

# The Power of Playful learning: How guided play sparks social and academic outcomes



**Kathy Hirsh-Pasek, Ph.D.**  
**Temple University**

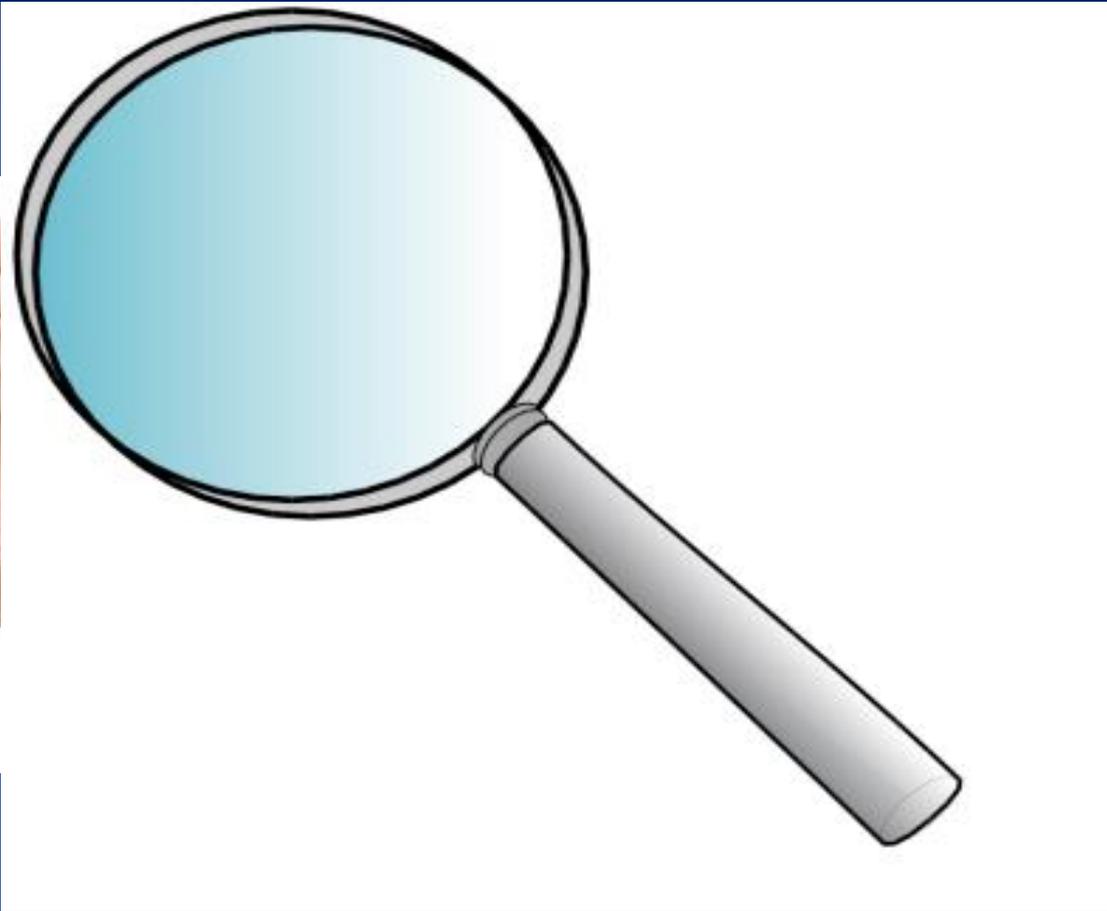
*Early Childhood Investigations June, 2014*

# What do you hear?

Repeat after me



# Changing the lens:

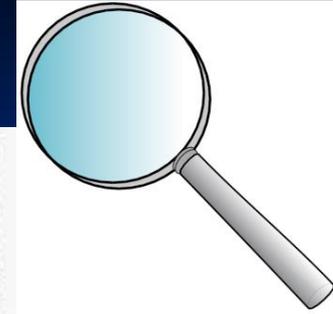


# What's going on?



Just play?

# Changing the lens



*Narrative*

*Language*

*Perspective taking*

*Social skills*

*Planning and  
executive function*

# It is time to change the lens....

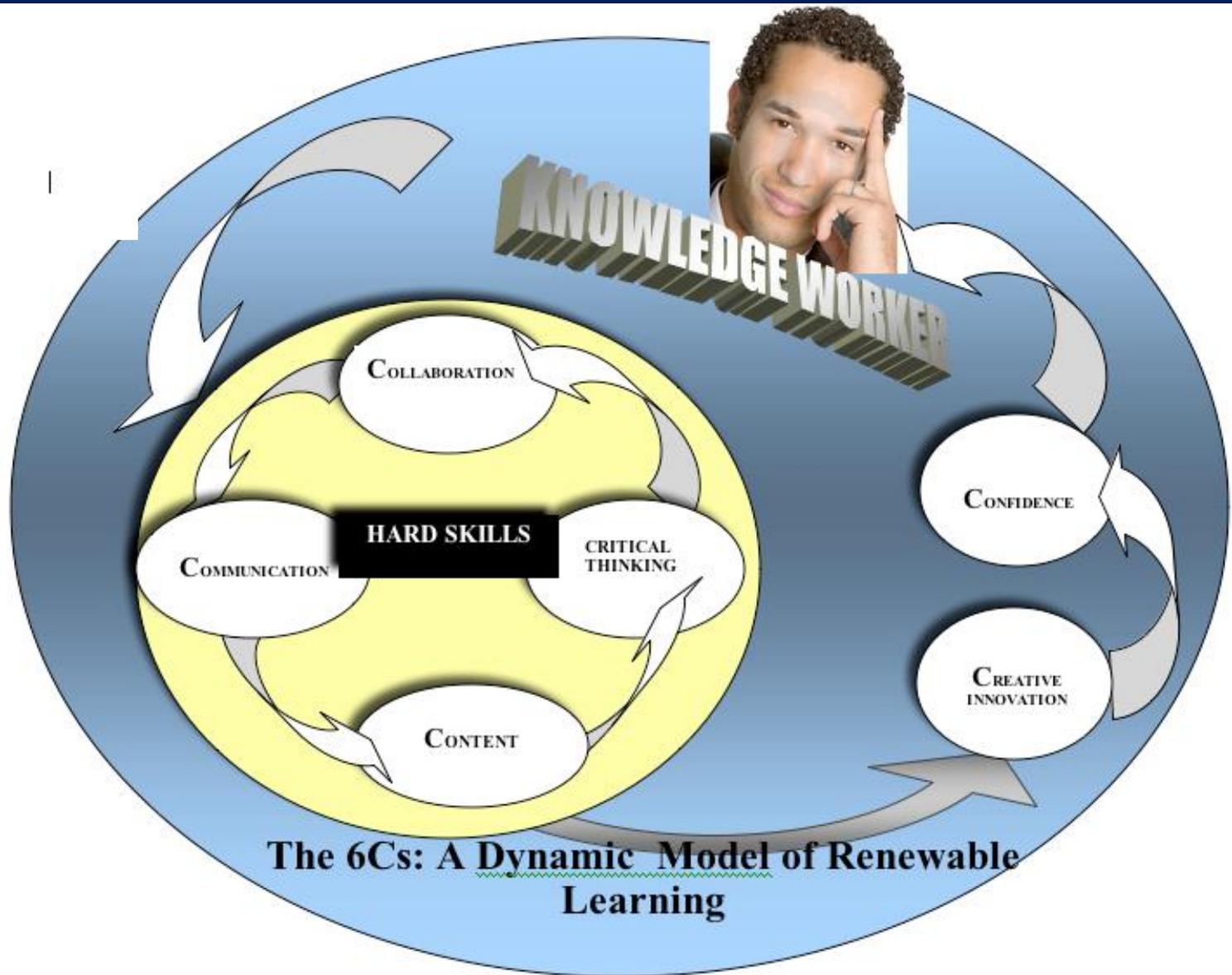


- On the potential role of play in education
- To have parents and policy makers see the social and academic value of playful learning

# SOME INTERESTING FACTS

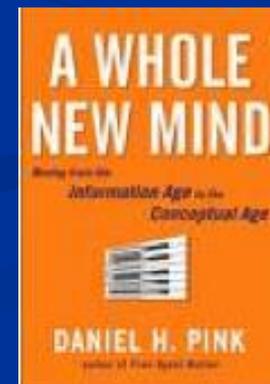
- We are leaving the information age, where getting the factoids was enough....
- We are entering a new era, **a knowledge age** in which information is doubling every 2.5 years.
- Integrating information and innovation is key.

