Active Playful Learning:
Joyful Teaching, Deeper Learning in and out of school



Kathy Hirsh-Pasek
Temple University
Brookings Institution

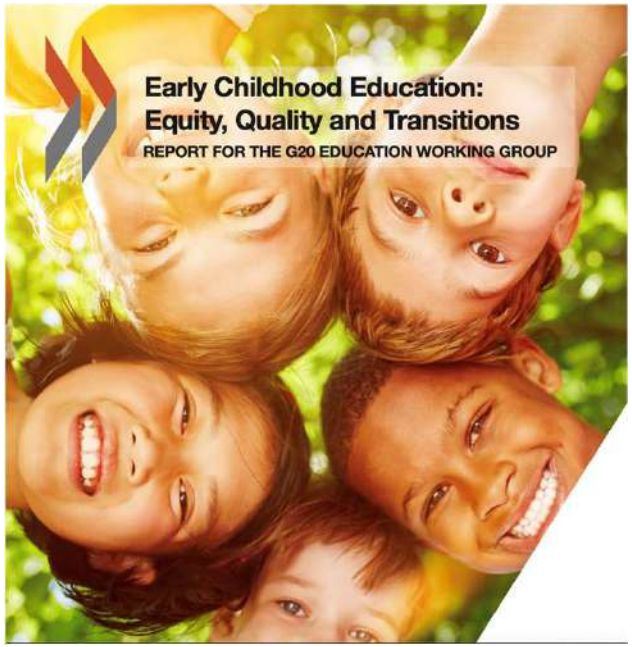
As Yuval Noah Harari wrote in 2021



The Industrial Revolution has bequeathed us the production-line theory of education….It is easy to laugh at this model, and almost everybody agrees that no matter its past achievements, it is now bankrupt.

What the Year 2050 has in Store for Humankind

In the US, in England, in Europe and at UNESCO, policy makers are turning to those who study the ***science of learning*** for ways to think about education transformation



OECD

U.S. Department of Education

U.S. Department of Education Announces Kindergarten Sturdy Bridge Learning Community

SEPTEMBER 7, 2023

unesco

Global Alliance on the Science of Learning for Education Policy Brief (March 2025)

What is the science of learning?



Anita Ponne/Shutterstock.com

This change is also evident in Morocco where universal preschool is projected to reach all 4- to 5-year-olds by 2028.

Promoting:

- Universal access
- Quality Standards
- Equity and Inclusion
- Teacher Empowerment



In this article by Saad & Faoubar last June, they applaud the enormous progress while still worrying about large class sizes (19 to 1), a mostly female workforce, and mixed quality as schools move from more traditional religious schools to more modern schools

Preschool Education in Morocco:

Between Ambitions of Democratization and On-the-Ground Challenges

Mohamed Saad[1] Mohamed Faoubar[2]

Sidi Mohamed Ben Abdellah University,

Fez, Morocco

Science Step Journal / SSJ

2025/Volume 3 - Issue 9

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https://doi.org/10.5281/zenodo.15782710 ISSN: 3009-500X.

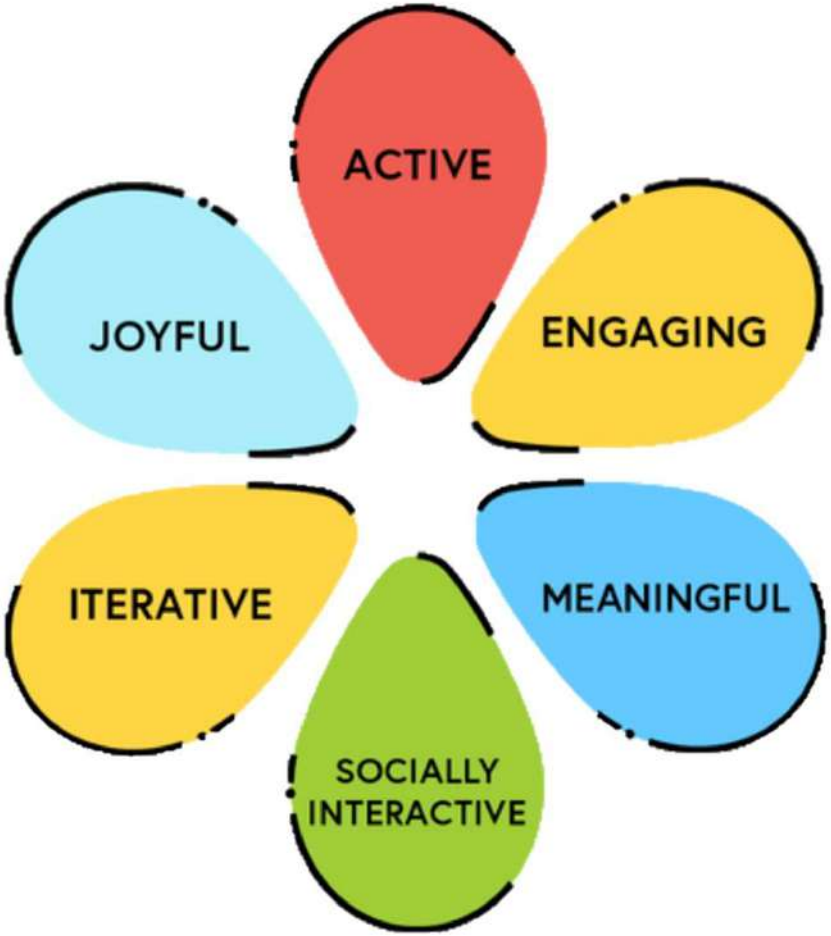


This talk is built on a bold premise!

That we can elevate early education in Morocco by applying an Active Playful Pedagogy that teaches in the way that human brains learn!

The science that shows us children grow when experiences are…

These pillars are embodied in the concept of active playful learning



Hirsh-Pasek et al. (2022). *Making Schools Work*; Zosh et al. (2018)

When we focus on *how* children learn, we support *what* they need in school and life

THE 6 C's

COLLABORATION

COMMUNICATION

CONTENT

CRITICAL THINKING

CREATIVE INNOVATION

CONFIDENCE





From the home to the school to the neighborhood to the broader community, to be successful we should align our efforts to the contexts in which children live.

Active Playful Learning

An evidence-informed, 3-part equation to bring joy and deeper learning back to children's lives



+



+

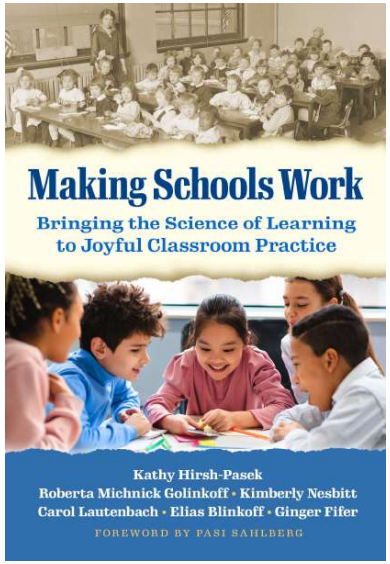


The Who: Community + Family Values

The science of *how* children learn

The science of *what* children should learn

And we are applying this model in communities, schools and in media





Defining Active Playful Learning or Guided Play

Maximizing APL in the Classroom

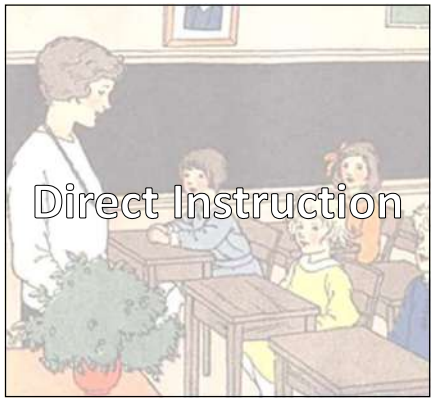
	Free Play	Guided Play	Playful Instruction	Direct Instruction
Explicit Learning Goal	No	Yes	Yes	Yes
Initiated by	Child	Teacher	Teacher	Teacher
Child Active Involvement	Yes	Yes	Yes	No
Child Agency/Choice	Yes	Yes	No	No

