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

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What do you hear?

Repeat after me
Changing the lens:

[Image of a magnifying glass]
What’s going on?

Just play?
Changing the lens

Language

Social skills

Narrative

Perspective taking

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…
In an economy driven by innovation and knowledge … the ingenuity, agility and skills of the American people are crucial to U.S. 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!
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 Pediatricians 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 . . .**
   - *How you learn is as important as what you learn*
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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.

**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
  - > Motivation for school
    Hirsh-Pasek, 1991; Stipek et al., 1998

- Academically
  - > Reading and math scores

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 agemates 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 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 -- planful 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
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**Playful Learning** contains time for both free and guided play:

<table>
<thead>
<tr>
<th>Initiated by</th>
<th>Directed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>child</td>
<td>child</td>
</tr>
<tr>
<td>Free Play</td>
<td>Co-opted Play</td>
</tr>
<tr>
<td>adult</td>
<td>adult</td>
</tr>
<tr>
<td>Guided Play</td>
<td>Direct Instruction</td>
</tr>
</tbody>
</table>

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

Fisher et al., 2011; Hirsh-Pasek et al, 2009; Hirsh-Pasek & Golinkoff, in press; Weisberg, Hirsh& Pasek & Golinkoff, in press
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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, 1905 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.
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!

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

Photo from Sheryl Ann Crawford

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

1. Do we talk more about space when we play with blocks?

2. 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
- Guided Play

Thank you Megabloks for your support
The results?

- First, the play context makes a difference!
  - In guided play, 10% or 1 in 10 words were spatial

- Second, block play made a difference
  - In non-block play contexts, parents use only 3 to 6% of spatial terms

Ferrara, Hirsh-Pasek, Newcombe & Golinkoff, 2011
But does this spatial language and spatial play relate

- to later spatial ability?

- And later math ability?

Children who could match the design they saw....
at age 3 had better...

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

What about preschool geometry?
Which of these are real triangles?
We asked

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:**  
１. Children introduced to “Leelu the Picky Ladybug” who only liked REAL shapes.  
２. She needed help sorting some shape cards she found (40 cards; 10 per shape).  
３. ‘Real’ shapes were placed in her ladybug box, while ‘fake’ shapes were thrown in a trashcan
Wanna guess where they learned the best?
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."
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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!
Last year, we introduced...
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\textsuperscript{st} century skills in \textit{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/

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