Success in the global workforce of the 21st century requires  
that our children be skilled in the 6Cs™



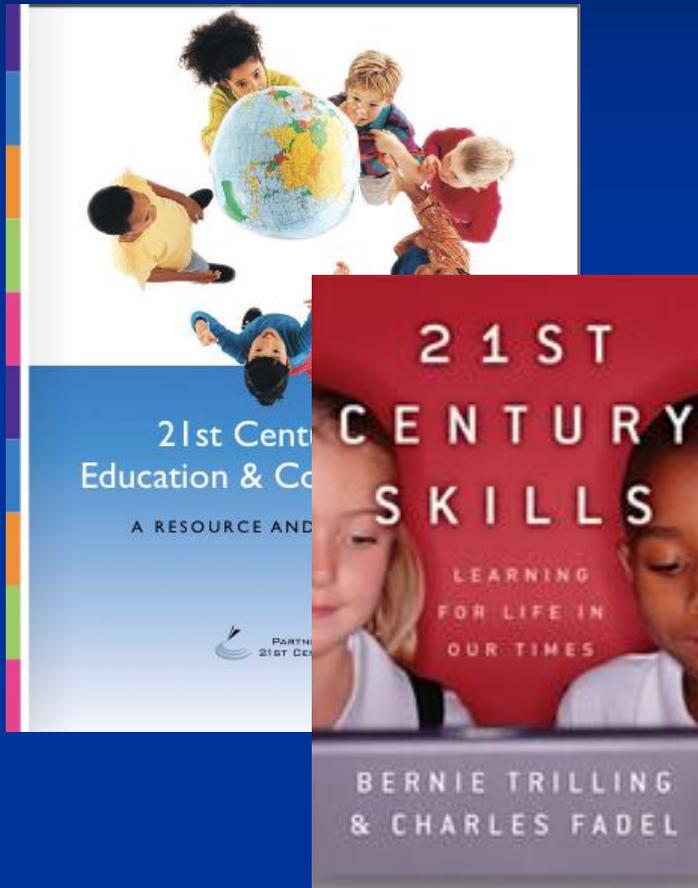
# As Daniel Pink (2005), author of *A whole new mind* writes:

*The past few decades have belonged to a certain kind of person with a certain kind of mind-- computer programmers who could crank code, lawyers who could craft contracts, MBAs who could crunch numbers. **But the keys to the kingdom are changing hands.** The future belongs to a very different kind of person with a very different kind of mind - creators and empathizers, pattern recognizers, and meaning makers...*



# And, the Partnership for the 21<sup>st</sup> Century Skills

(September 10, 2008)



In an economy driven by innovation and knowledge ... the **ingenuity, agility and skills** of the American people are crucial to U.S. competitiveness.

*21<sup>st</sup> Century Skills:  
Education and  
Competitiveness*

- What does all this have to do with the way we raise and educate our children?

**EVERYTHING BECAUSE.....**

**Our children are  
The workforce of that future,  
The workforce of the year 2044**



**Today, I am going to shock you  
(or maybe you guessed already)**

- **With one way we can achieve  
the very goals that our nation  
wants to instill.....**

Through.....

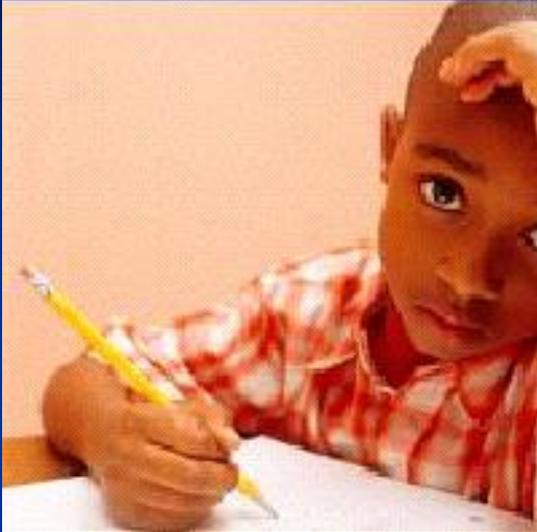
**PLAYFUL LEARNING**

# This holds for all children

- In the US, England, China and Singapore
- For children who are rural or urban
- For children who are rich or poor

All children need an environment that allows them to learn rich content through play!

**But whatever happened to  
play?**



In 1981, a typical school-age child in the United States had 40% of her time open for play. By 1997, the time for play had shrunk to 25%.

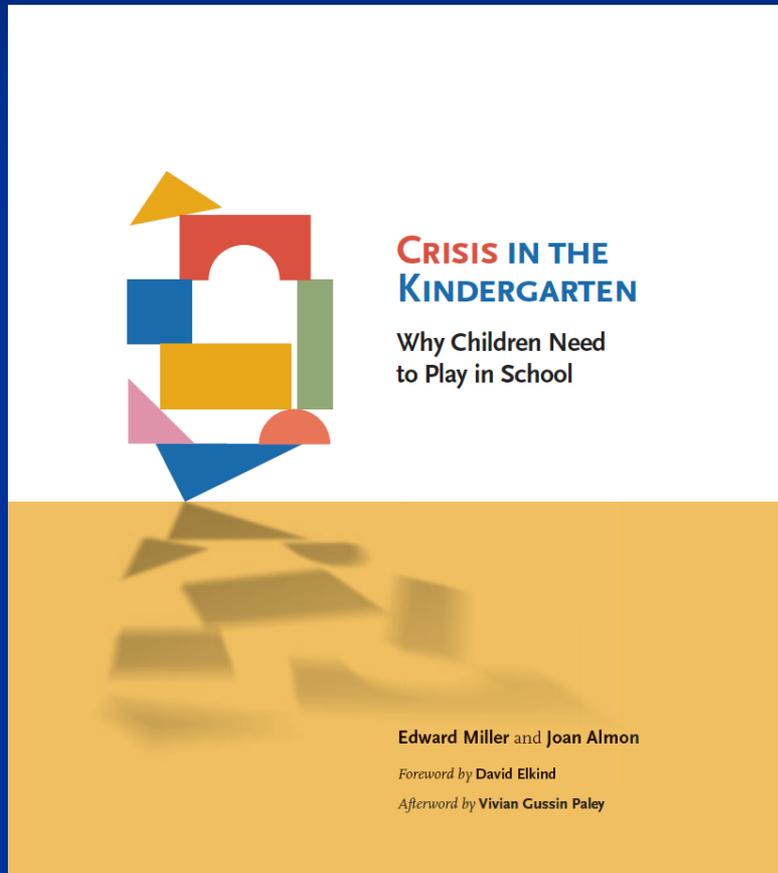
What percentage is it down to now??

# Recent research suggests that

- In the last two decades children have lost 8 hours of free play per week
- Thousands of schools in the United States have eliminated recess to make time for more academic study.

Elkind, (2008) *Greater Good*

# And a recent report from the *Alliance for Childhood Survey* in New York and LA (April 2009) showed...



That play -- in all its forms, but especially open-ended child-initiated play, is now a minor activity in most kindergartens, if not completely eliminated.

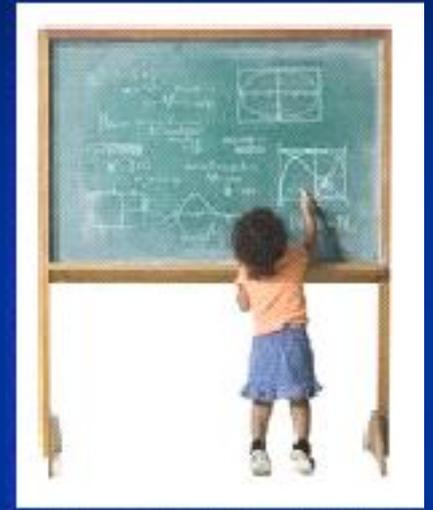
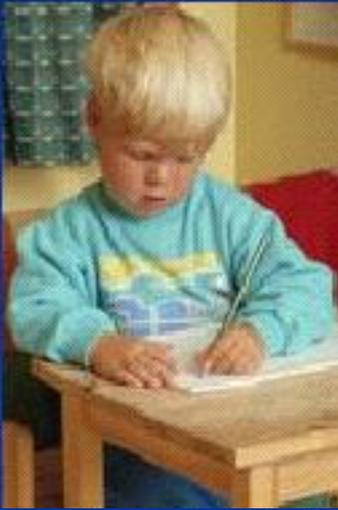
## Direct observation of 142 NY classrooms and 112 LA classrooms revealed that...

- 25% of the teachers in the Los Angeles sample reported having no time whatsoever in their classrooms for children's free play.
- 61% of the teachers in the New York sample reported having 30 minutes or less of daily choice time. (In Los Angeles, the figure was 81%.)
- 79% of the New York teachers reported spending time every day in testing or test preparation. In Los Angeles, it was 82%.