Active Playful Learning with a learning goal

Adapted from Hassinger-Das et al., 2017; Zosh et al. 2018, 2022

Playful Learning

Initiated By

Directed By	Child	Adult
Child	 Free Play	 Guided Play
Adult	 Co-opted Play	 Direct Instruction

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

Fisher et al., 2011; Hirsh-Pasek et al, 2009; Hirsh-Pasek & Golinkoff, in press; Weisberg, Hirsh & Pasek & Golinkoff, 2015; Weisberg et al., 2016; Zosh et al., 2018, 2021; Pesch et al., in press)

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

A peek at the evidence

The science of playful learning and guided play

Play and social regulation

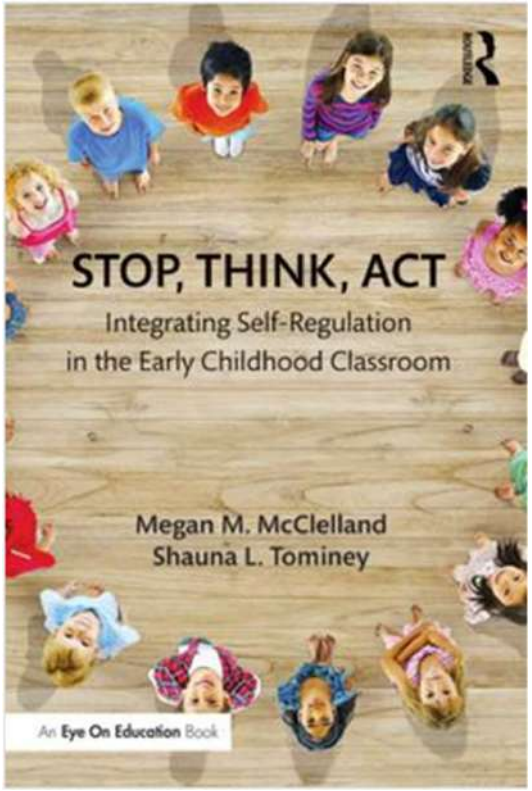
Those all-important executive function skills

- 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)

For example, Megan McClelland created classroom games for social regulation





- **Conducting an Orchestra**

  Every child use 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

frontiers in Psychology | Educational Psychology

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

Robbin Gibb[1*], Lara Coelho[1], Nicole Anna Van Rootselaar[1], Celeste Halliwell[1], Michelle MacKinnon[2], Isabelle Plomp[3] and Claudia L. R. Gonzalez[1]

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……

frontiers in Psychology | Developmental Psychology

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

Romulus J. Castelo[1], Alyssa S. Meuwissen[1], Rebecca Distefano[1,2], Megan M. McClelland[3], Ellen Galinsky[4], Philip David Zelazo[1] and Stephanie M. Carlson[1*]

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



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

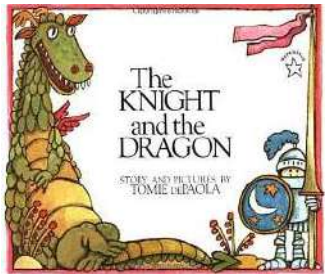
See Lillard et al., 2012; Toub et al.,al., 2018; Scott et al.,2024

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



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

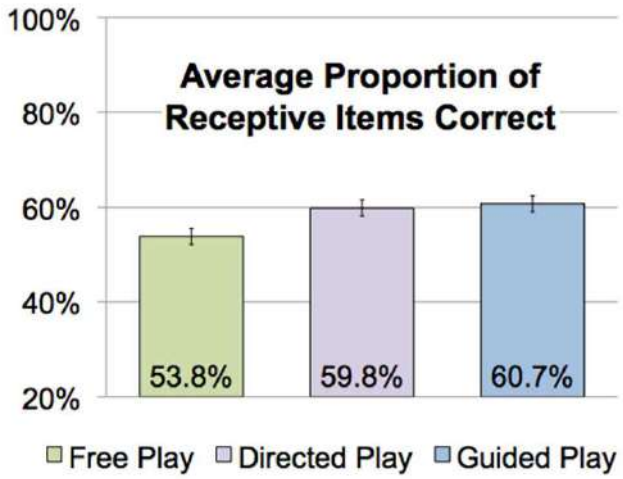
Guided play

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

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

In findings….

- 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., 2023; see also, Nicolopoulou et al., 2015

What about 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 and puzzles
- Playing board games
  - Ramani & Siegler, 2008; Ramani, Siegler & Hitti 2012



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

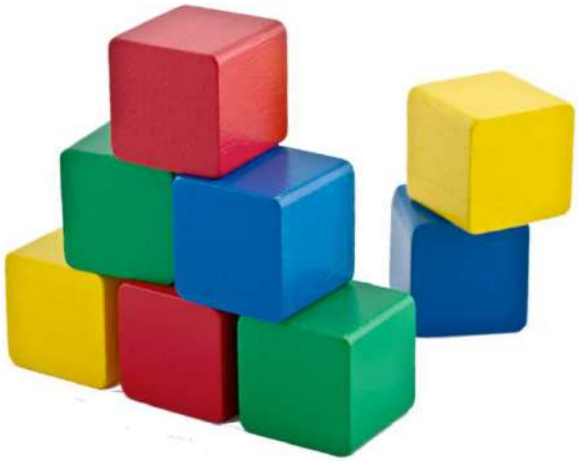
Our questions:

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

Result: YES In 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



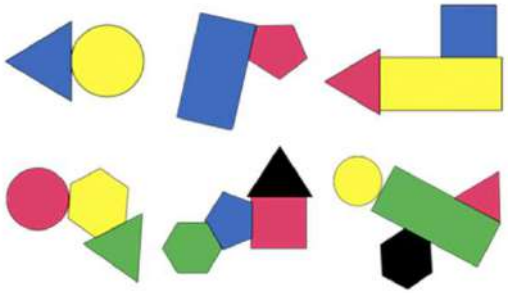
Ferrara, Hirsh-Pasek, Newcombe & Golinkoff, 2011; Bower et al. 2021

Why should we care?

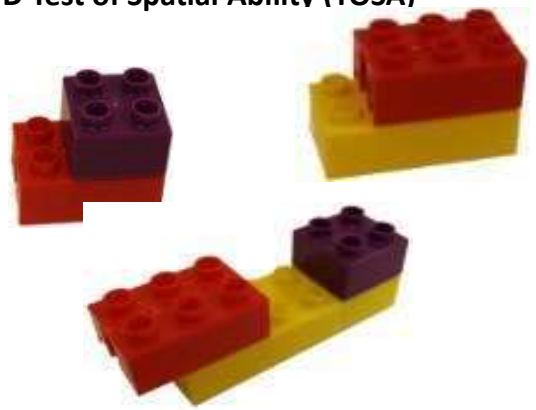
Because spatial language and spatial play relate…

- to later spatial ability!
- and later math ability!

2-D Test of Spatial Ability (TOSA)



3-D Test of Spatial Ability (TOSA)



Verdine, B., Golinkoff, R., Hirsh-Pasek, K, Newcombe, N., Filipowicz, A. & Chang, A. (2014); Verdine, Golinkoff, Hirsh-Pasek & Newcombe, 2017; Bower et al., 2021. See also Strasser et al. (2023) re games and spatial/math learning.

Indeed, a recent study confirms our findings, guided play but not free play, even fosters children's academic self-concept in science!



