hunting ability in adulthood -- but it does one thing for sure: it makes the animal that play-fights a better play-fighter. And there might be something to be said for that. The more a young animal plays, the richer the animal's life, the more fun, the more stimulated, the more social. There might possibly be an immediate benefit just from that simple fact.

Which reveals an important rift in the study of the purpose of play: a debate among play scholars about how to tell the story of play's possible short-term and long-term benefits. The flexibility hypothesis imposes one such story, but it might not be the best story. Just because it's possible to see how playing might contribute to a suppler brain and a more varied behavioral repertory, it does not follow that playing is the only way to achieve such flexibility. This relates to the concept of equifinality, an idea from systems theory that says there are usually more ways than one to arrive at a particular end. The fact that play offers one way of getting to an end need not mean it is the only way -- nor need it mean that getting to that end is the ultimate purpose of play.

The problem of equifinality troubled Anthony Pellegrini, a psychologist at the University of Minnesota, when he tried to interpret his findings about rough-and-tumble play in fifth-grade boys.

He and his colleagues studied the recess behavior of 37 boys and scored a play episode as rough-and-tumble when a boy engaged in one from a list of behaviors -- "tease, hit and kick at, chase, poke, pounce, sneak up, carry child, pile on, play-fight, hold and push" -- while displaying a wide smile or "play face." Knowing that earlier studies found a connection between rough-and-tumble play and a child's peer affiliation and social problem-solving flexibility, the scientists hypothesized that the most vigorous players would also be the most socially competent. But Pellegrini found no clear benefits in the boys who played the most. Maybe, he wrote in an essay about this research in "The Future of Play Theory," it's because other things that happen at recess -- "cooperative social games, comfort contact and conversation" -- might be just as good as pouncing or chasing at achieving a sense of connection.

"Developmental systems tend to be highly redundant," wrote Patrick Bateson, a noted biologist at Cambridge University, in a book of essays called "The Nature of Play." This means, Bateson wrote, "that if an endpoint is not achieved by one route, it is achieved by another. Playing when young is not the only way to acquire knowledge and skills; the animal can delay acquisition until it is an adult."

Nonetheless, even Bateson, a prominent play scholar who recognizes the quandary posed by equifinality, suggested that play is the best way to reach certain goals. Through play, an individual avoids what he called the lure of "false endpoints," a problem-solving style more typical of harried adults than of playful youngsters. False endpoints are avoided through play, Bateson wrote, because players are having so much fun that they keep noodling away at a problem and might well arrive at something better than the first, good-enough solution.

But maybe the flexibility hypothesis is itself a false endpoint. Maybe the idea that play is the best route to a whole host of good results -- creativity, social agility, overall mental suppleness -- is just the first idea scientists landed on, and they were inclined to accept it because it fit so well with their innate ideas about the nature of childhood. This is the view of a small group of play scholars we'll call the play skeptics. What worries the play skeptics is that most people in the industrialized West -- scientists in the field, play advocates and all the rest of us, parents, teachers, doctors, scholars, all the children and all the aging children -- have been ensnared by what skeptics call the "play ethos." By this they mean the reflexive, unexamined belief that play is an unmitigated good with a crucial, though vaguely defined, evolutionary function.

"Play ethos" comes from Peter Smith, a psychology professor at the University of London and a leading authority on play's effect on children's emotional development. He uses it as a cautionary term, a reminder that most conclusions about play's adaptive function have so far been based not on scientific evidence but on wishful thinking.

For Smith to suggest that scientists have fallen under the spell of the play ethos is a kind of apostasy, because some of the earliest bits of evidence used to establish the play ethos in the first place came out of Smith's own laboratory at the University of London in the late 1970s. But it was in the execution of those experiments, and the follow-up studies that revealed their fatal flaw, that Smith came to understand, more than most, the importance of caution.

In one of his early experiments, Smith and his colleagues put 3- and 4-year-olds in two different play settings. In one group the children were allowed to play, in whatever way they felt like, with several wooden sticks. In the other group they were shown by an adult "play tutor" how to fit two sticks together to make a longer one. Then the children were given two tasks. First they had to retrieve a marble by connecting two sticks. Both groups performed this task, which Smith called "direct" problem solving, about equally well. Then they had to retrieve a marble that had been pushed farther away, so they could reach it only by connecting three sticks, not just two -- what Smith called "innovative" problemsolving. The children who had played with the sticks performed this task significantly better than the ones who had been shown how to join together only two sticks.

"At this point I was happy," Smith recalled years later, writing in "The Future of Play Theory." His findings were taken as evidence that spontaneous free play led to more creative thinking. But then he started to wonder whether he himself had fallen victim to the play ethos.

