PLAY IS UBIQUITOUS!

It is a biological imperative...

Yet, play is under siege

Zigler, 2004
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
- 30,000 schools in the United States have eliminated recess to make time for more academic study.


New findings support the relative extinction of play

- The Alliance for Childhood 2009 survey of 142 NY classrooms and 112 LA classrooms found that
  - 25% of teachers had no time for play
  - 61% of NY teachers have no choice time
  - 79% of NY teachers do test preparation every day

- Bassok et al., (2016) report that kindergarten really is the new first grade!
  - 80% of teachers say K-garten children should be reading – up 50% from 1998
  - Time for arts? Down 16%
  - Testing? Up. 29% test children at least once a month
And in its stead, many young children are parked in front of screens and it got worse during COVID

- 98% of 0-4 year olds use mobile devices; 75% have a tablet
- 90% started before age 1
- In 2019, we downloaded over 204 billion apps
- As of 2018, an average of 1.434 new Apple iOS apps and 6,140 new Android apps were released each day
- Apple offers over 200,000 educational apps (current) and Android had nearly 280,000 by 2018
- Most are targeted for preschoolers
- Most are called “educational”
- Most are not educational!

Hirsh-Pasek et al., 2015; Meyer et al., 2021

These issues and more prompted a response from the American Academy of Pediatricians

In 2006 titled: 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.

In 2012 they reaffirmed the position writing,

Play is essential to the social, emotional, cognitive, and physical well-being of children beginning in early childhood. It is a natural tool for children to develop resiliency as they learn to cooperate, overcome challenges, and negotiate with others. Play also allows children to be creative.

Spearheaded by Dr. Michael Yogman We released a report that...

Speaks to the cognitive and social advantages of play and playful learning while at the same time, suggesting that pediatricians offer prescriptions for play!
And believe it or not, play is coming back

A talk in 3 parts

• Defining play
  • Free play and guided play

• The advantages of play
  • Play and social learning (executive function)
  • Play and cognition

• What we can do to foster play for school readiness?
  • Playing at school
  • Playing in the community

Defining play

Playful Learning: HOW children learn

(Hirsh-Pasek et al., 2000; Csikszentmihalyi, 1977; Hirsh-Pasek & Golinkoff, 2003; Christie & Johnson, 1992; Zosh et al., 2018, 2021; Hirsh-Pasek et al., 2020; Hirsh-Pasek & Golinkoff, 2021; Skeen et al., 2022; Hirsh-Pasek et al., forthcoming.)
And Guided play also has a clear learning goal

A planned play environment, enriched with objects/toys that provide experiential learning opportunities, infused with curricular content (Berger, 2008), Think Museums or Montessori classrooms.

Adults enhancing children’s exploration and learning through:
- co-playing with children
- asking open-ended questions
- suggesting ways to explore materials

Playful Learning

Initiated By

Child

Adult

Directed By

Child

Adult

Our recent paper suggests that play might like on a spectrum....

- Berger, 2008; Fisher et al., 2013; Hirsh-Pasek et al., 2009; Weisberg et al., 2016; Toub et al., 2016; Zosh et al., 2018; 2021
And you can turn free play into guided play!

And research suggests that playful learning enhances social regulation (collaboration); language and literacy (communication); and STEM (content learning), and hypothesis testing (critical thinking), and even creativity, among others.

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The case of self-regulation?

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

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

Play and social regulation
Those all-important executive function skills

Tools of the Mind as a key example of playful learning

When children engage in playful learning throughout the school day – on quite well-designed tasks, their EF and social regulation go up as does their outcomes on standard tests. Later research also shows more joy in the classroom and happier teachers!

(Bodrova & Leong, 2006, Diamond et al., 2011, Blair & Raver, 2015; but see Thal, 2012, Lillard et al., 2012; Diamond et al., 2019)
Megan McClelland’s classroom games for social regulation get similar results

- Conducting an Orchestra
  Every child used a musical instrument. The circle leader used a drum stick as a conducting baton. When the conductor waved the baton, children played their instruments. When the conductor put the baton down, children stopped.

- Drum Beats
  Teachers used drum beats to represent different actions that children can do while sitting (e.g., clapping or stomping) or while moving around the room (e.g., walking or dancing), for example, children walked quickly to fast drumming, slowly to slow drumming, and froze when the drumming stopped.