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Fostering children's block building self-concepts and stability knowledge through construction play

Anke Maria Weber *, Miriam Leuchter

Institute for Children and Youth Education, University of Koblenz-Landau, Landau, Germany

ARTICLE INFO

Keywords:
Academic self-concept
Guided play
Science learning
Free play
Scaffolding

ABSTRACT

The study investigated preschool children's block building self-concepts in relation to their stability knowledge acquisition as implied by the reciprocal effects model and possible effects of different forms of play. We investigated three types of construction play: (a) guided play with verbal and material scaffolds, (b) guided play with material scaffolds, and (c) free play. We examined the effects of the different play forms on block building self-concept and stability knowledge acquisition as well as the reciprocal effects model's fit to preschool children. We implemented a pre-post-follow-up design, $N = 183$ German 5- to 6-year-olds (88 female). Block building self-concept declined in the free play group, but not in the guided play groups. Both guided play groups outperformed the free play group in stability knowledge acquisition. The reciprocal effects model was not supported. Guided play may be effective in fostering children's block building self-concepts and stability knowledge.

Playful learning also supports Critical thinking and Creativity

Cognition 219 (2022) 104940

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Cognition

journal homepage: www.elsevier.com/locate/cognit

Full Length Article

Children are more exploratory and learn more than adults in an approach-avoid task

Emily G. Liquin [a,*], Alison Gopnik [a]

[a] Department of Psychology, 2121 Berkeley Way, University ...

your health

Preschoolers Outsmart College Students In Figuring Out Gadgets

by MICHELLE TRUDEAU

June 30, 2014 3:26 AM ET

Journal of Experimental Child Psychology

Volume 207, July 2021, 105091

Examining the impact of children's exploration behaviors on creativity

Natalie S. Evans [a,*], Rachael D. Todaro [a], Molly A. Schlesinger [a], Roberta Michnick Golinkoff [b], Kathy Hirsh-Pasek [a,c]

... Epub 2014 Feb 22.

... are better (or at least more open-minded) learners than adults: developmental differences in learning the forms of causal relationships.

Lucas CG[1], Bridgers S[2], Griffiths TL[2], Gopnik A[2].

Author information

Abstract

Children learn causal relationships quickly and make far-reaching causal inferences from what they observe. Acquiring abstract causal principles that allow generalization across different causal relationships could support these abilities. We examine children's ability to acquire abstract knowledge about the forms of causal relationships and show that in some cases they learn better than adults. Adults and 4- and 5-year-old children saw events suggesting that a causal relationship took one of two different forms, and their generalization to a new set of objects was then tested. One form was a more typical disjunctive relationship; the other was a more unusual conjunctive relationship. Participants were asked to both judge the causal efficacy of the objects and to design actions to generate or prevent an effect. Our results show that children can learn the abstract properties of causal relationships using only a handful of events. Moreover, children were more likely than adults to generalize the unusual conjunctive relationship, suggesting that they are less biased by prior assumptions and pay more attention to current evidence. These results are consistent with the predictions of a hierarchical Bayesian model.

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And Gweon,Goodman, Spelke & Schultz (2010)



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

How Does Active Learning Pedagogy Shape Learner Curiosity? A Multi-Site Mediator Study of Learner Engagement among 45,972 Children

by Ji Liu *, Dahman Tahri and Faying Qiang

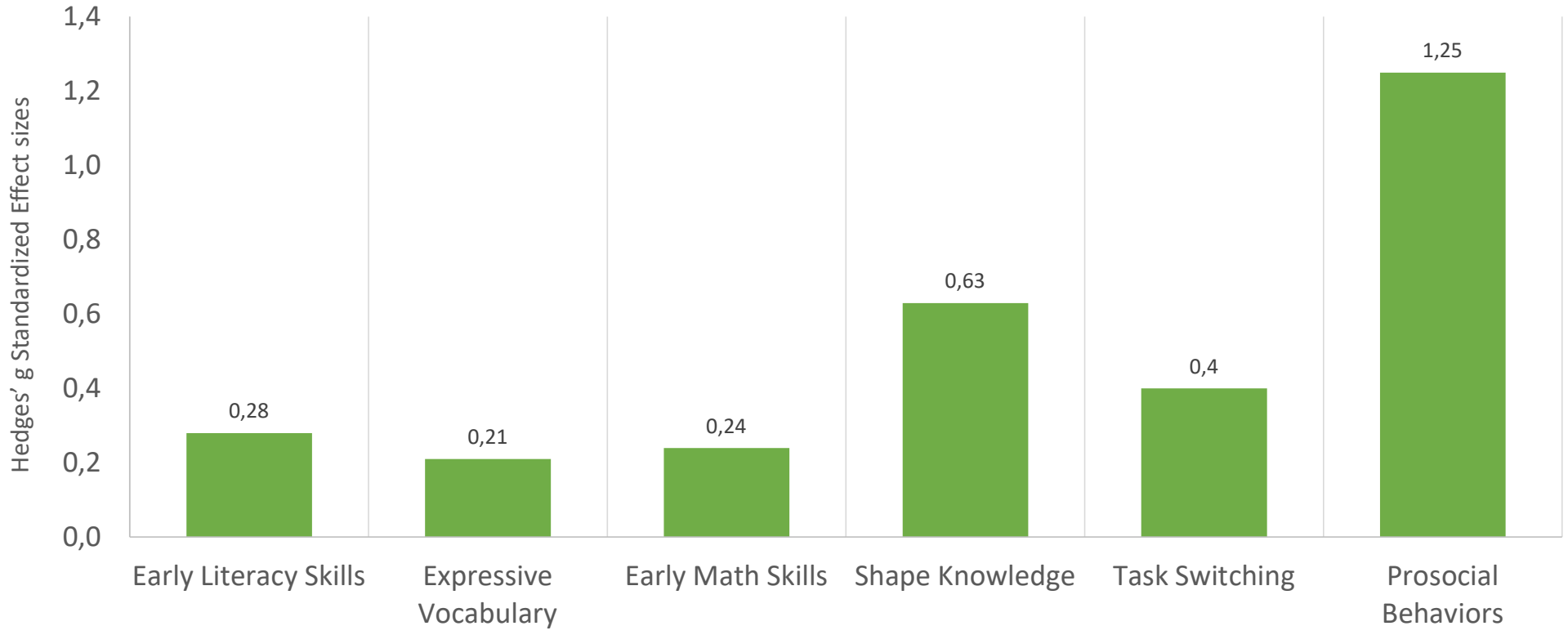
Faculty of Education, Shaanxi Normal University, Xi'an 710062, China

* Author to whom correspondence should be addressed.

J. Intell. **2024**, *12*(6), 59; https://doi.org/10.3390/jintelligence12060059

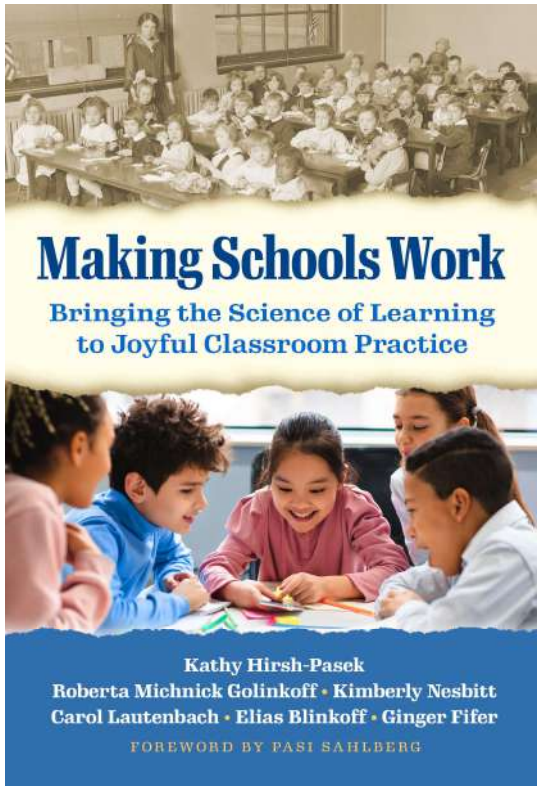
See also Hart, Kosoy, Liquin, Leonard, Mackey and Gopnik, in press; Jirout et al., 2024; Liu et al., 2024

