

Beyond remote-controlled teaching and learning: The special challenges of helping children construct knowledge today

by Diane E. Levin

Two-month-old Eliot is lying on his back, enthusiastically shaking his arms back and forth. A grown-up puts a small rattle in his hand. He continues shaking his arms and the rattle makes a noise. He pauses with a look of intense curiosity on his face. The noise stops and he looks puzzled. Soon, he begins shaking his arms again and the rattle noise starts up again too. But as he continues shaking his arms and the rattle, the rattle accidentally clunks Eliot's head. He cries. A grown-up takes the rattle from his hand and comforts him.

A month later, Eliot is handed the rattle again. This time he looks at the rattle with interest and begins moving his hand; the rattle makes a noise. He stops, smiles, and continues shaking and looking at the rattle. Then he intentionally begins gently tapping his head with the rattle, stops, taps again, stops, and repeats this process several times. Soon he's laughing. The rattle becomes a favorite toy that Elliot plays with during the day and in his crib when he wakes up at night. He begins shaking other objects when he picks them up, always smiling happily when they make a noise, occasionally tapping them gently to his head. And much later, when he's in preschool, his teacher reports that the 'shakers' are his favorite instruments at music time.

The first time Eliot shakes the rattle and makes a sound, he does not seem to realize he is the cause of the noise — it is just a byproduct of moving his arms. When his hands stop moving and the noise stops, he quickly loses interest in the noise until he starts wiggling his arms again and the rattle noise magically starts up again too. And when the rattle hits his head, it is unlikely he realizes that his moving hand is the cause of his pain.

When he is handed the rattle a month later, at his more advanced stage, he is able to gently and intentionally tap his head with the rattle. It sure seems like he has a clear memory of the prior head-hitting experience. Now that he is more advanced and better able to understand the effects of his actions, he seems to want to replay the earlier experience,

but in a way that does not hurt — that he can control — that is safe and even, fun. He masters the prior experience and invents new knowledge about his own actions and cause and effect. Now he can 'play' with what he has learned. He has solved his problem, answered his questions, and in the process, has learned something new. He seems to form a special attachment with the rattle as a special plaything that he continues to use in new and satisfying ways — even when he gets to preschool.

Constructing knowledge — At the heart of meaningful learning

This process of constructing knowledge — having an experience that creates a problem, working to figure it out or solve the problem, and then 'playing' with what was 'invented' to solve the problem — is at the heart of what Jean Piaget (1973) talks about in his important book, *To Understand Is to Invent*. He describes 'invention' as the process by which children construct new knowledge and understanding and advance intellectually. And he argues that play is essential to this invention process: children bring their new inventions to their play, see how they work, and adapt them as they encounter new problems by coming up with new inventions that solve the problem.

Eleanor Duckworth (2006) built on and applied Piaget's concept of inventing to education in her article, "The Having of Wonderful Ideas." She explains how the most meaningful and effective learning requires children to construct individual meanings from experiences for themselves — that they have wonderful ideas. She stresses the uniqueness of this process for each individual and the satisfaction that having a wonderful idea brings as a motivator for further learning.



Diane Levin is Professor of Early Childhood Education at Wheelock College in Boston, Massachusetts. For over 25 years, she has trained early childhood professionals to promote constructivist learning and play and to resist the forces that promote remote-controlled teaching and learning. She can be reached at dlevin@wheelock.edu.

And in his influential essay, “Messing about in Science,” David Hawkins (1965)¹ describes how when children explore objects in open-ended ways, find interesting problems to try to solve, and then see the results of their actions, they learn new concepts related to cause and effect and how to have the desired effects on their world.

Piaget, Duckworth, and Hawkins all stress the importance of the sense of satisfaction and power children feel from engaging in this process. They argue that these experiences serve as very strong motivations for children to want to face new problems and challenges, and construct new knowledge and skills. This is the kind of play children need to engage in to get ‘smart’ (Jones & Cooper, 2005). All three are describing a learning process that is dramatically different from much of the media, technology, and toys that are being designed for very young children today that take control of how children interact with the world around them. It is also very different from many of the skills-based, teaching-to-the-test strategies that are in vogue today, that take novel problem solving and invention out of the process.

More than just noise. We see the process of messing about, inventing, and having wonderful ideas in Eliot’s ‘post-head-hitting trauma’ rattle play. He is learning from his direct experience, actively building one idea onto the next, and developing new skills along the way. While not all infants will learn about the cause and effect of their hand movements by tapping their heads with a rattle, they all will learn about how to use their arms and hands to produce desired effects in their own unique ways. And even more, Eliot becomes so interested in using and getting better at what he mastered, that he continues to work on and get pleasure from it for years to come. Will he become a drummer or percussionist when he grows up? Who knows? What we do know is that meaningful learning occurs and choices get made in later years through the development of deep interests and satisfying masteries like these!

