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## STATE OF THE ART

*A CONTINUING SURVEY OF TECHNOLOGY AND SOCIETY*

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### *Sucker-Me Elmo*

What Children Learn from Their Robo-Toys

Adults of a certain age remember with fondness their first electronic toys: the halting digital commands of the learning game "Speak & Spell," introduced in 1978, or the plastic flashing lights of the memory game "Simon." Compared to contemporary toys, such retro electronica appears quaint. The recently released Robosapien V2 biomorphic robot, a "fusion of technology and personality," includes 67 preprogrammed functions such as "throw, kick, dance, kung-fu, fart, belch, rap, and more" and Hasbro's three-foot-tall Butterscotch FurReal Friends pony shakes her head and emits contented whinnies when you brush her mane. The most popular toy in the 2006 holiday season was the T.M.X. Tickle Me Elmo, a 15-inch-tall electronic terror that performs histrionic giggling fits to entertain children

ages 18 months to 7 years. Even old-fashioned toys have been updated to suit our technological age: owners of the first Baby Alive doll, introduced in 1973, worked a lever on the doll's back to make her swallow mushy concoctions with names like "Cheery Cherry" and "Yummy Banana" that you shoveled into Baby's mute, puckered mouth. Today's Baby Alive is a robotic little marvel who blinks, grimaces, sleeps, and precociously informs you when she "has a stinky."

According to the NPD Group, the average American planned to spend \$153 on toys during the 2006 holiday season. Much of this money was spent on electronic toys, and industry analysts expected toy manufacturers to enjoy considerable sales gains, much of it fueled by consumers' purchase of pricey electronic playthings like

Robosapien and Butterscotch. Six of the top ten toys in *FamilyFun* magazine's Toy of the Year Award list for 2006 are electronic.

In addition, parents continue to buy "educational" electronic toys from companies like LeapFrog, hoping to give their infants and toddlers an academic head start. Toy companies market "learning laptops" with Batman, Barbie, or "Disney Princess" themes to toddlers. VTech promotes its game console, V.Smile, to children ages 3 to 8, and claims the device, which uses a wireless connection to project content directly onto your television, "goes beyond passive developmental videos with a breakthrough, interactive approach to learning."

But two recent studies suggest that the oft-touted educational benefits of such toys are illusory, and child development experts caution that kiddie electronics, even those bought purely for entertainment, can have negative side effects such as inhibiting creativity and promoting short attention spans.

A two-year study by researchers at the University of Stirling in Scotland found that electronic toys marketed for their supposed educational benefits, such as the LeapFrog LeapPad and the V.Smile Infant Development System, provided no obvious benefits to children. "In terms of basic literacy and number skills I don't think they are more efficient than the more traditional approaches," researcher Lydia Plowman told the *Guardian* newspaper. Although no Luddite (Plowman

makes the rather perverse recommendation that parents give children their old cell phones so that they can learn to "model" adult behavior), Plowman believes parents are wasting their money on expensive educational electronics.

At a conference on language development in November 2006, researchers from Temple University's Infant Laboratory and the Erikson Institute in Chicago described the results of their research on electronic books, results that likely did not please the Fisher-Price toy company, which contributed funding for the study. "Parents who are talking about the content [of stories] with their child while reading traditional books are encouraging early literacy," says researcher Julia Parish-Morris, "whereas parents and children reading electronic books together are having a severely truncated experience." Electronic books encourage a "slightly coercive parent-child interaction," the study found, and are not as effective in promoting early literacy skills as traditional books.

Such warnings apply to other electronic toys as well, which experts worry discourage unstructured play and the development of basic motor skills. "A lot of these toys direct the play activity of our children by talking to them, singing to them, asking them to press buttons and levers," notes Kathy Hirsch-Pasek, co-director of the Temple University Infant Lab. "I look for a toy that doesn't command the child, but lets the child command it." The American Speech-Language-

Hearing Association also cautions parents about potential hearing damage caused by electronic toys. Even at half-volume, Bratz Liptunes, a lipstick-shaped MP3 player marketed to young girls, is over the maximum decibel level considered safe for listening. The only respite from the rambunctious noise of the Robosapien V2, according to the manufacturer's website, is to "cover the speaker grill on his back with tape."

In a 2001 study published in *Contemporary Issues in Early Childhood*, researchers Diane Levin and Barbara Rosenquest noted that the children they observed interacting with electronic toys engaged in "limited and repetitive" activity. The children also became accustomed to electronic toys and expected all of their playthings to offer electronic amusement. As Levin and Rosenquest note, however, "When children become used to toys that channel them into acting in a certain way, they begin to expect all toys to tell them what to do and toys that are open-ended can seem boring and uninteresting. This can have a long-term effect on how children play and the kind of learners they become." Their study of children's interactions with electronic toys "has left us worried, worried enough to conclude that all those involved with promoting the healthy play and development of very young children need to take heed and develop strategies for counteracting the problems that may arise."

Despite the potential hazards, why are so many children playing with elec-

tronic toys? "I think electronic toys are appealing to adults," says Linda Crowe, an associate professor in the School of Family Studies and Human Services at Kansas State University. "They think, 'Wow! These are really exciting toys; look at all of the wonderful things they can do!' But electronic toys remove social interaction and in many respects may inhibit creativity. The toy provides the fantasy and removes the opportunity for a child to mentally produce something hypothetical or imagined." Crowe is also concerned about the effect of such toys on children's brain development. "What's happening neurologically with these kids when they are watching flashing lights and electronic toys versus an old-fashioned play toy? Which areas of the brain are activated and what kinds of neurological connections are being established? I'm seeing outcomes in the form of shorter attention spans, but we don't know exactly what is happening in the brain."

Susan Swanson, who works for the Excelligence Learning Corporation and has been an arts educator in Monterey County, California schools, has similar concerns. "Electronic toys don't encourage dramatic play," she says. "And what is going to happen to these kids who are used to having a quick electronic fix and who think things happen at the push of a button?" she asks. Parents can go to the other extreme too, of course. "I live near Berkeley," Swanson says with a chuckle, "and you can find stores there where the only toys are those made

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entirely out of recycled tires or natural fibers.”

Tech toys are here to stay, of course, in large part because anxious parents fear denying their children any novel advantage. “Parents believe that this is a way for their child to be ready for the academic setting,” says Crowe, “and you can’t fault parents for that.” But she encourages parents to limit their children’s use of such toys and to offer more traditional toys (such as building blocks, trains, and dolls) that encourage open-ended, creative

play. Children also make their play preferences known, and they are often refreshingly low-tech. When asked by University of Stirling researchers what they most wanted to do during playtime, young children did not beg for quality time with T.M.X. Elmo. They wanted their parents to take them to the park. Sometimes, toddlers know best.

—*Christine Rosen is a senior editor of The New Atlantis and resident fellow at the Ethics and Public Policy Center.*