Playful Learning vs. Direct Instruction



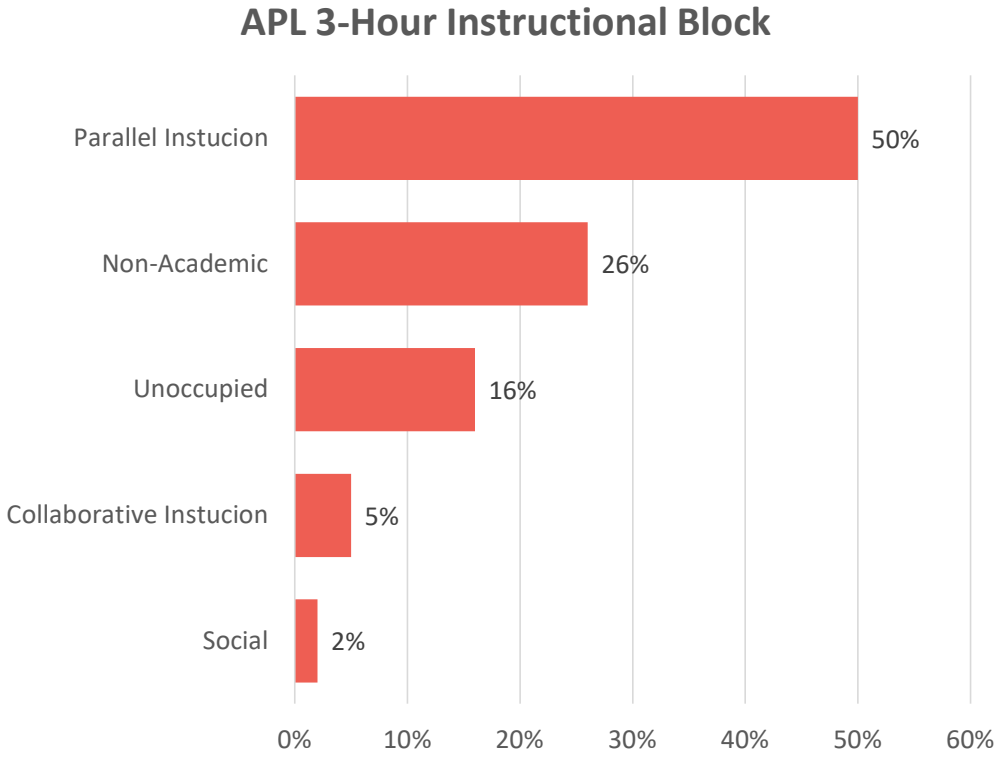
Effect Sizes from Skene et al., (2022) . https://doi.org/10.1111/cdev.13730

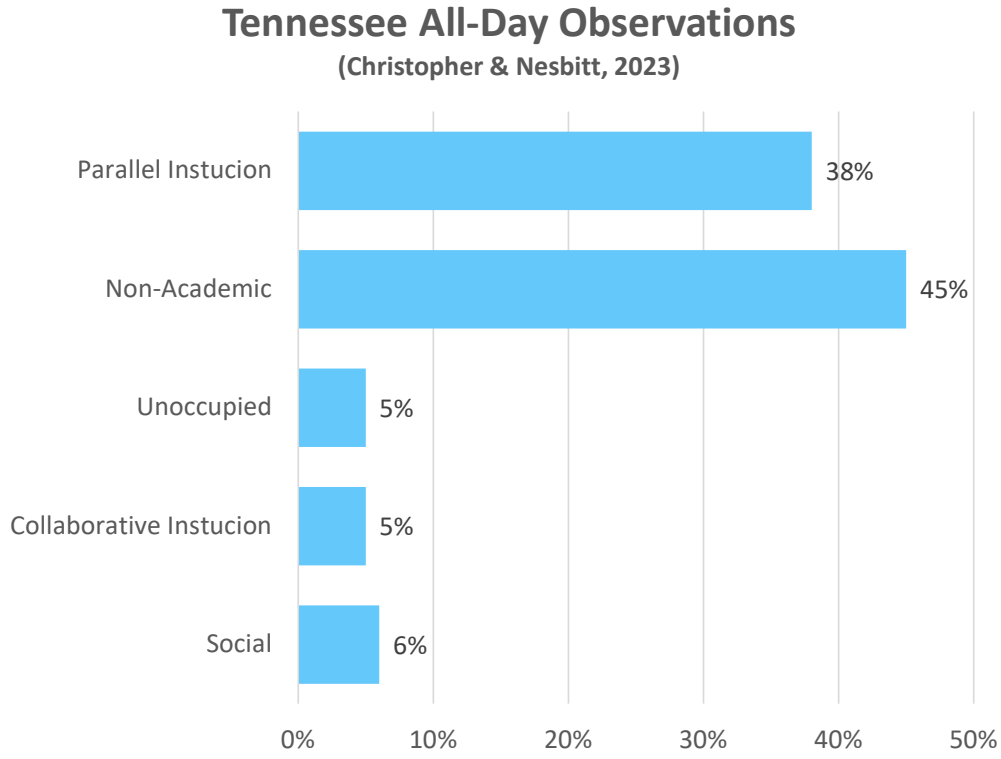
Might active playful learning work in schools?





Let’s start with how K and Grade 1 Spends The School Days Today





CAN WE DO BETTER THAN THIS??

THE STUDY: The ASPIRATIONAL GOAL

ACTIVE PLAYFUL LEARNING APL!
Joyful Teaching. Deeper Learning.



- **School Districts** –
  - 80 teachers (40 personalized coaching/40 self paced coaching)/year
  - 2-3 teachers per grade per exp school – k- through 4th
- **3 Coaches** (work with 40 teachers)
- **Data Collector Team** (school assessments, coach feedback, observations)



Same breakdown as above



Same breakdown as above

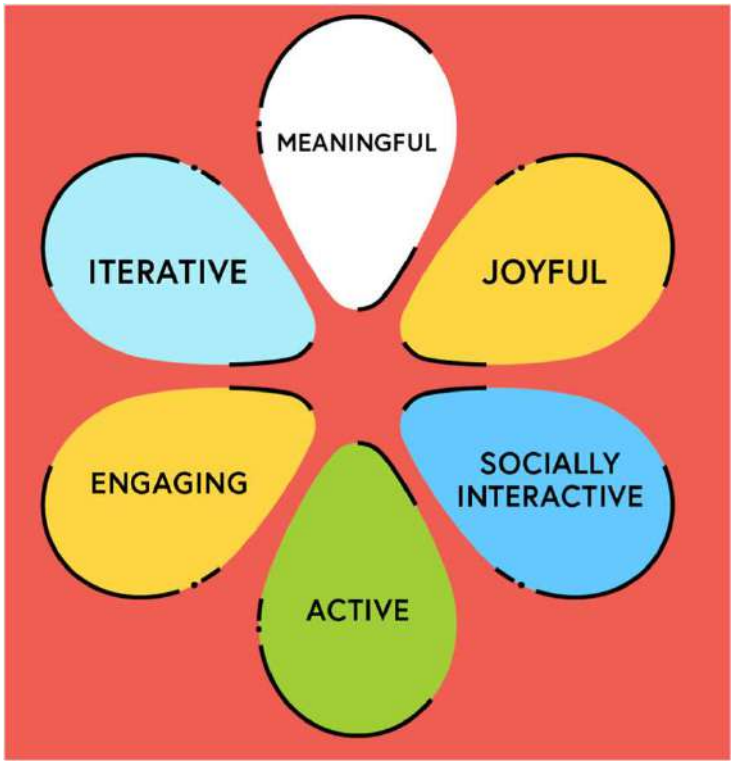


Same breakdown as above

How? By changing these 6 behaviors:

Focusing in on coaching teachers on 6 practices:

1. Use **small and paired groups**
2. Increase **students' contributions** to interactions with peers and teachers
3. Support **hands-on and minds-on** exploration, discovery, and inquiry
4. Give students **choice and voice** in their own learning
5. Help students **connect their learning** to other experiences both in and out of school
6. Infuse **enthusiasm and positivity** into learning experiences



Using a coaching-based model on a pilot group of 42 teachers.

