

More *How Adults Can Help Children*

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Presentation for the Montessori Asia Conference, May 2017

Montessori Practices: How we can help the children

- Background
- Introduction to my book
 - 3 principles, studies supporting them, and implementing in a classroom
- Study on the importance of the Montessori materials
- Study on pretend play

My Montessori History

- Attended as a child ages 3 to 6
- Strong Montessori family (Paula Polk Lillard)
 - Helped in mother's classroom, read drafts of her books
- In my early 20s, took Assistants to Infancy training
- Believed probably some good things in Montessori and some things need modernizing. Wary of religious fervor Montessori attracts.
- Graduate School in Developmental Psychology:
 - Noticing a lot of support for Montessori in research

Own children -> Montessori



At my children's Montessori school, when I

- Liked what was going on
I told my family and learned
it was real Montessori

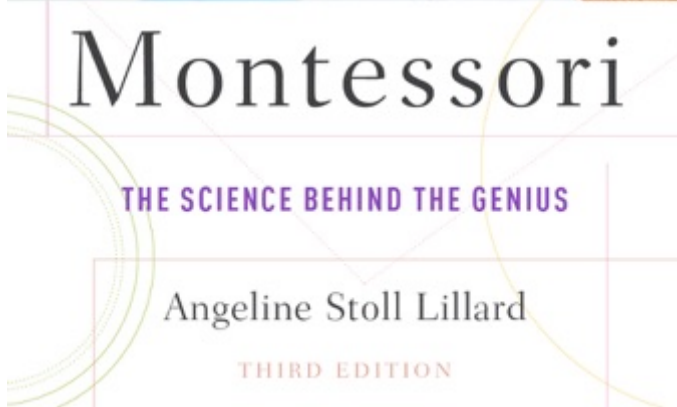
- Did not like what was going on
and I told my family,
they explained it was not real or
authentic Montessori

Example of a non-authentic practice used in some Montessori Elementary (6-12) classrooms

- Checklist sort of work journal
 - Children had a clipboard with a paper showing major subject areas
 - They had to check off each area (e.g., “Math work—done”) and
 - Were not allowed to have ‘free choice’ until checked off every area
- Has many problems, including that children worked superficially to get things checked off; they did not deeply concentrate on work

This led me to read more of Montessori's original writings, and then to write book

- I wanted people in Montessori to realize that the practices Dr. Montessori recommended in her books are supported by research, *and that changes to those practices are often not improvements.*
- Also I wanted people in Education and Psychology who were inventing “new” educational methods that work better to know that Montessori often already includes those methods and more



2017, Oxford University Press

Chinese edition in progress, expected 2019

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Nine Montessori Principles Supported by a Lot of Research