A single investigator had conducted the entire experiment, serving as both play tutor and evaluator on the problem-solving task. Might the experimenter subconsciously have favored the free-play children, Smith asked himself, maybe by giving subtle nonverbal cues or scoring more leniently? He ran the experiment again, bringing in a second investigator who could test the children without knowing whether they were in the free-play or the tutored group.

This time Smith found no difference in innovative problem solving between the two groups. At first he didn't believe his new results, thinking that maybe the sample size was too small or that the groups were somehow poorly matched. But further studies bore out this nonfinding, and Smith realized, on reflection, that he and his colleagues had probably been giving inadvertent hints to the free-play group the first time around. He ascribed it to his own subconscious idealization of play.

Idealization is a trap. And it seems most seductive when it comes to play, especially one particular kind: pretend play. This is the kind ethologists tend to ignore, since it is difficult to argue -- though a few scientists have tried -- that animals are capable of pretending. Yet for humans, pretend play is one of the most crucial forms of play, occupying at its peak at about age 4 some 20 percent of a child's day. It includes some of the most wondrous moments of childhood: dramatic play, wordplay, ritual play, symbolic play, games, jokes and imaginary friends. And it is the kind of play that positively screams out for hyperbole when outsiders try to describe it. This is where even coolheaded scientists get florid in their prose -- and where play advocates like Stuart Brown and play skeptics like Peter Smith engage in their most vivid disagreements about the ultimate purpose of play.

Brown talked about pretend play at the New York Public Library last month, saying that a playful imagination "can infuse the moment with a sense of magic." But skeptics find such comments annoying. "Despite the heartwarming rhetoric we dish out in our teacher-training classes, children do not have unlimited imagination," wrote David Lancy, an anthropologist at Utah State University. "Their make-believe and, by extension, other play forms, is constrained by the roles, scripts and props of the culture they live in." Lancy pointed to field studies of a Mayan community in which children teach their younger siblings how to pretend in the most pedestrian of ways, "focusing their attention on washing, caring for babies and cooking" -- no magic there.

The skeptical Smith does see some value to fantasy play: when children dress up, make and use props and devise story lines to playact, he says, they learn to use sophisticated language, negotiate roles and exchange information. But he adds that many of these benefits could be gained just as well through other forms of play, work activities and plain old-fashioned instruction. Smith does not deny that playing is great fun -- his own children were playing noisily in the background when I phoned him at his home in London, and he never once asked them to hush -- but he wants everyone to keep it all in perspective.

Keeping play in perspective means looking at it not just clearly but fully. Not everything about childhood play is sweetness and light, no matter how much we romanticize it. Play can be dangerous or scary. It can be disturbing, destabilizing, aggressive. It can lead to misunderstandings and hurt feelings, leaving children out of the charmed circle of the schoolyard. The other side of playing is teasing, bullying, scapegoating, excluding, hurting.

I well remember this darker side of play from my own girlhood. Like many other klutzy kids, I hated recess, since it stripped me of the classroom competence that was such good cover for my shyness. Out in the schoolyard, there was no raising your hand with the right answer. I had to wait to be asked

to play jump-rope and had to face embarrassment if I missed a skip or -- worse, much worse -- if nobody ended up asking me. Even pretend play could take an ugly turn if my playmates made their dolls say nasty things.

Recognizing play's dark side is not difficult, if we are really willing to search our memories. To play scholars, thinking about play's negatives can be clarifying and might even generate new ideas, not only about play but also about the double-edged nature of pleasure itself. Why is it that something so joyous, something children yearn for so forcefully, can be so troubling too? If you're accustomed to looking for evolutionary explanations for perplexing behavior, here is something meaty to chew on: what could be the adaptive advantage of using play to wrestle your demons?

Demons do indeed emerge at playtime, in part because children carve out play spaces that have no room for the civilizing influence of adults. This is what happened in the recess "fort culture" that arose spontaneously in 1990 at the Lexington Montessori School in Massachusetts, when the elementary-age children shunned the organized play their teachers had arranged and instead started building forts on their own in the surrounding woods. An intricate and rule-bound subculture developed, one that is still going on.

Mark Powell, then a graduate student at Lesley University in Cambridge nearby, observed the recess fort culture for several years in the 1990s and described it in 2007 in the journal *Children, Youth and Environments*. For the first few years, he wrote, petty conflicts, stick stealing and ejections for minor infractions were a constant background hum in a play culture that was otherwise high-spirited and fun. But it finally erupted into a miniwar one autumn, sparked by the hostile actions of a fort of 6-year-olds headed by a tyrannical little boy who called himself the General. Within a month of the General's appearance, Powell wrote, the fantasy war play "had become a reality with daily raids and counterattacks, yelling, the occasional physical scrape and lots of hurt feelings." It took the intervention of some other children, teachers and the General's parents finally to persuade the child to call a truce.