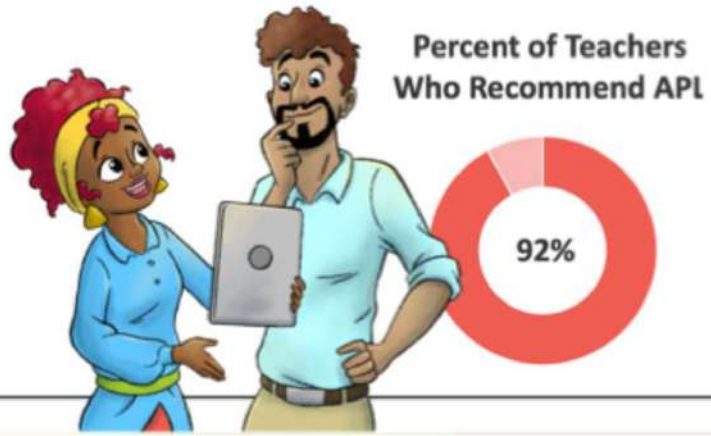
We began to see how schools could change and teachers and students could be more engaged.



What APL Teachers are saying...

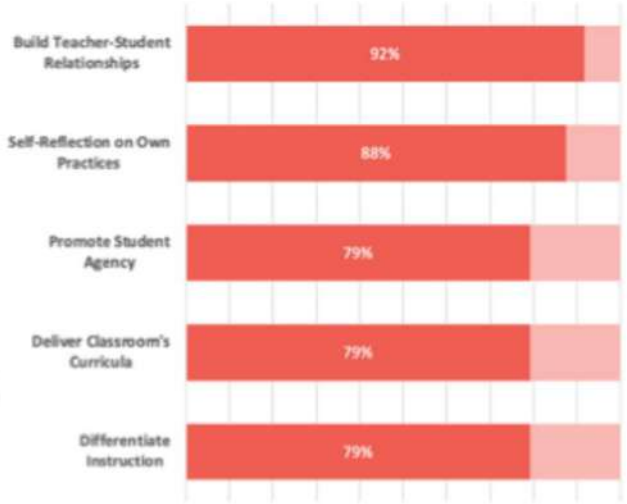
APL helps students grow in ...





Percent of Teachers Who Recommend APL

Percent of teachers who find APL beneficial for the following teaching practices



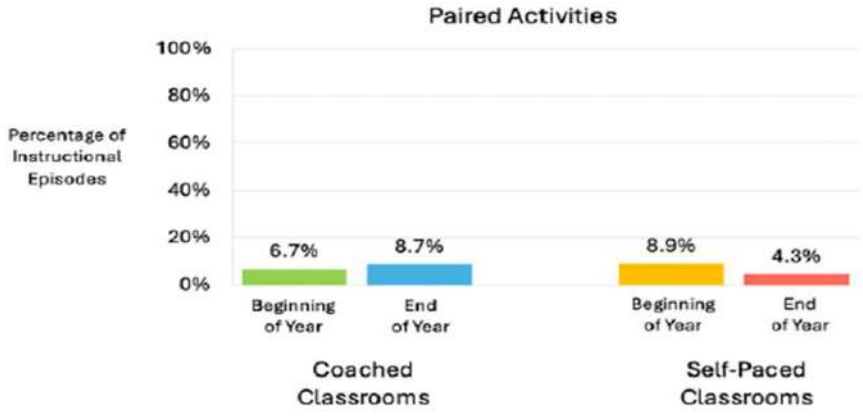
From the pilot year and has stayed consistent in year 1 of the study

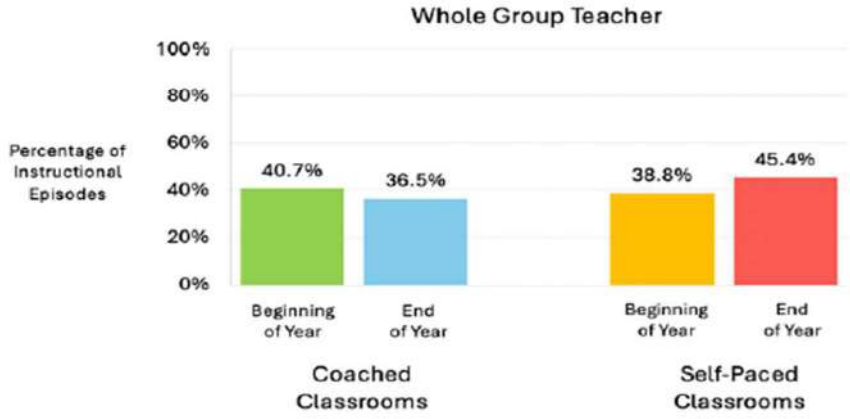
ACTIVE PLAYFUL LEARNING APL!
Joyful Teaching. Deeper Learning.

Observations of classrooms revealed...



Compared to self-paced classrooms, coached classrooms spent more time in paired group activities and less time in whole group teacher-led instruction throughout the school year.





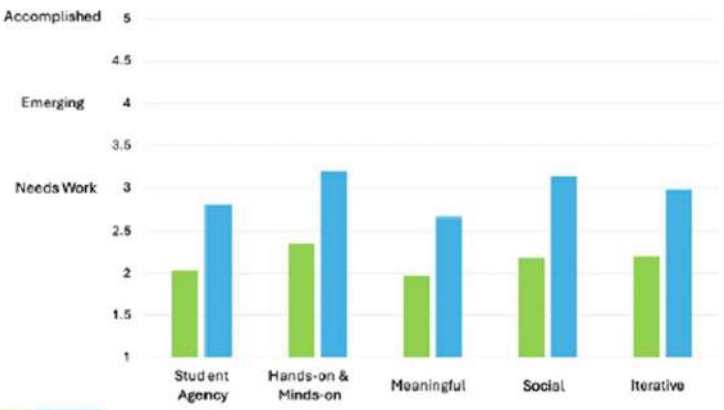
From 237 teachers, 6412 students in 2024-2025

ACTIVE PLAYFUL LEARNING APL!

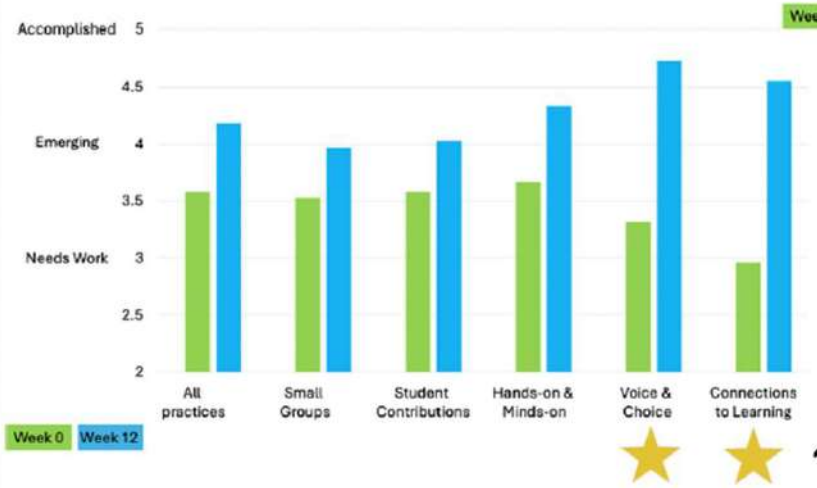
Joyful Teaching. Deeper Learning.



What did we learn?