1. Movement and cognition are closely entwined

Map of Australia



Ipad app of Australia



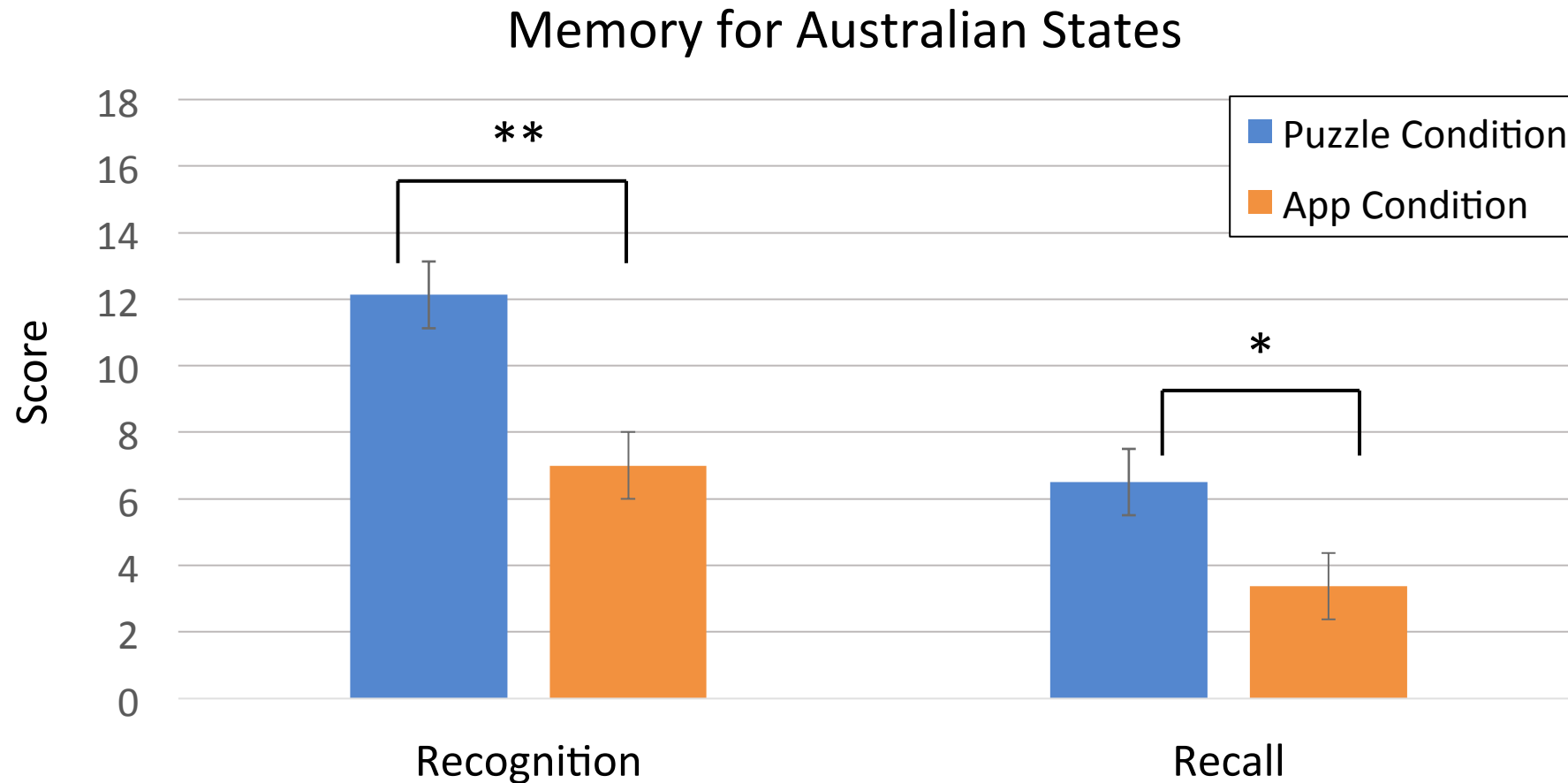
Eisen & Lillard, submitted; research funded by American Montessori Society and Brady Foundation, won the Association for Psychological Science Al Bandura Prize for Best Graduate Student Research 2017

Showed the app or gave the Montessori lesson
32 5-year-olds had 20 mins then tested on states



← Sierra Eisen

Results



* $p < 0.05$ ** $p < 0.01$



One of the greatest mistakes of our day is to think of movement by itself, as something apart from the higher functions. Mental development must be connected with movement and be dependent on it.
(Montessori, 1949)





Implications for Montessori Practice

- Have a full set of Montessori materials for the age level
 - See Lillard, A. S. (2011). *Materials: What belongs in a Montessori primary classroom? Results from a survey of AMI and AMS teacher trainers*. Rochester, NY: Association Montessori Internationale/USA. Also in *Montessori Life*.
- Only have Montessori materials
- Have light furniture that children can move
- Walk on the line; also the Silence

Nine Montessori Principles Supported by a Lot of Research

1. Movement and cognition are closely entwined
2. People thrive when they have a sense of choice and control over their own lives.
 - Deci and Ryan: Self-Determination Theory (has very strong support)

Rovee-Collier

- A child who could not move first mobile does not figure out that he is able to move a new mobile



Courtesy of Carolyn Rovee-Collier,
Rutgers University

- Even at 2 months old, sense of control/agency transfers to a new situation

See also Watson & Ramey (1972)



*Life is based on choice,
so they learn to make
their own decisions.
They cannot learn
through obedience to
the commands of
another.*

(Montessori, 1989, p. 26)