Brian Sutton-Smith, one of the nation's most eminent play scholars, has seen eruptions like the General's many times before, but they don't worry him. In fact, he embraces them. In such an elaborate play culture, he wrote, where so many harsh human truths come to the fore, "children learn all those necessary arts of trickery, deception, harassment, divination and foul play that their teachers won't teach them but are most important in successful human relationships in marriage, business and war."

Sutton-Smith's 1997 classic, "The Ambiguity of Play," reflects in its title his belief that play's ultimate purpose can be found in its paradoxes. During his years at Columbia's Teachers College and the University of Pennsylvania, Sutton-Smith, a psychologist and folklorist, took careful note of how play could be destabilizing, destructive or disturbing. He collected renditions of the stories children told in their imaginative or dramatic play, stories of "being lost, being stolen, being bitten, dying, being stepped on, being angry, calling the police, running away or falling down." Are these really the thoughts percolating inside our children? And is expressing these thoughts through play somehow good for them? Sutton-Smith called this underbelly of imaginative play part of the "phantasmagoria," where children's thoughts run wild and all the chaotic bits of the real world get tumbled together and pulled haphazardly apart in new, sometimes even scarier confabulations.

Why would such an enriching activity as play also be a source of so much anarchy and fear? Sutton-Smith found one possible answer by reading Stephen Jay Gould, the author and evolutionary biologist. The most highly adaptive organisms, Gould wrote, are those that embody both the positive and the negative, organisms that "possess an opposite set of attributes usually devalued in our culture:

sloppiness, broad potential, quirkiness, unpredictability and, above all, massive redundancy." Finely tuned specific adaptations can lead to blind alleys and extinction, he wrote; "the key is flexibility."

What Gould called quirkiness, Sutton-Smith called play. "Animal play has been described by many investigators as fragmentary, disorderly, unpredictable and exaggerated," Sutton-Smith wrote, and "child play has been said to be improvised, vertiginous and nonsensical." The adaptive advantage to a behavior that is multifaceted, then, is that pursuing it, enjoying it, needing it to get through the day, allows for a wider range in a play-loving person's behavioral repertory, which is always handy, just in case.

Playing might serve a different evolutionary function too, he suggests: it helps us face our existential dread. The individual most likely to prevail is the one who believes in possibilities -- an optimist, a creative thinker, a person who has a sense of power and control. Imaginative play, even when it involves mucking around in the phantasmagoria, creates such a person. "The adaptive advantage has often gone to those who ventured upon their possibility with cries of exultant commitment," Sutton-Smith wrote. "What is adaptive about play, therefore, may be not only the skills that are a part of it but also the willful belief in acting out one's own capacity for the future."

It's a pretty idea, the notion that play gives you hope for a better tomorrow, but science demands something a little less squishy. Science demands that if there are important long-term benefits to play, they must be demonstrated. That is why studies of play-deprived rats are so fascinating; they offer objective evidence that in at least some animals, insufficient play can have serious consequences.

Even when science suggests certain answers, however, it cannot easily make the leap from young rats to young humans, nor tell us much of anything about how those young children should behave. What if all the things we hope children derive from free play -- cognitive flexibility, social competence, creative problem-solving, mastery of their own bodies and their own environments -- can be learned just as well by teaching these skills directly? What if the only clear advantage to the vanishing 20-minute recess is that it makes kids less restless in class, something that can be just as easily accomplished by a jog around the all-purpose room?

Which brings us back to wondering what would be lost if the Cassandras are right, whether children would suffer if free play really does turn out to be a thing of the past. It seems almost ludicrous to ask such a question. Of course play is good for something; it is the essence of good. Watch children at play, and the benefits are so obvious: just look at those ecstatic faces, just listen to those joyful squeals. Stuart Brown alluded to it in his library talk last month. "Look at life without play, and it's not much of a life," he told the audience. "If you think of all the things we do that are playrelated and erase those, it's pretty hard to keep going." Without play, he said, "there's a sense of dullness, lassitude and pessimism, which doesn't work well in the world we live in."

In the end, it comes down to a matter of trade-offs. There are only six hours in a school day, only another six or so till bedtime, and adults are forever trying to cram those hours with activities that are productive, educational and (almost as an afterthought) fun. Animal findings about how play influences brain growth suggest that playing, though it might look silly and purposeless, warrants a place in every child's day. Not too overblown a place, not too sanctimonious a place, but a place that embraces all styles of play and that recognizes play as every bit as essential to healthful neurological development as test-taking drills, Spanish lessons or Suzuki violin.