Just out.....

Promoting Executive Function Skills in Preschoolers Using a Play-Based Program

The program consisted of 10 simple, fun, and interactive games selected to enhance various facets of EF. The 10 games included were: dimensional change card sort, lips and ears, block building, musical freeze, opposites, pretend play, red light/green light, shared project, Simon says, and wait for it. The program was implemented with a group of children shown to have challenges with respect to kindergarten readiness.

And another.....

Parent Provision of Choice Is a Key Component of Autonomy Support in Predicting Child Executive Function Skills

We coded parent autonomy-supportive behaviors from a 10-min interaction between parent and child dyads working on challenging jigsaw puzzles together. Children completed a battery of EF. Overall, child EF was most consistently correlated with the offering choice subscale. Additionally, only the offering choice subscale predicted child EF while controlling for the other autonomy support subscales and child age. These results suggest that parent provision of choice is an especially relevant aspect of autonomy-supportive parenting and may be important to the development of EF in early childhood.
Playful learning and cognitive skills: Literacy

2/2/2022

Telling stories
Word play
(what rhymes with "hat"?)
Singing songs
Dialogical reading
Reading product labels
Engaging conversations
Dramatic play (Roskos & Christie, 2013)

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

Our current research (with Dickinson and Golinkoff) is asking how playful learning can increase vocabulary for children from under-resourced environments!

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

Targeted 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

Results?

Children did better post that pre in all conditions
Adult supported play was better than free play in all conditions!
Book reading + adult supported play was also better than book reading plus fun flash cards!
Bottom line? When there is a learning goal – adult supported play (guided or directed) helps children learn!

Weisberg et al., 2015; Toub et al., 2018; Hadley et al., 2021

Photo from Sheryl Ann Crawford

26
In findings... our most recent –very preliminary

- We used different play activities – singing, large and small group games, drama and digital.

- Our kids learned target vocabulary as well in the play condition as they did in the read condition!

Scott et al., under review

Then we asked whether game play might help readers learn vocabulary better than flashcards and – it did!

Hassinger-Das, Ridge, Golinkoff & Hirsh-Pasek, 2016

In our research, we studied Block Play to ask if it might build better spatial language and math outcomes

Our questions:

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

Result: **YES**

Non-block play contexts, parents use only 3 to 6% of spatial terms

Do we talk more about space in certain play situations over others? (using words like above, on top of, beside…

Result: **YES**, there is more spatial language in guided play than in free play

Ferrara, Hirsh-Pasek, Newcombe & Golinkoff, 2011
Why should we care?
Because spatial language and spatial play relate...

• to later spatial ability!
• and later math ability!


Playful learning supports Critical thinking and hypothesis testing

Lucas et al find that...

And GWen, Goodman, Spelke & Schultz (2010)

Find that direct instruction (while effective), “limits spontaneous exploration and discovery” relative to play! See also Bonowitz et al., 2011

And research from our lab suggests guided play supports creativity

A review of all of the papers on guided play suggests – IT WORKS especially for STEM development and language!

Can guidance during play enhance children’s learning and development in educational contexts? A systematic review and meta-analysis

Kajleigh Suene, Christine M. O’Farrell, Elizabeth M. Byrne, Natalie Kirby, Eleonora C. Savara, Paul G. Ramchandran

First published: 12 January 2022 | https://doi.org/10.1111/1467-8624.13738

Why might playful learning support learning?

Some hypotheses

**Big Idea 1**: It involves “active, engaged, meaningful and socially interactive learning” and that is how humans learn best! (Chi, 2009; Hirsh-Pasek et al., 2015)

**Big Idea 2**: Guided play is like “constrained tinkering” that lessens the “noise” and prioritizes some hypotheses over others. Offers a chance for hypothesis testing. (Parish-Morris et al., 2014; Tare et al., 2010; Usha et al., 1987)

**Big Idea 3**: Guided play creates a mise en place or positive disposition for learning and exploration (Weisberg, Hirsh-Pasek, Golinkoff & McCandless, 2015; Weisberg, Hirsh-Pasek et al., 2016).