Coaches reported that teachers made gains on APL practices during coaching cycles

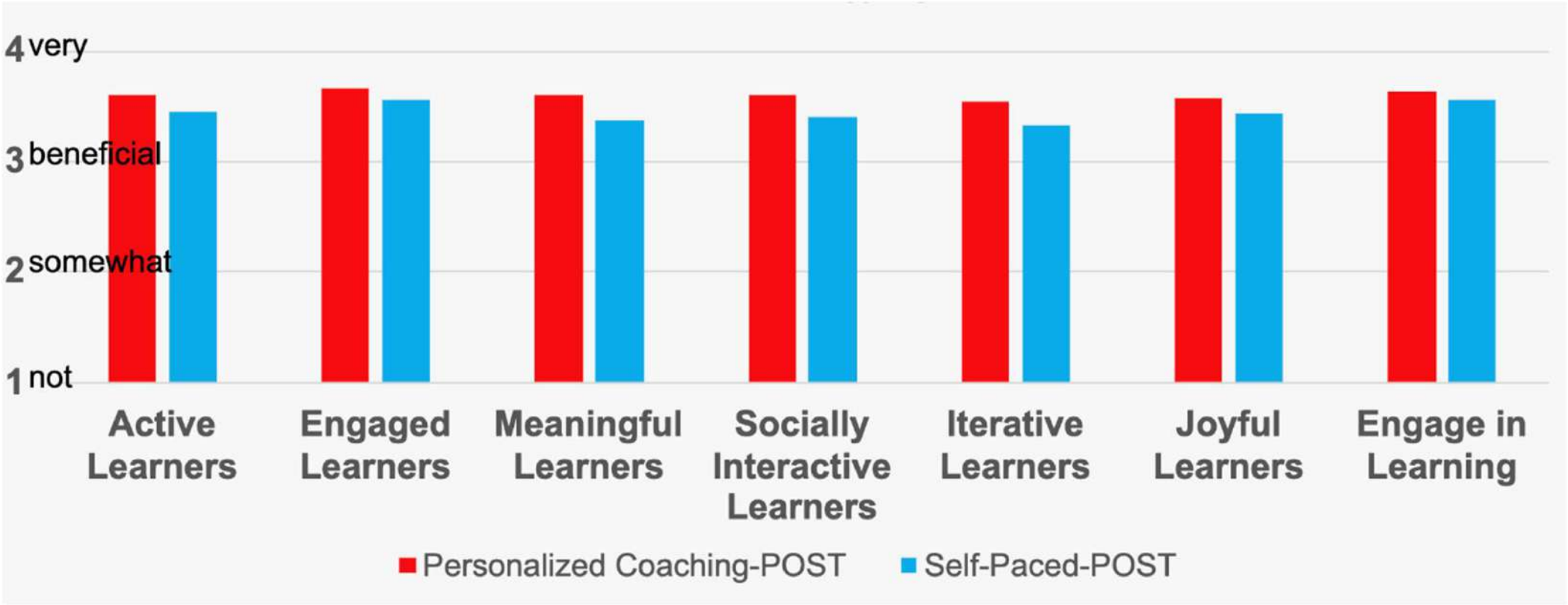


Coaches reported that teachers made gains on APL pillars throughout the school year.

We saw the largest gains on these 2 practices!

From 237 teachers, 6412 students in 2024-2025

And teachers report that APL benefitted their students



TO DATE, We developed……

OUTREACH



Activeplayfullearning.com







Measurements for all the constructs of interest to look for change in classrooms informed by…



Observers



Coaches



Teachers

The Teacher Name: _____ Teacher ID: _____

School ID: _____ Classroom ID: _____

Coach Name: _____ Coach ID: _____ Date: _____

SMART Goal Reflection Form

Typically, the timeframe to accomplish a S.M.A.R.T. goal should be 1 to 2 months. As such, approximately every two months (4 two-week coaching cycles), the teacher and coach will reflect on their progress toward meeting the planned S.M.A.R.T. goal. It is understood that discussion around these goals is ongoing, and goals should be revisited and revised as necessary.

Teacher: _____ Coach: _____ Date: _____

1)To what extent was the S.M.A.R.T Goal Met?

- ☐ Goal was unfinished.
- ☐ Goal was partially met.
- ☐ Goal was met.

Initial Classroom Visit Form

The goal of the initial classroom visit(s) is to get to know the classroom, teacher(s), and children.

- Focus on identifying strengths to build on through coaching.
- Focus on the practices targeted by APL and that might be supported through coaching.
- Focus on providing specifics to support noted comments, including the language heard or behaviors seen.

Teacher Name: _____ Teacher ID: _____ Classroom ID: _____

School ID: _____ Coach Name & ID: _____

Date: _____

What's Working

APL Teacher Practices

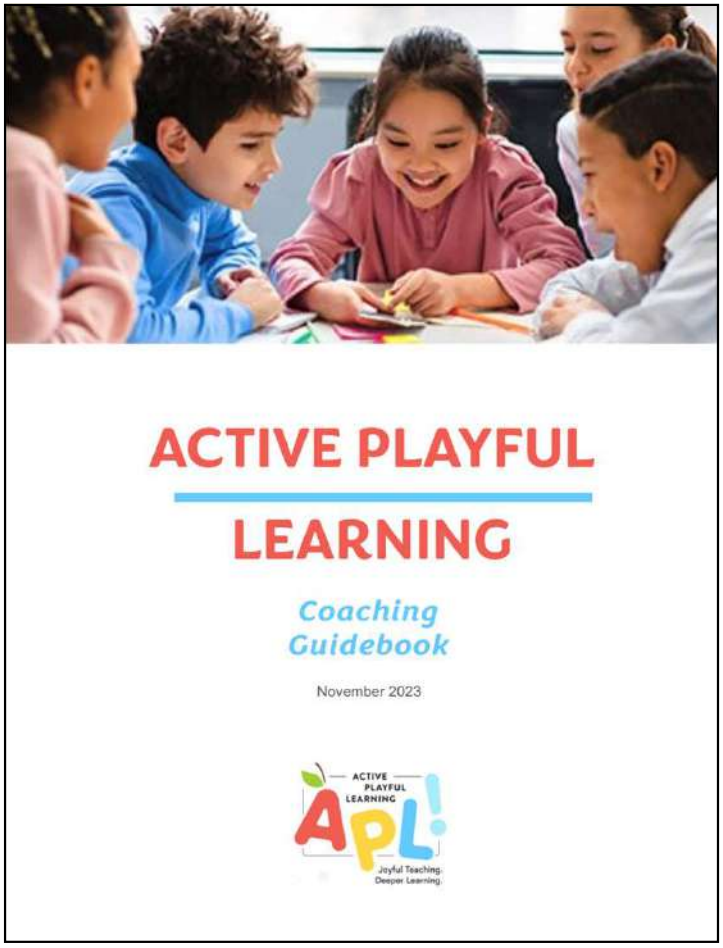
Small & paired groupings

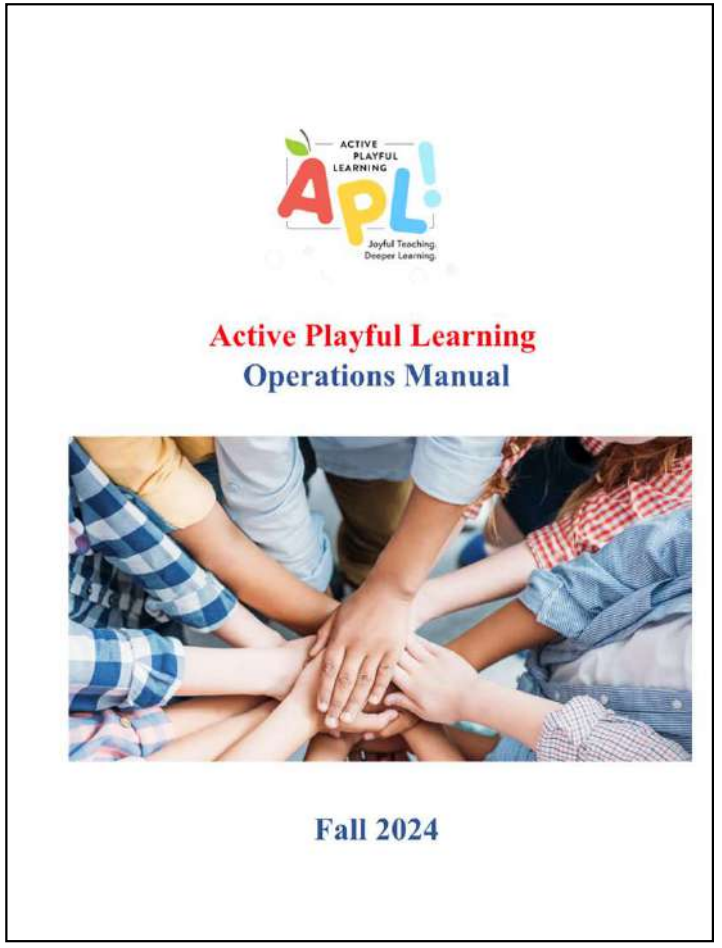
- Supports children working together.
- Reinforces prosocial behaviors.