# **In fact, several recent articles also bemoan the loss of play!**

- **Scientific America, February, 2009:**
  - Play-deprived childhood disrupts normal social, emotional and cognitive development in humans and animals.
- **NYTimes, September, 2009**
  - Can the right kinds of play teach self control?
- **NYTimes, February 2010**
  - Playing to Learn
- **NYTimes, January 2011**
  - Movement to restore play gains momentum
- **Christian Science Monitor cover story, January 2012**
  - From toddlers to tweens: Relearning how to play

# We are wearing out our youngest children by



- Engaging in “drill-and-kill” activities rather than playful and meaningful learning, *even at the youngest ages!*
- Testing for “factoids” in our assessments rather than real learning



Quote from a kindergartner, faced with alphabetizing two lists of eight words:

**“I can’t do this anymore! I’m sooooo tired!”**

Observed by Berk, March, 2010





These issues and more prompted a report from the American Academy of Pediatrics in October 2006 entitled:

*The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds*

They wrote:

These guidelines are written in response to the multiple forces challenging play. The overriding premise is that play (or some available free time in the case of older children and adolescents) is essential to the cognitive, physical, social, and emotional well-being of children and youth.

**Our society often confuses**

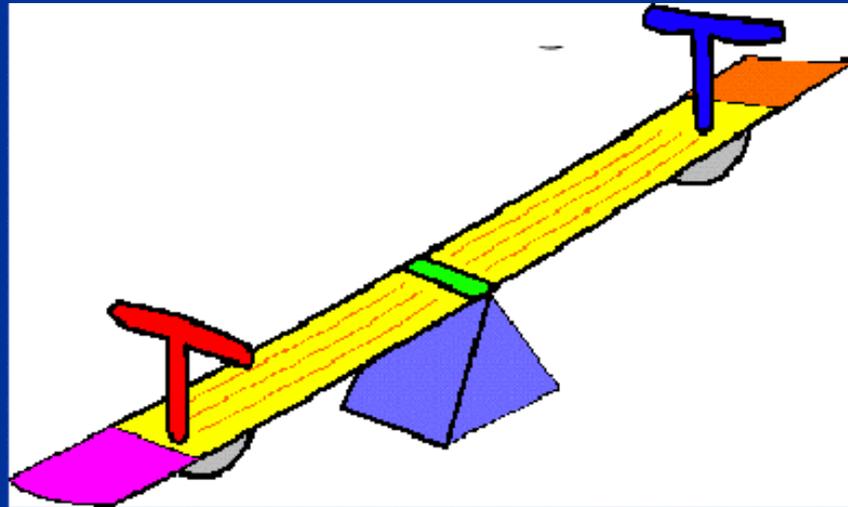
***learning with memorization***

**and**

***test scores with success***

# The challenge is to strike a balance...

between the desire to enrich children's lives and the need to foster play as a foundation for learning skills like **collaboration, communication, content, critical thinking, and creative innovation and confidence.**



Content is only 1 of the 6Cs!

# Today we offer the evidence for playful learning

A talk in five parts

1. Early education is important but . . .
  - *How you learn is as important as what you learn*
2. Defining playful learning
3. Playful learning in self regulation
4. Playful learning in academic outcomes
5. Implications

# The evidence for playful learning

A talk in five parts

1. **Early education is important but . . .**
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# Mountains of evidence suggest that...

- **Preschool experience dramatically increases children's:**
  - **Collaboration**
    - > Social skills by as much as 62%
    - <Problem behaviors
  - **Communication**
    - > Language skills by 25%
  - **Content**
    - >Reading by 59%
    - >Writing
    - >Math by 50%

The positive effect that preschool attendance has on pre-reading skills for low income children (Head Start) is comparable to, or larger than, the effect that homework has on school achievement, the effect that lead poisoning has on diminished IQ scores, and the effect that asbestos exposure has on cancer occurrence (Phillips & McCartney, 2005).

# Yet....

It's not just **what** you learn that matters, but **how** you learn

***Comparisons between developmentally appropriate preschools (DAP) and more traditional “academic” direct instruction (DI) schools tell the story.***

Hirsh-Pasek, Golinkoff, Berk, & Singer. (2009). *A mandate for playful learning in preschool: Presenting the evidence*. Oxford University Press.

## ■ DAP schools

- Have active learners
- More playful learning (guided play)
- Whole child approach
- Integrated curricula
- Discoverer/Explorer metaphor

## ■ DI

- More passive learners
- Learning is more compartmentalized
- Paper-and-pencil, worksheet learning and test-taking are emphasized
- Empty vessel metaphor

# DAP schools offer advantages in

## ■ Social emotional development

- > Emotional regulation

- < Child stress

Burts, Hart, Charlesworth, Fleege, Mosley & Thomasson, 1992

- < Behavior problems

Marcon, 1994, 1999, 2003

- > Motivation for school

Hirsh-Pasek, 1991; Stipek et al., 1998

## ■ Academically

- > Reading and math scores

Stipek, Feiler, Byler, Ryan, Milburn, and Salmon (1998); Marcon (1999, 2003)

*These advantages lasted into the primary grades*

# What happens in DI Early Childhood Classrooms?



Inattention, restlessness, stress behaviors (wiggling and rocking)



Confidence in own abilities



Enjoyment of challenging tasks



End-of-year progress in motor, language, and social skills

Compared with age mates in DAP settings.



Lasting effects through elementary school: poorer study habits and achievement; greater distractibility, hyperactivity, and peer aggression.

# One recent study...

Celebrated a Montessori education over the more traditional education. Montessori classrooms are more developmentally appropriate. They embrace a metaphor of learning that is more more playful in which children are active and less passively involved in learning.

--Lillard & Else-Quest, 2006 (see also Lillard, 2014)

# The results suggested that...

**Children in Montessori classrooms at age 5 yrs. did...**

**Better in academic tasks like reading and math**

**Better in social tasks that required positive peer play**

**Better in tasks that required attention to another person's beliefs**

**At age 12 years these children...**

**Liked school more**

**Were more creative in their writing**

**Did better in reading and math**

WHY???

**Because the children were more  
actively engaged and learned  
through play**

## And yet another recent study

(Diamond, Barnett, Thomas & Munro, *Science*, 2007)

- Found that playful learning through the *Tools of the Mind Program* helped children develop executive function skills (EF) like inhibitory control, working memory and cognitive flexibility.
- These skills are highly correlated with fluid intelligence and outcomes in math and reading.
- When teachers promote these skills through playful -- playful learning *throughout the day*, children's outcomes on standardized tests increase -- even for poor children.

*Can the right kinds of play teach self-control?*

*NYTimes Sept 25, 2009*

# A recent meta-study

- Reviewed 164 studies of young children, (along with studies of adults and adolescents) revealed that assisted discovery learning (playful learning) trumped both explicit instruction and unassisted discovery learning pedagogies!

Alfieri et al., 2010

# The evidence for playful learning

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2. **Defining playful learning**
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# Playful Learning contains time for both free and guided play:

Initiated by

child

adult

Directed by

child



Free Play

Guided Play

adult



Co-opted Play

Direct Instruction



Jacob Habgood

## Where **Guided play** can be:

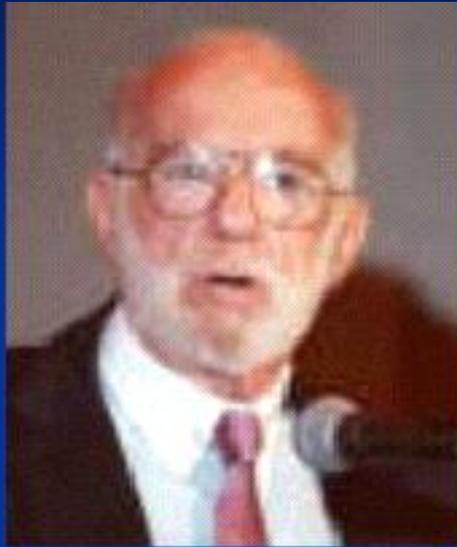
- **A planned play environment**, enriched with objects/toys that provide experiential learning opportunities, infused with curricular content (Berger, 2008).
- **Adults enhancing children's exploration and learning** through:
  - co-playing with children
  - asking open-ended questions
  - suggesting ways to explore materials that children might not think of

# The evidence for playful learning

A talk in five parts

1. Early education is important but . . .
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3. **Playful learning enhances self regulation**
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# A tale of two Spocks



- Dr. Benjamin Spock got it all along: social and emotional regulation matters -- a lot
- Mr. Spock did not

# Emotional-regulation includes?

- Impulse and emotion control
- Self-guidance of thought and behavior  
(private speech)
- Planning
- Self-reliance
- Socially responsible behavior

(Bronson, 2001; Kopp, 1991; Rothbart & Bates, 2006)

# And measures of self-regulation predict?

- Favorable development and adjustment in cultures as different as the Canada and China!
- Beginning in early childhood, positive outcomes include:
  - **persistence**
  - **task mastery**
  - **academic achievement**
  - **social cooperation**
  - **moral maturity (concern about wrongdoing and willingness to apologize)**
  - **sharing and helpfulness**

Eisenberg, 2010; Harris et al., 2007; Kochanska & Asksan, 2006; Posner & Rothbart, 2007; Zhou, Lengua, & Wang, 2009; and many others.