**Big Idea 4**: Playful learning is joyful and positive emotions help children learn!

**Big Idea 6**: Play allows us to develop the suite of skills we need to be school ready – the 6Cs
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Hmmmmm.....  The Ultimate Playbook™

If play helps children learn.....  The WHAT

And you can learn a suite of skills that take you from cradle to career.....

Maybe I could use these two grids to create classrooms and informal learning spaces that support children and their families in playful learning! Maybe I can redefine education for the 21st Century!

Using the grids, the classrooms are using project-based learning and evaluating how the theme “grows” certain skills

The HOW

The WHAT

An arts mural project?

Putting on a show?

A mini maker’s fair to solve a problem? (how to make the door to the outside open more easily?)
Ministries of Education around the world are beginning to embrace whole-child pedagogy.

The purpose of the program is to establish a strong foundation for learning in the early years, and to do so in a safe and caring, play-based environment that promotes the physical, social, emotional, and cognitive development of all children.

– Ontario Ministry of Education

In Pennsylvania:

Very preliminary findings:

• > reading at grade level
• > math at grade level
• < in referrals for OT
• < 79% referrals for special education
• + teachers are happier

In Michigan at the Godfrey Lee Schools:

• A small community school district in Michigan
• Nearly 80% of students are Hispanic/Latinx
• 93% of students face economic challenges
• Positive experience for teachers and students
• The classroom promoted 21st-century skills
• Gains in reading and math outcomes
In Japan

Playful Learning Outside the Classroom in Child-friendly Cities and Towns

A Global Phenomenon

That transforms everyday spaces in cities and towns into child-friendly playful learning spaces

- Venice, Italy
- London, UK
- Mumbai, India
- Vietnam
- Nairobi, Kenya
- Johannesburg, South Africa
- Melbourne, Australia
- Sydney, Australia
- Sao Paolo, Brazil

Asks how we can transform everyday spaces into fun learning spaces – and does so where the families live – in their own homes and neighborhoods!

We started by asking, when is a bench not a bench?
Example 1: The Ultimate Block Party

28 science inspired activities in Central Park, NY in 2010

Over 10 million people reached; 50,000 at event itself!

Results showed increase in parents’ attitudes to the play-learning connection, which is a vital component in public awareness.


Example 2: The Supermarket Study

Can the introduction of signs in a supermarket increase caregiver-child language interactions?

RESULTS

• A 33% increase in caregiver-child language when the signs were up in under-resourced neighborhoods.

• Replication by Melissa Libertus: University of Pittsburgh with STEM signs; Heqos et al. 2021

Example 3: Urban Thinkscape

RESULTS

• The number of families with 6 or more conversation turns increased 24% from pre to posttest.

• 35% more families at Urban Thinkscape than in control at 9-month follow-up.

• The number of families using number, spatial, color, or letter language increased by 34% from pre to posttest.

• Adults’ following children’s focus increased by 62% from pre to posttest.

• Group Total Interaction at Urban Thinkscape increased 24% from pre to posttest, and Group Total Language scores increased 27% from pre to posttest.

Example 4: Parkopolis

- The human-sized board game for early mathematical skills and scientific reasoning.

Thanks to Fei Xu, Silvia Bunge and all of our mathematic colleagues!

RESULTS

- 79% more children used math language (whole numbers, fractions, measurement) compared to children in the control STEM exhibit.
- 47% more adults used math language in Parkopolis compared to children in the control STEM exhibit.
- 18% more parents asked questions in Parkopolis compared to parents in the control STEM exhibit.
- 25% more families had conversations 6 or more turns in Parkopolis compared to families in the control STEM exhibit.


Example 5: Fractionball

Preliminary results? N=70; Increase in decimal to fraction conversions

Sneak peek at designs by the community in Santa Ana, CA
Rich scientific evidence supports these approaches!

Take any theme that you want to explore — digital or live, in or out of school

Add the HOW

Then add the WHAT

So you…

Can introduce the science of playful learning into the classroom

And, when you do you will re-imagine learning for our time....and will teach in the way children best learn!
Thanks to our funders

The most wonderful postdocs, graduate students and undergrads.

And to the families who make the research we do possible!

Roberta Golinkoff, Ph.D.

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