Student contribution

- Facilitates multi-turn conversations.
- Responsive to

And Manuals for coaching and for study administration





And, importantly, Active Playful Learning is not just for little kids



Blinkoff et al., (in preparation) show how it can even be used to teach in college classrooms!

Active Playful Learning can also be incorporated outside of school

What are children doing with the 80% of their waking time, not in school?





THE 6 C's

COLLABORATION
COMMUNICATION
CONTENT
CRITICAL THINKING
CREATIVE INNOVATION
CONFIDENCE

Example 1: Urban Thinkscape

- Transforming a bus stop into a playful learning space
- Over 100 community members participated in building the site
- Community members trained as “data ambassadors” to collect observational data on use and learning from the site
- Results (N=280) 28% increase in adult/child language and in targeted spatial or number language use

Hassinger-Das et al. 2019









Hassinger-Das et al., in press

How the bus stop changes in Santa Ana



Example 2: Playbrary

- Can we even change a library to enhance playful learning and conversation? You bet.

RESULTS:

- Number of children using number, spatial, color, or letter language increased by 44% from pre to posttest.

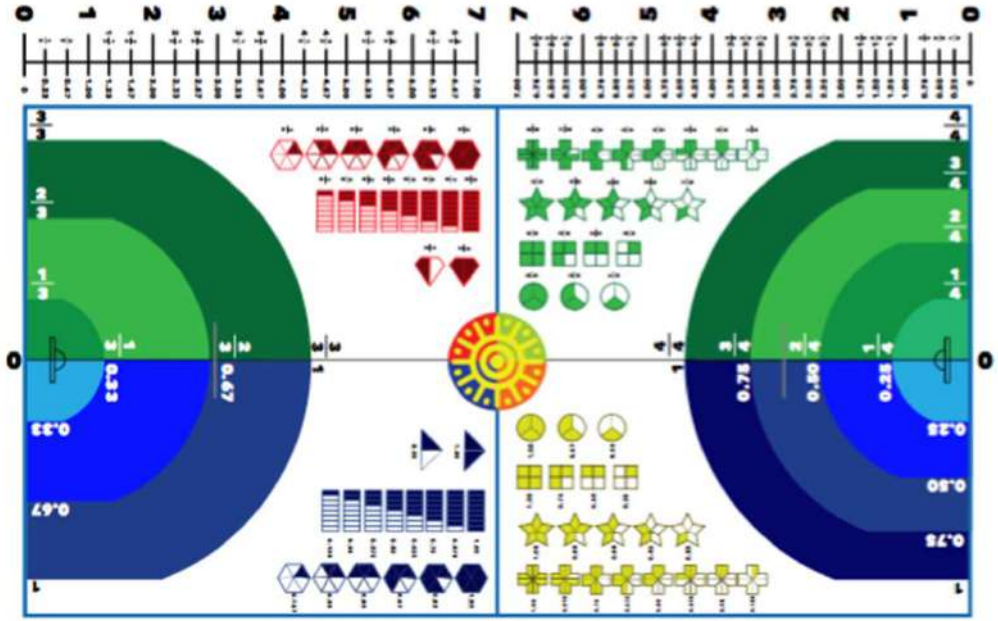
- Adults and children' technology use decreased by 38% from pre to posttest.





Hassinger-Das et al., 2021

Example 3: Fractionball





Results? N=160, 4-6th graders; Increase in decimal to fraction conversions with just 4 PE sessions!

Bustemante et al., 2022

Example 4: Supermarkets

In Tulsa, OK







In South Africa



A 33% increase in parent-child conversations

Example 5: Murals in Santa Ana



Murals in hospital waiting rooms.



Erkaboni et al. in progress

You can even adapt these to fit in with more classic, ancient designs

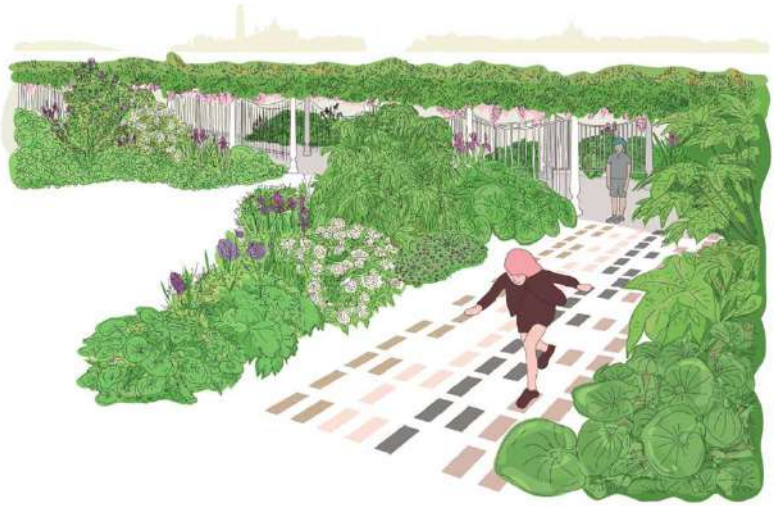
Jumping Feet

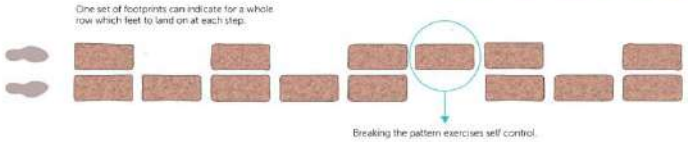
Placing cues for jumping patterns helps the development of executive functions. Executive function is an umbrella term for the control of cognitive processes, including working memory, flexibility, and problem solving, and planning. Children's executive function abilities in the early childhood predict later reading and mathematics achievement better than IQ scores (Blair & Razza 2007).

- S Socio-emotional skills
- E Executive functions
- M Math/Spatial

Materiality

To integrate the jumping patterns, stones of slightly different tones set into the ground would indicate the 'routes' to follow. Types of stones already present in the design of the historic garden will be used so as not to introduce new materials, yet still be clear and simple to use.





Analogy Paths

Many think that the ability to notice similarities and differences — especially across patterns — lies at the very heart of human intelligence. After all, three shoes, three buckets and three stones all share that they belong to the set of three — even though they do not share one single item. Further, a song is the same song be it played in the key of C or the key of G — all because of the relationship between the patterns of notes. For this reason, developmental psychologists like Dedre Gentner of Northwestern University, believe that focusing on analogy literally helps us learn to look beyond the particular pieces and to allow us to better see the patterns on which higher intellect is built. The ability to use analogy appears to be uniquely human.

- S Socio-emotional skills
- L Literacy/Language
- M Math/Spatial

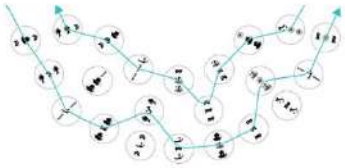
Materiality

Carved paving stones with patterns of Venitian icons set into the ground.