# The shocking finding?? Children with social emotional control do better in school....

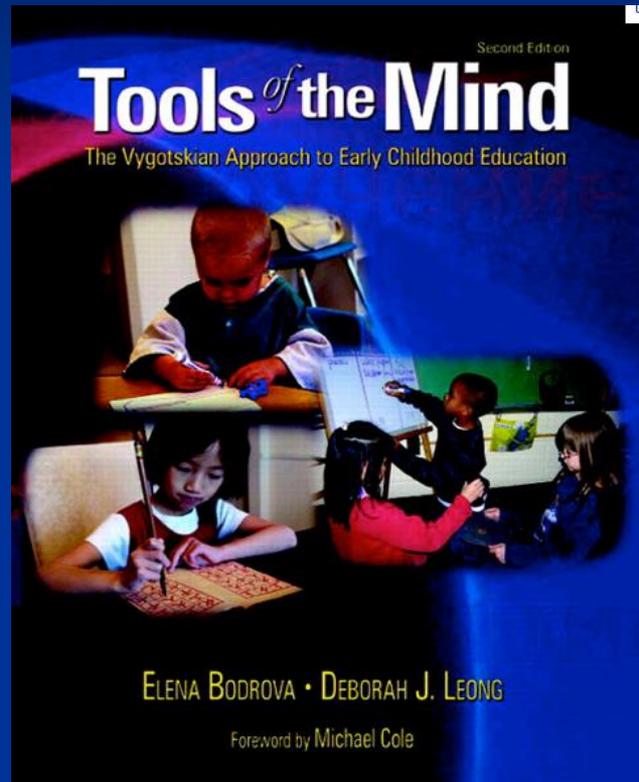


Mischel et.al., (1989) for a review

**Guess what happened over time!!!!**  
Those who waited scored over 200 points better on their SATs?

Eigsti, et al., 2006

Further, some research suggests that we can teach emotional control



Through children's play

(Bodrova & Leong, 1995 but see Thal, 2012 and Lillard et al., 2012)

# EQ and emotional control does not develop on its own

- Children learn it from adults
- Children learn it from other children
- Children learn it through PLAY: Free and guided



Tan-Niam, 1997



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# Focus on reading...



- Telling stories
- Word play
  - (what rhymes with “hat”?)
- Singing songs
- Dialogical reading
- Reading product labels
- Engaging conversations
- Dramatic play (Christie)

A recent paper by Lillard et al., 2012 suggests language and reading outcomes are the strongest examples of where even free play encourages development.

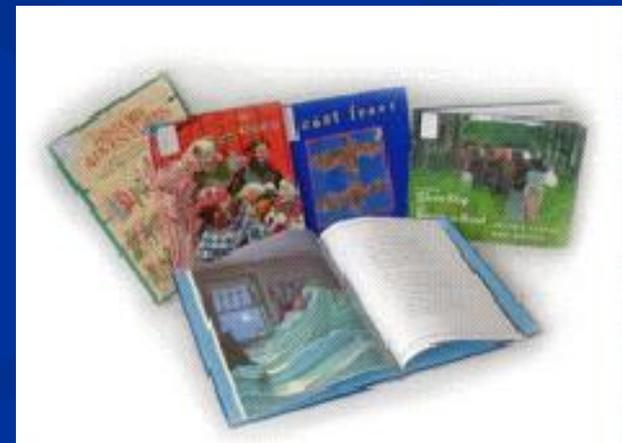
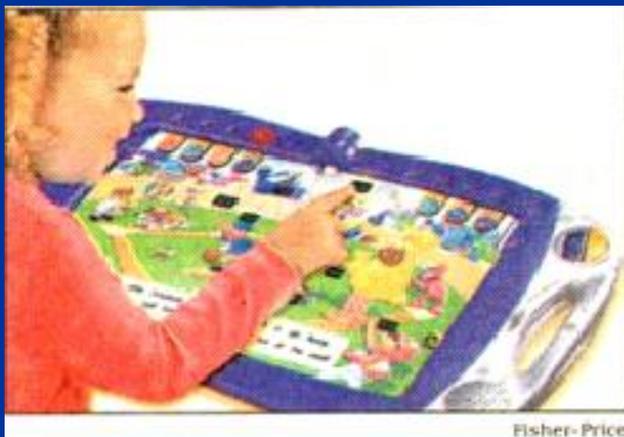


TEMPLE  
UNIVERSITY



UNIVERSITY OF DELAWARE

# An example from our own research On e-books and t-books



*Research supported in part by Fisher-Price Toys*

E-books are now in 95% of the homes of parents we surveyed

Yet, when parents read t-books with preschool aged children

- The reading experiences they share are predictive of later literacy
- A *dialogic* reading style has been shown to effectively improve reading and school outcomes
- Contributes to language development



- Do e-book consoles promote *the kind of dialogic parent-child interactions that predict later literacy?*



# No!

When 80, 3-and 5-year olds were randomly assigned to read matched e- or t-books with their children, we found that...

When reading t-books:



Parents talk **MORE** about the story



Parents talk **LESS** about behavior



Parents say **MORE** that goes “beyond the story”



# In a follow-up study we also found...

- That children reading t-books were better able to:
  - Tell us the plot line
  - Remember the sequences of events in the story

**The issue is NOT e-book vs t-book or digital vs paper but rather how the books interact with the child.**

**They do best ...**



- When children are joyfully engaged with us
- When the book is meaningful
- **And when they are not distracted by bells and whistles**

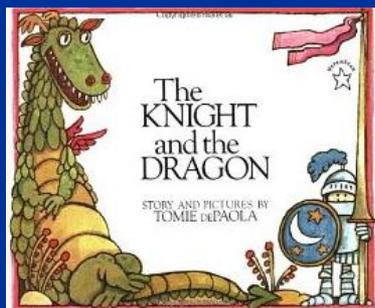
**We are testing this now.**

And our current research is asking how playful learning can increase vocabulary in low income children!



Photo from Sheryl Ann Crawford

Adult reads children a book like the Knight and the Dragon while highlighting new words (e.g., galloping, shield)



Free play

Directed play

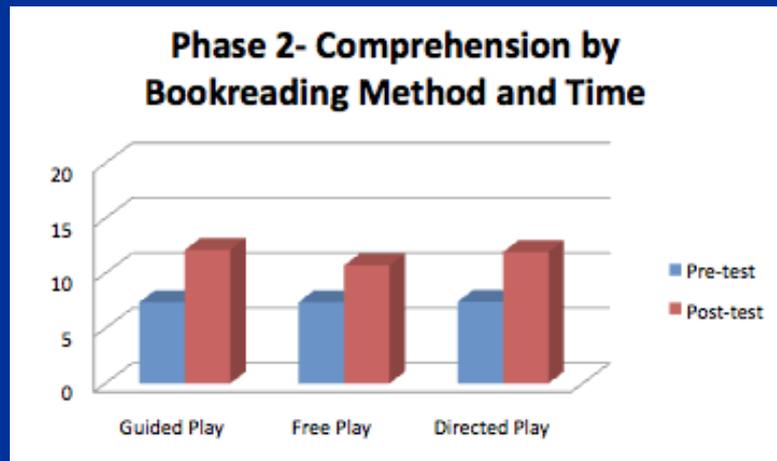
Guided play

No focus, dialogue; meaning-making; child initiated and directed

Targeted focus with more closed questions; adult initiated and directed, meaning-making

Targeted focus with more open ended questions; adult initiated, child directed, meaning-making

# A sneak peek at preliminary results...



Note that children did better post that pre in all conditions

But that adult directed play was better than free play when there is a learning goal.

Stay tuned for more

# And what about math and spatial skills?

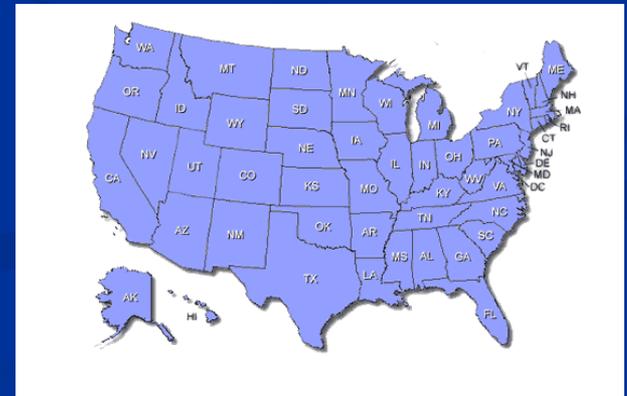
## STEM

- Finding patterns
- Dividing candy and sharing
  - Squire & Bryant, 2002
- Sorting trail mix
- “I spy”
- Noticing more and less
  - (“She got more ice cream”)
- Playing with blocks & trains
- Conversations
- Playing board games
  - Ramani & Siegler, 2008