I have seen this process at work throughout my decades of professional work with children. Since all children have unique experiences that contribute to their current knowledge, this process never seems to occur in quite the same

It never ceases to excite and amaze me to see children using what they already know to try to work on new challenges they encounter — always in slightly different ways than all other children.

way. It never ceases to excite and amaze me to see children using what they already know to try to work on new challenges they encounter — always in slightly different ways than all other children. And when we see this process threatened as discussed below, with children all seeming to try to do something in a similar, almost programmed way, at the same time — with little room for their

own inventions and wonderful ideas in the process — there is cause for serious concern (Levin, 1998).

Implications for how we teach children. This process of inventing knowledge through problem solving is at the heart of meaningful and effective learning. Play provides essential opportunities for children to learn this way:

When a child wants to play with the ball that another child has, to peacefully work out a way to share, she has to see it as an interesting problem to solve and have had prior experiences sharing toys with others. If not, she may just grab the ball, upset the other child — and a fight might ensue. But this kind of problem solving is also vital in learning academic skills like reading — learning to read requires figuring out that the funny swiggles (letters) represent sounds that can be put together to make a word. This requires an elaborate process of problem finding and problem solving.

The more opportunities children have to engage in this kind of problem-solving knowledge building, the better they will become at mastering the academic and non-academic areas they later encounter — as in learning about reading or in learning how to share and work out problems with others. They will also experience the sense of competence and power that comes from using what they know to solve new problems and develop an “I can do it” attitude. This can serve as a strong motivator for engaging in the problem-solving process and, hence, meaningful learning and development.

Endangered play, endangered development

What happens to children’s development and learning if they do not become problem solvers and experts in creatively working on tasks of their own choosing over which they have control? There are several forces at work today at home, school, and in the wider society that are seriously undermining this kind of learning. I think Piaget would have

¹ David Hawkins’ work has been influential in the development of Reggio Emilia teaching philosophy and practice.

been very worried about how today's society is undermining the opportunities of many children to have wonderful ideas at home and at school — or even to learn how to have wonderful ideas. Here are some reasons why.

Remote-controlled childhood (RCC). Even though the American Academy of Pediatrics has recommended no screen-time for children under two, 40 percent of three-month-old infants are regular viewers of screen media and 19 percent of babies one year and under have a TV set in their bedroom (Campaign for a Commercial-Free Childhood, 2011). In 2006, the Kaiser Family Foundation found that children ages 6 years and under averaged two hours a day consuming screen media (Rideout & Hamel, 2006). And these are conservative figures; since that survey there have been massive marketing efforts to get screens and technology into the playpen. When children are not glued to screens, many of their toys are highly realistic replicas of what they saw on the screen, often with electronic push buttons that channel them into imitating what they see on the screen.

Not only does all this screen time reduce the time children can engage in play, when they do have time to play they often try to imitate what they have seen on the screen — i.e., engage in remote-controlled, rather than creative play. What they imitate is often content that can teach harmful lessons, such as violence, sexiness, and gender stereotypes. Many reason that if we carefully choose child-appropriate screen content, then media and technology is not a problem. But the remote control takeover of play and learning continues to be a problem independent of the content chosen. When children engage in imitative play, regardless of the content, they often fail to come up with their own interesting problems and creative scripts for play the way Eliot does.

So often today it is as if children are being remote controlled by the scripts of others, instead of coming up with their own unique stories and problems to solve. RCC is exactly the opposite of Eliot's rattle play, where he worked out a unique problem in a unique way, and learned how to have wonderful ideas that furthered both his development and the sense of satisfaction that can come from working things out on his own. RCC undermines children's ability to come up with wonderful ideas of their own creation and instead promotes the rote learning that is a carbon copy of the script creators (Levin, 1998).

The more opportunities children have to engage in this kind of problem-solving knowledge building, the better they will become at mastering the academic and non-academic areas they later encounter — as in learning about reading or in learning how to share and work out problems with others.

Problem Solving Deficit Disorder (PSDD). Children who are victims of RCC have developed what I call PSDD — Problem Solving Deficit Disorder (Levin, 2007). The concept of PSDD grew out of my work on the impact of contemporary forces in society, such as technology and high-tech toys, on children. Parents and professionals describe children who:

- Say they're bored a lot.
- Rarely become deeply engaged in unstructured activities.
- Seem to lack creativity and imagination.
- Experience difficulty in playing cooperatively with others or resolving conflicts without aggression.
- Do better when they are told what to do.
- Ask for new things all the time, but quickly become bored once they have them.