Navigating the paths means finding stones that display identical patterns of icons:





We have developed playbooks in multiple languages







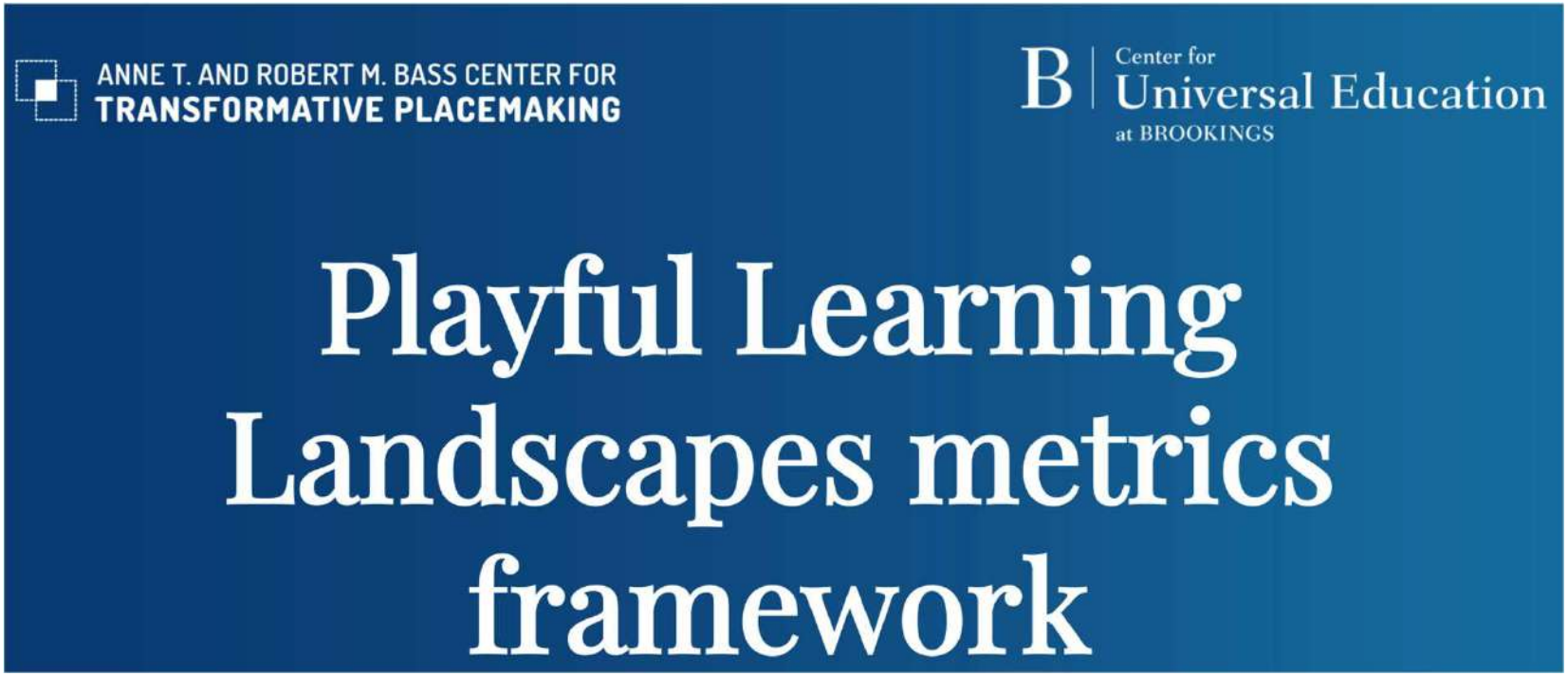
Nosso *Playbook*: The Portuguese Playbook

Apresentamos para você nosso *Playbook*! Use este guia para explorar a ciência por trás da aprendizagem lúdica, veja vários exemplos de projetos para aprender brincando, e descubra como você pode incorporar a aprendizagem pelo brincar na sua comunidade.

Clique no botão para baixar.

And soon to be in Chinese

Along with clear ways to measure the impact of the installations on interaction outcomes for families and for communities



And finally, can this be applied to digital apps and the metaverse? You bet.



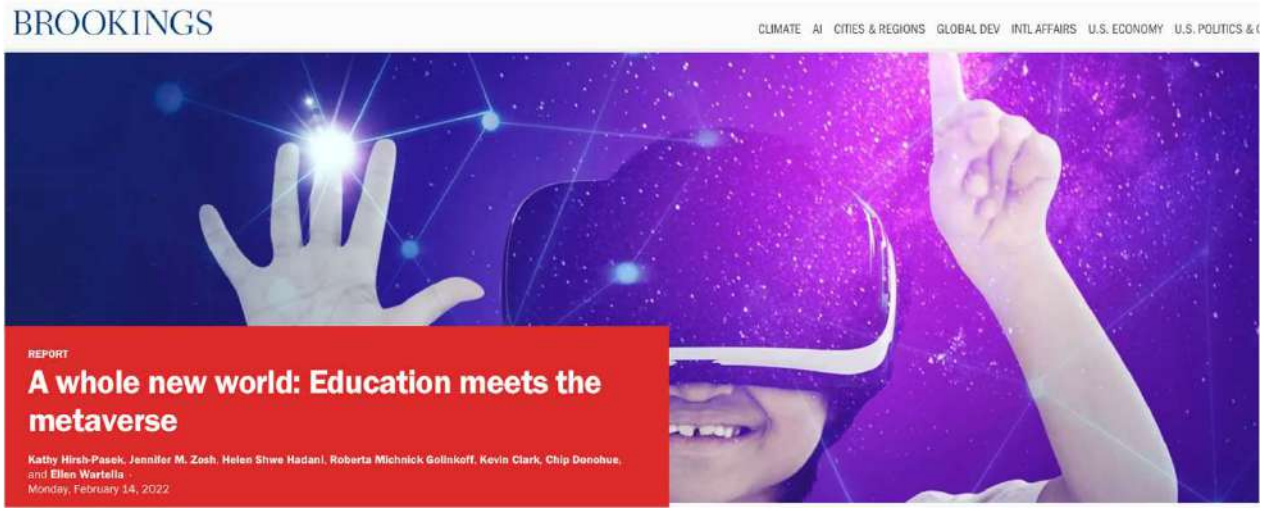


THE 6 C's

COLLABORATION
COMMUNICATION
CONTENT
CRITICAL THINKING
CREATIVE INNOVATION
CONFIDENCE

In Digital Media

We are using the 3-part equation to develop culturally rich ”educational” in the media sector



Again, this work is supported by scientific research



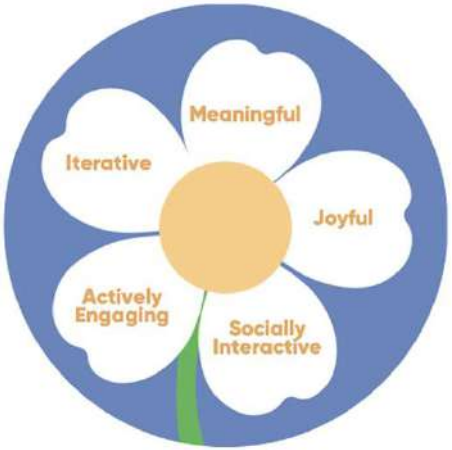
The key????? Our three-part equation and taking culture and community seriously!

Cultural, Community values



+

The science of *how* children learn



With a learning goal

+

Playful Learning

The science of *what* children should learn

The 6Cs

	Collaboration	Communication	Content	Critical Thinking	Creative Innovation	Confidence
Level 4	Building it together	Tell a joint story	Expertise	Evidence	Vision	Dare to fail
Level 3	Back and forth	Dialogue	Making connections	Opinions	Voice	Calculated risks
Level 2	Side by side	Show and tell	Wide breadth / Shallow understanding	Truths differ	Means-end	Where do I stand?
Level 1	On my own	Raw emotion	Early learning / Situation specific	Seeing is believing	Experimentation	Barrel on

Thanks to

The most wonderful postdocs, graduate students and undergrads.

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

For more, visit us at Playfullearninglandscapes.com
hear our APA podcast: https://www.apa.org/news/podcasts/speaking-of-psychology