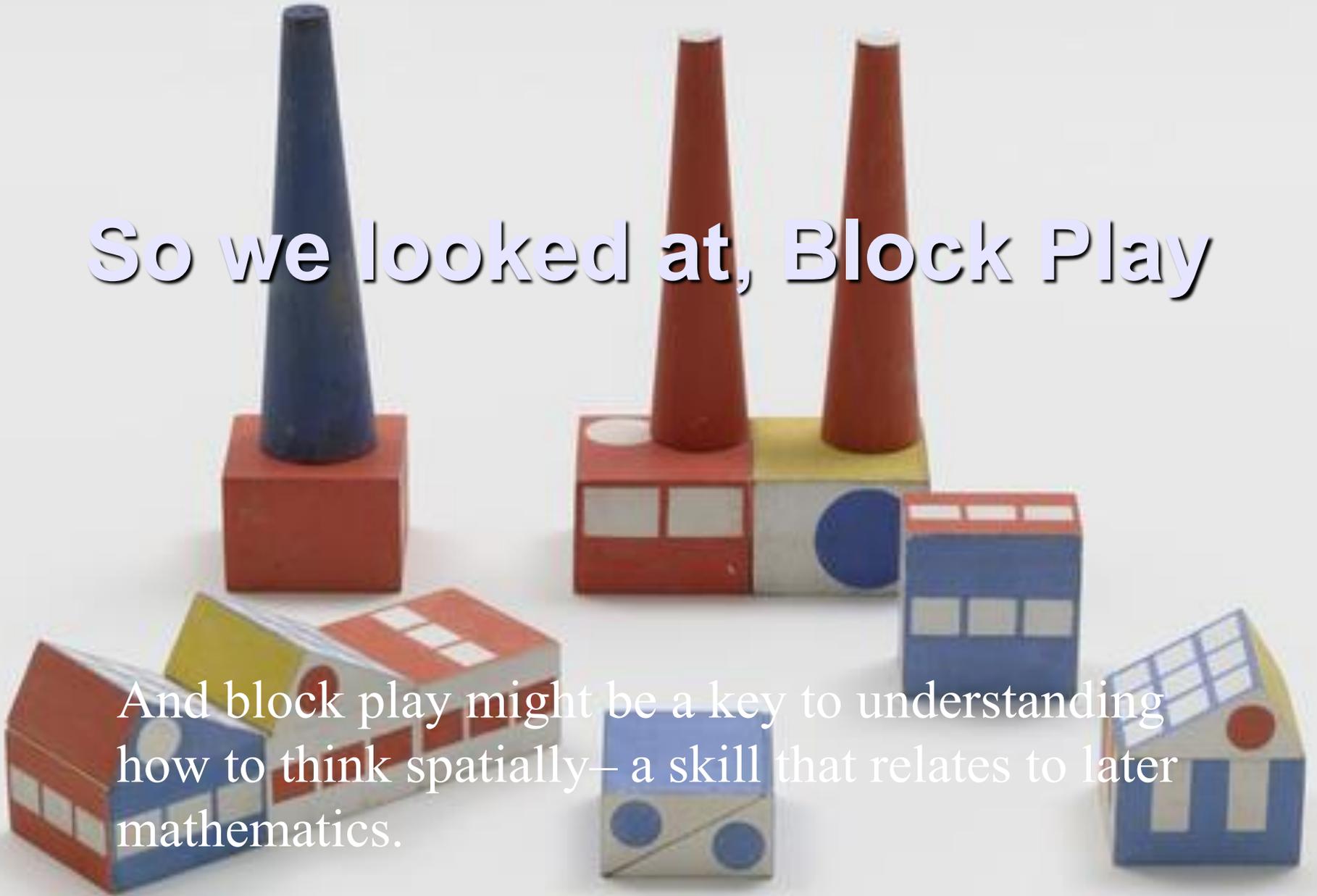
# Spatial Skills and STEM Disciplines

- The Spatial skills used in blocks are basic to human intelligence (e.g., packing a trunk, reading a map)
- Spatial skills are also related to later mathematical outcomes
  - Pruden, Levine, Ginsburg
- Further, increasing spatial language also translates into better spatial and mathematical outcomes!



# So we looked at, Block Play

And block play might be a key to understanding how to think spatially— a skill that relates to later mathematics.



# Our questions

- ⑩ Do we talk more about space when we play with blocks?
- ⑩ Do we talk more about space in certain play situations over others? (using words like above, on top of, beside...)

# Our design?

## PHASE 1



Preassembled Play



Free Play



Guided Play

## PHASE 2



Guided Play



Guided Play

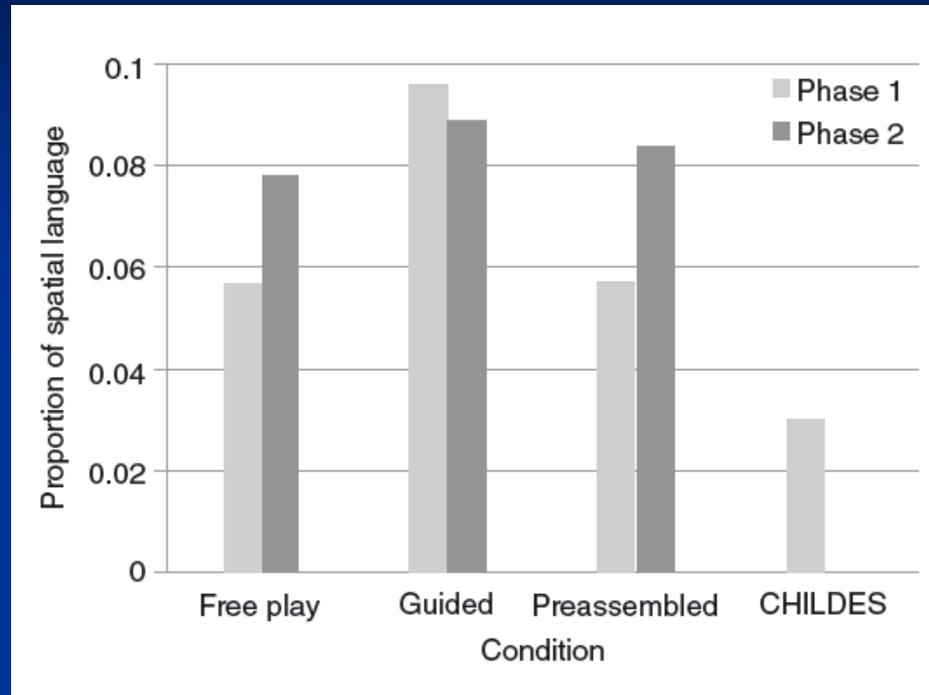


Guided Play

Thank you Megabloks for your support



# The results?



- ⑩ First, the play context makes a difference!
  - ⑩ In guided play, 10% or 1 in 10 words were spatial
- ⑩ Second, block play made a difference
  - ⑩ In non-block play contexts, parents use only 3 to 6% of spatial terms

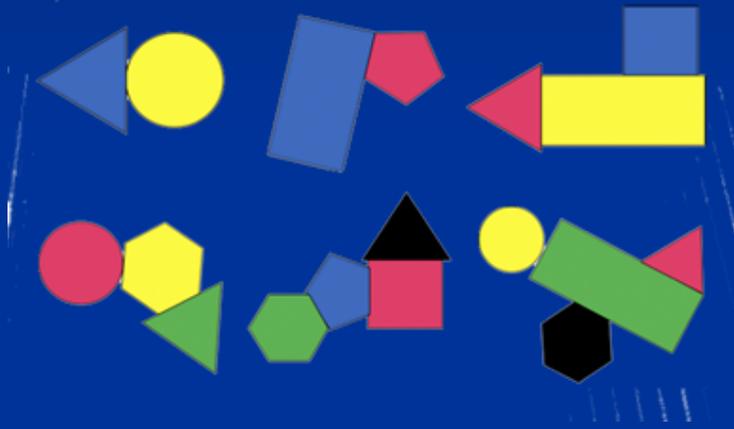
# But does this spatial language and spatial play relate

- to later spatial ability?
- And later math ability?

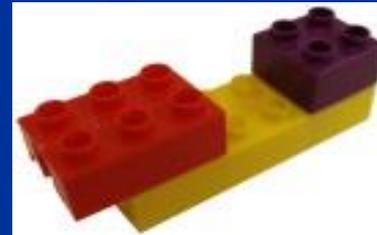
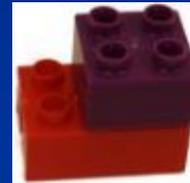
Verdine, B., Golinkoff, R., Hirsh-Pasek, K,  
Newcombe, N., Filipowicz, A. & Chang, A.  
(2014)

# YES

2-D Test of Spatial Ability (TOSA)



3-D Test of Spatial Ability (TOSA)



Children who could match the design they saw....