Children with PSDD have limited ability to engage in the problem finding and problem solving that promotes active development and learning — i.e., actively constructing knowledge and skills. They have trouble coming up with their own inventions, having wonderful ideas, messing about. They often prefer and are better behaved with structured activities at school or DVDs to watch or video games to play at home. In the long run, PSDD can lead to remote-controlled people who exhibit conformist behavior, accepting orders without questioning or who are no longer agents of their active engagement in the world.

Remote-controlled teaching and learning. The concepts of RCC and PSDD give us a special lens for looking at the educational 'reforms' currently being implemented in many early childhood settings in the United States. An increased emphasis has been placed on structured teaching and drill and practice of basic skills at younger ages. Proponents of this approach argue that many children are being left behind because they are not learning what they need to learn

to be successful, contributing members of society. Schools are blamed for not doing their job. And then, direct teaching of narrow skills, mandated by common core standards and assessed by high-stakes tests, are imposed on children at younger ages to try to solve the problem (Carlsson-Paige & Levin, 2010).

What if children are not learning what they are supposed to learn in school because of RCC and PSDD? What if they have not learned to be active learners

who can construct their own ideas and skills based on their own unique meaning-making process? What if instead of remote-controlled teaching from very young ages — which does nothing to reclaim active learning for children — what they really need is systematic help having the wonderful ideas that will counteract the forces causing RCC and PSDD?

Finding a cure

If the difficulties children seem to be having with learning basic skills are related to RCC and PSDD, then the best way to promote optimal learning in these times is to work to counteract them. That is, we need to help children reclaim the skill and disposition of deeply engaging in active problem finding and problem solving so they can build meaningful knowledge and skills. This will help them want to try to figure out that the funny squiggle that is the letter 'b' makes the sound 'b' every time they see it. It will give the foundation they need for lifelong self-motivated and self-controlled, rather than remote-controlled, learning.

Here are some suggestions to help you begin:

- Encourage creative play in which children are the scriptwriters, directors, and actors. This may require you to take an active role in helping children learn how to play this way because they have not learned to do it on their own.
- Limit children's involvement with electronic media and media-linked toys.
- Help children find meaningful problems to solve, as well as their own strategies for doing so. As they experience the power that comes from solving problems of their own making by having wonderful ideas, they will be motivated to take on more of the responsibility and control themselves.
- Integrate meaningful literacy and numeracy into children's problem-solving activities. This can help them see how these skills can increase their ability to solve problems — a strong motivator to learn more.
- Choose toys and play materials that allow children to be the creators of what happens (see www.truceteachers.org).
- Help families support creative play and problem solving in the home. This often means working with families to help them understand and combat RCC and PSDD.

. . . we need to help children
reclaim the skill and disposition
of deeply engaging in
active problem finding and
problem solving so they can build
meaningful knowledge and skills.

- Become an advocate for teaching practices that promote creative play in schools and in the wider community (Miller & Almon, 2009).

References

- Campaign for a Commercial-Free Childhood. (2011). *Screen-week 2011 organizer's kit*. Boston: Author. Available at: www.commercialfreechildhood.org
- Carlsson-Paige, N., & Levin, D. (2010, April 18). Common core standards: One size doesn't fit all. *Boston Globe*. Available at: www.boston.com/bostonglobe/editorial_opinion/oped/articles/2010/04/18/one_size_doesnt_fit_all/
- Duckworth, E. (2006). *The having of wonderful ideas: And other essays on teaching and learning* (3rd edition). New York: Teachers College Press.
- Hawkins, D. (1965, February). Messing about in science. *Science and Children*, 2(5), 5-9.
- Jones, E., & Cooper, R. (2005). *Playing to get smart*. New York: Teachers College Press.
- Levin, D. (2007). Problem Solving Deficit Disorder: Creative versus programmed play in Korea & the U.S. In E. Goodenough (Ed.), *Where do children play?* Detroit: Wayne University Press.
- Levin, D. (1998). *Remote control childhood? Combating the hazards of media culture*. Washington, DC: NAEYC.
- Levin, D. (1996). Endangered play, endangered development: A constructivist view of the role of play in development and learning. In A. Phillips (Ed.), *Playing for keeps*. St. Paul, MN: Redleaf Press.
- Miller, E., & Almon, J. (2009). *Crisis in the kindergarten: Why children need to play in school*. College Park, MD: Alliance for Childhood. Available online at: www.allianceforchildhood.org
- Piaget, J. (1973). *To understand is to invent: The future of education*. New York: Grossman.
- Rideout, V., & Hamel, E. (2006). *The media family: Electronic media in the lives of infants, toddlers, preschoolers, and their parents*. Menlo Park, CA: Kaiser Family Foundation.