# at age 3 had better...

- **spatial skills and math skills at ages 4 and 5?**

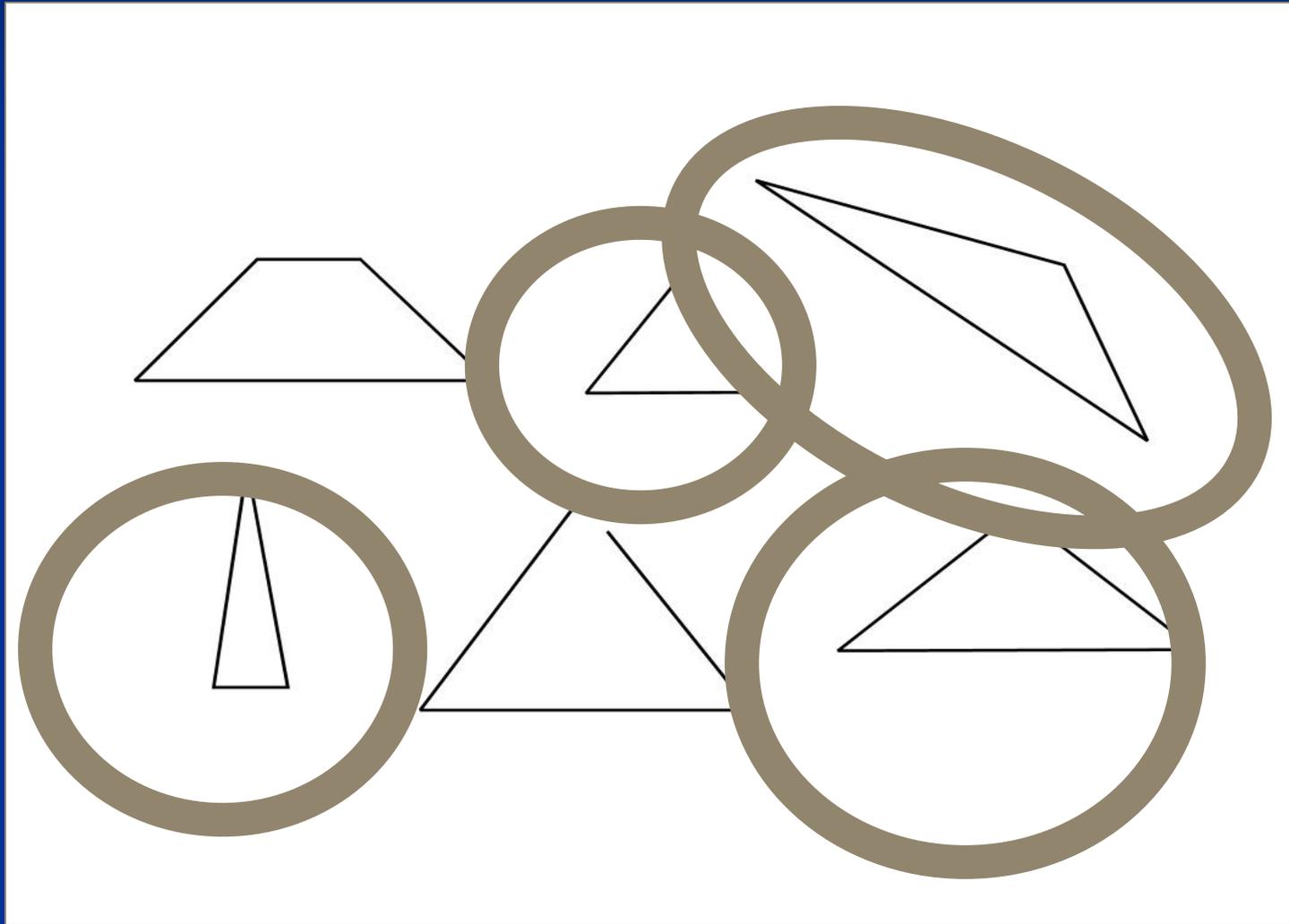


# What about preschool geometry?

One of the features of the new Common Core Curriculum is shape learning and an emphasis on STEM. How do children learn the defining features of a shape?



Which of these are real triangles?



# We asked

- ⑩ Whether guided play might be a better way to learn than is direct instruction or free, exploratory play for learning shape *concepts* (*triangles, rectangles, pentagons, hexagons*)?

# 3 Conditions



**Guided Play (+ DI, + AE)**: Children were taught rule-based classification systems for shapes in a playful, exploratory manner (they were “detectives” discovering the secret of the shapes)

**Direct Instruction (- DI, - AE)**: Children were taught rule-based classification systems for shapes in a passive learning manner (children *watched* the experimenter act as a detective discovering the secret of the shapes)

**Exploratory/Free Play (- DI, +AE)** : Children played with shape cut-outs (same as training cards) and wax sticks for approximately the same amount of time as the training conditions.

# Shape Sorting Task

## Shape Cards:

40 cards, 10 per shape (3 typical, 3 atypical, 4 non-valid)

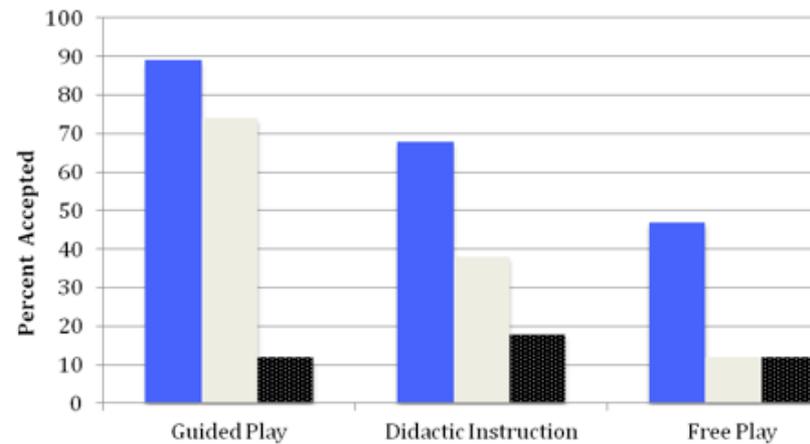
## Procedure:

- ⑩ Children introduced to “Leelu the Picky Ladybug” who only liked REAL shapes.
- ⑩ She needed help sorting some shape cards she found (40 cards; 10 per shape).
- ⑩ ‘Real’ shapes were placed in her ladybug box, while ‘fake’ shapes were thrown in a trashcan



Typical	Atypical	Non-valid

# Wanna guess where they learned the best?



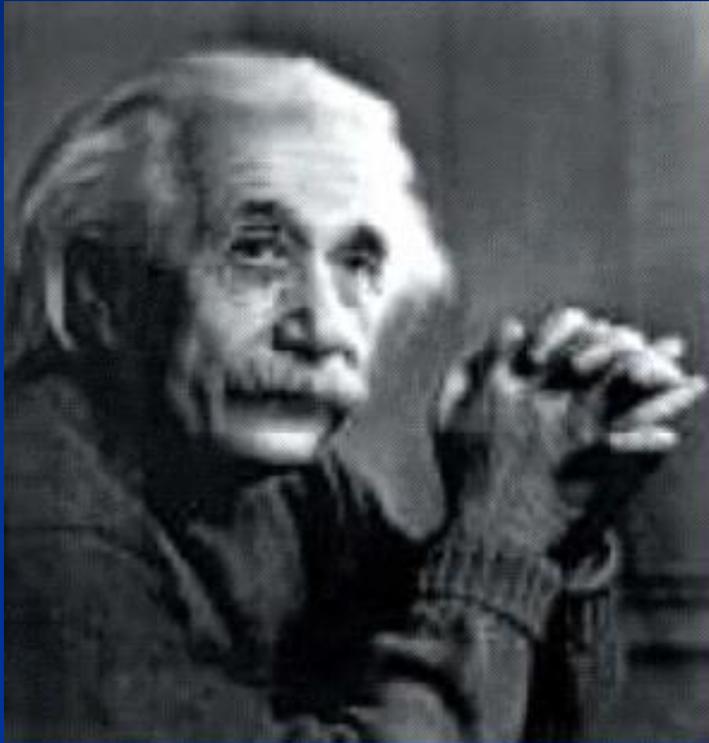
Time 2 (N = 51)

■ Typical Shapes ■ Atypical Shapes ■ Non-valid Shapes

# So ...

- Meaningful play with toys that demand spatial thinking....
  - Puzzles
  - Shape sorters
  - Blocks
- Builds STEM ability and school readiness

**As Einstein once said...**



"The only thing  
that interferes  
with my learning  
is my education."

# The evidence for playful learning

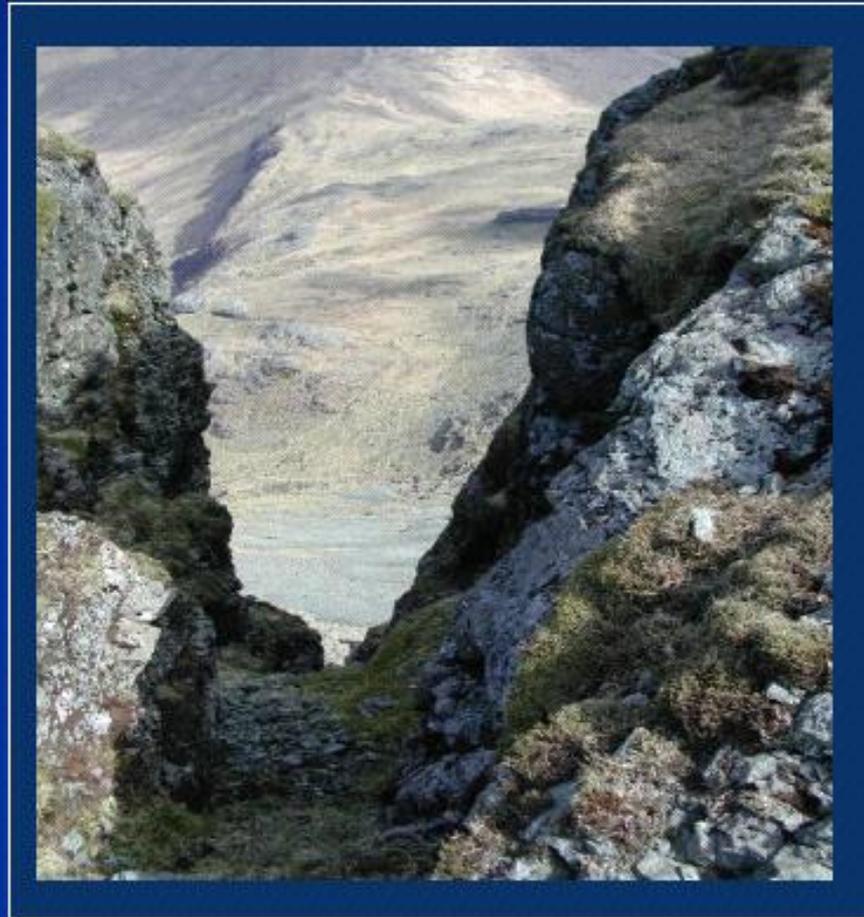
## A talk in five parts

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5. **Implications**

**You can have smart kids  
and  
Have them learn and grow through  
playful learning!**



# A Huge GAP

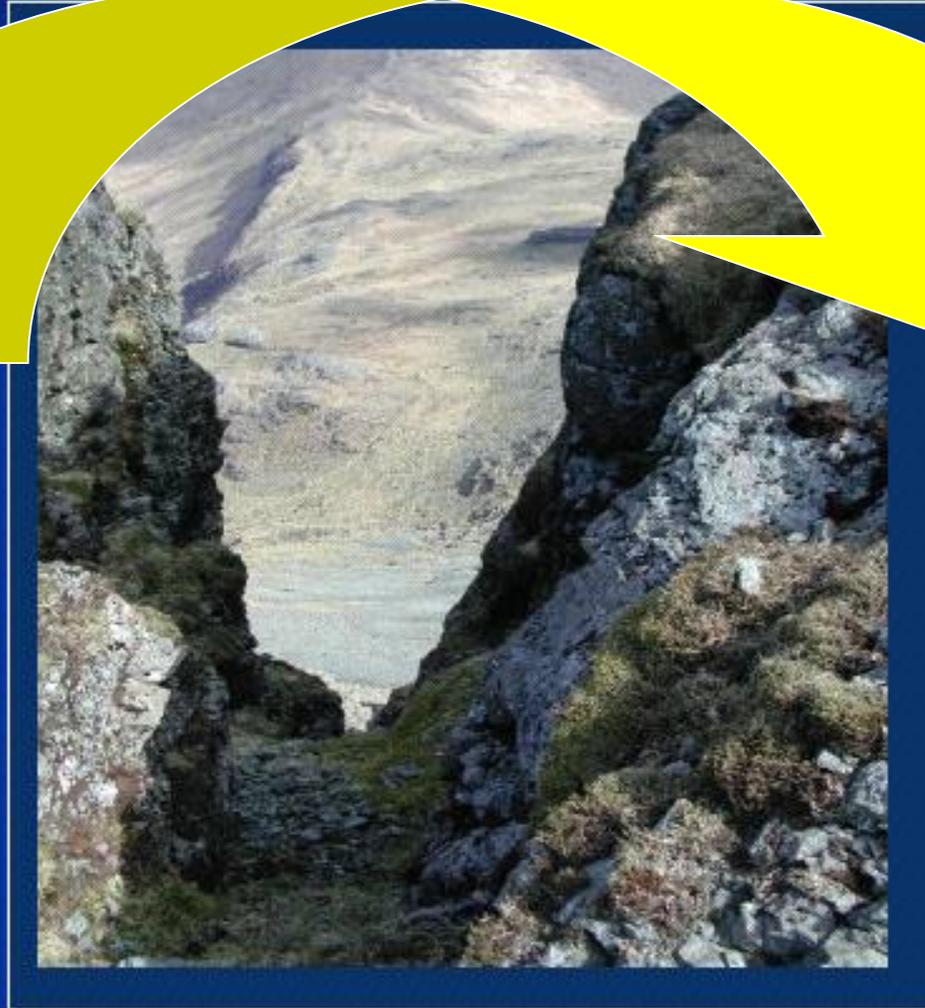


What we know in science...

What we do

# It is time to bridge the GAP!

What we know...



What we do

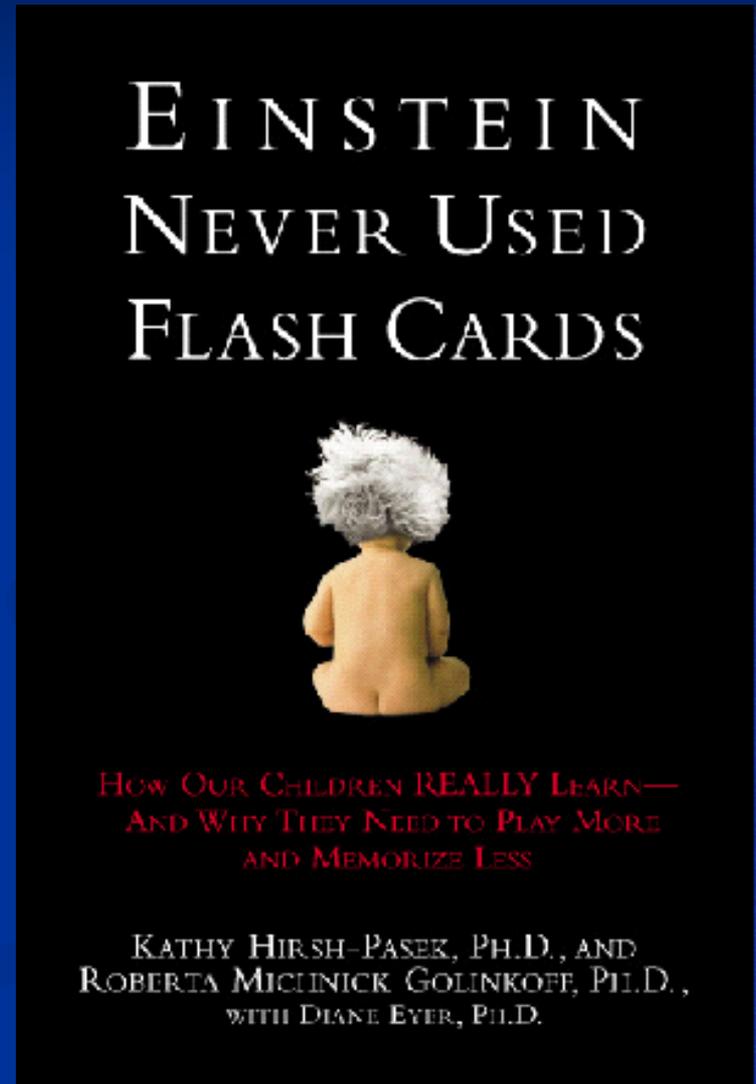
# The science seems to...

- Offer virtual consensus that children who have time to discover and explore through play learn skills required for success in the global world.

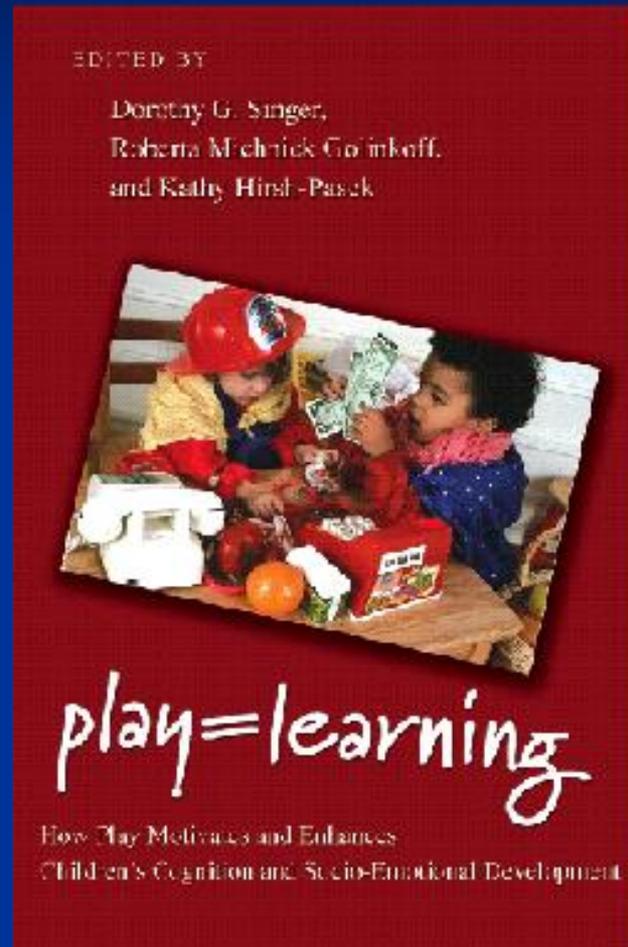
# Thus, in *Einstein Never Used Flash Cards*

We,

- Bridge the gap between science and practice
- Show how children *really* learn
- Give real life examples that can be used in the school room and in the living room (as well as in the library, museum and media)

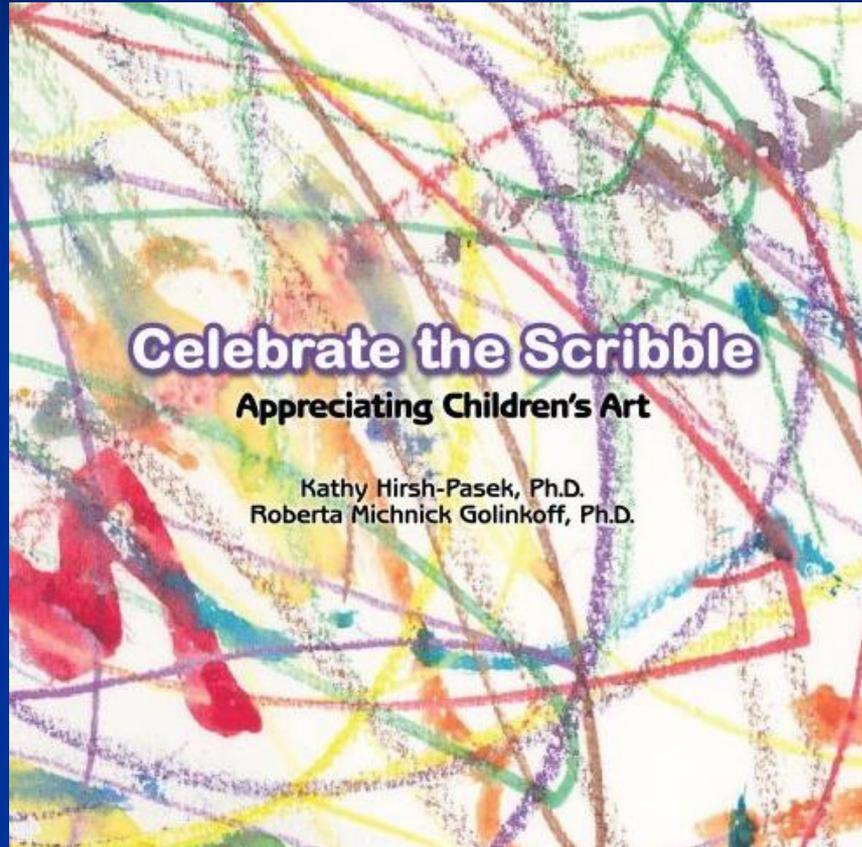


# And we published



To lay forth the evidence about how play encourages social and academic development

# Then we wrote...



So that parents and teachers could better understand the learning evident even in the early swooshes and swipes of scribbled art.

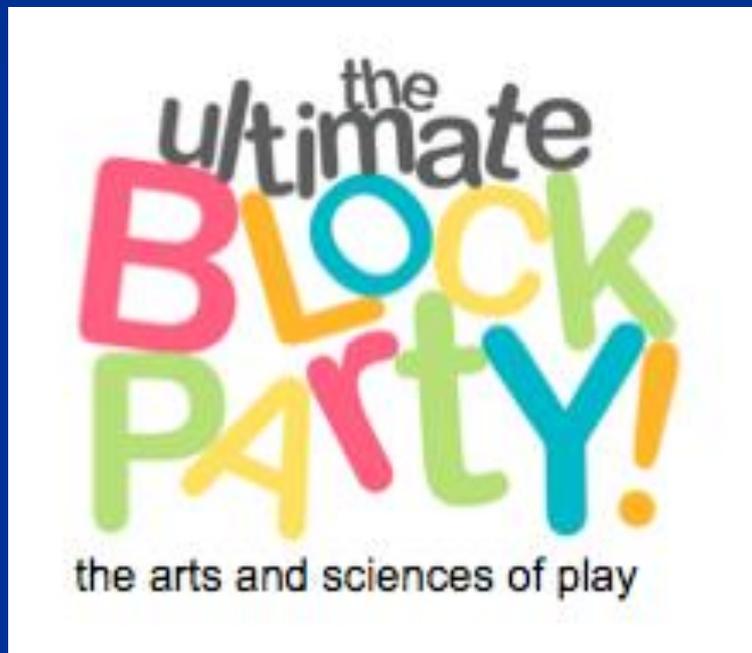
# And in 2009, we published

## **A Mandate for Playful Learning in Preschool**

Presenting the evidence



On October 3, 2010, we took the science of learning and put it in the hands of families in Central Park for children 0-12!



The New York Times **Home & Garden**

WORLD | U.S. | N.Y. / REGION | BUSINESS | TECHNOLOGY | SCIENCE | HEALTH | SPORTS | OPINION

FASHION & STYLE | DINING & WINE | HOME & GARDEN | WEDDINGS/CELE

**Scotch** POP-UP TAPE "Refillable" Desk Grip Dispenser  
"Wonderful- makes crafts, gift wrapping and projects so much easier!"  
★★★★★ (162 reviews) [Get C](#)

### Effort to Restore Children's Play Gains Momentum

A photograph showing a woman with dark hair tied back, wearing a dark red long-sleeved shirt, sitting on a light-colored carpeted floor. She is surrounded by two children, a girl on the left and a boy on the right, who are also sitting on the floor. They are all focused on playing with a large pile of colorful plastic blocks (LEGO-like) scattered around them. The room has a television and some shelves in the background.

Ruth Fremson/The New York Times

Sarah Wilson (shown with Benjamin, 6, and Laura, 3) of Stroudsburg, Pa., says, "There's no imaginative play anymore, no pretend."

By HILARY STOUT  
Published: January 5, 2011



50,000 +  
With successful follow ups in Toronto  
and Baltimore!

**The science of learning in action**

# Last year, we introduced...

The screenshot displays the LearnNow.org website interface. At the top left, the logo "LearnNow.org" is prominently displayed in a large, bold, black font, with the tagline "From Research to the Real World" in a smaller, red font directly beneath it. To the right of the logo are social media icons for Facebook, Twitter, a "BLOG" button, and an email icon. Further right is a search bar with the text "SEARCH >" and a white input field. Below the search bar is a red vertical navigation menu containing the following links: "< About", "< Founding Members", "< Advisory Board", and "< Contact".

The main content area features a large featured article titled "A New Kind of Playground" with a sub-headline "Adults can inspire children to play anytime, anywhere with the simplest of materials (hint: check the... [more])". The article image shows two children playing inside a cardboard box. Below this are three smaller article thumbnails: "ATTENTION >" with a child on a swing, "PLAY >" with children in a field of autumn leaves, and "STRESS >" with a close-up of a child wearing glasses.

At the bottom, there are two "Dear LearnNow" sections. The left section is a red box with links: "Dear LearnNow >", "Brain 101 >", "Learning Myths >", and "LearnNow Lab Visits >". The right section is a white box with a handwritten note image and the text "Dear LearnNow: How to Keep Toddlers Active and".

www.learnnow.org

# And this year...



We edited a special issue on the *American Journal of Play* to highlight the latest research and to ask what kinds of research are needed to propel the field forward

Golinkoff, Hirsh-Pasek, Russ, & Lillard, (2013)

# Our point?

Playful learning can help children develop 21<sup>st</sup> century skills in **collaboration, communication, content, critical thinking, creative innovation and confidence**. It is now our job to use playful learning as a key pedagogy for educating our children both in and out of school.

# In the knowledge era ...



**A child must do more than just learn the facts; she must integrate those facts into a creative framework that solve tomorrow's problems**

# To reach her potential as a productive citizen in the year 2044...



she needs to have a high-quality early education that will prepare her as a **thinker** in the workplace of tomorrow.

We know what that workplace will demand (The 6 Cs) and we know what it takes to raise intelligent, well-adjusted, successful adults.

It is time to change the lens on how children learn!

# Thanks

Want to learn more?

Come to my website at: <http://astro.temple.edu/~khirshpa/>



@kathyandro1