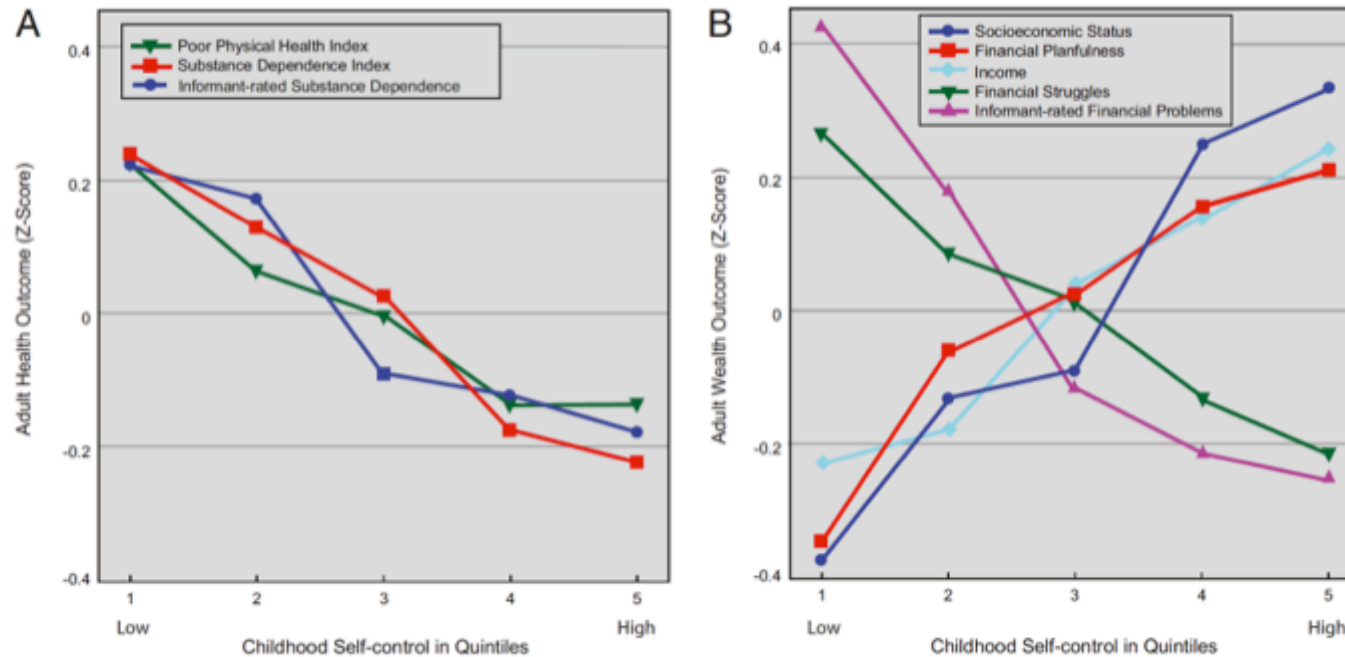
Implications for Montessori Practice

- Do not use checklists!
- Give children choices about which material to use
 - WITHIN LIMITS (see my book, Montessori's books)
 - Choices must be constructive for the child and society
- Note the Montessori materials are all about choices
 - Which sound cylinder goes with which, for example
 - Develop intelligence by having children “judge, reason, and decide”

Nine Montessori Principles Supported by a Lot of Research

1. Movement and cognition are closely entwined
2. People thrive when they have a sense of choice and control over their own lives.
3. Self-regulation is the most important characteristic to develop in young children.

Age 4 self regulation predicts age 32 outcomes





The task of education is to fix the wandering mind of the child upon an object.

When we succeed in our aim, it is as though the child saw the object for the first time.

The child concentrates upon the object with such enthusiasm, as though it was something the child had been seeking for a long time - As though to form the unity of the personality.



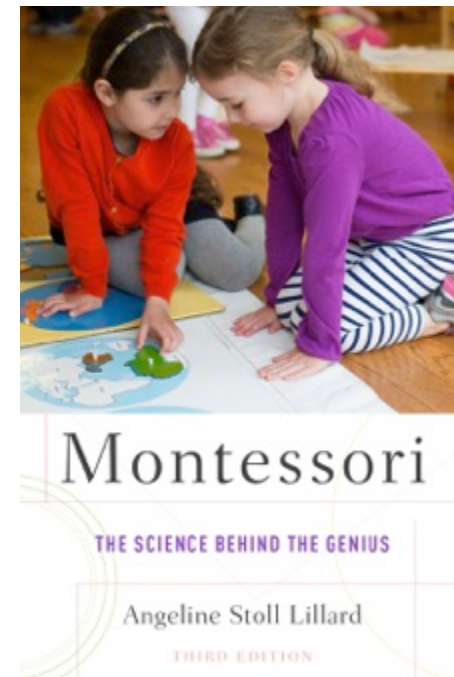
(Montessori, 1994, p. 159)

Implications for Montessori Practice- to promote concentration

- Use the Montessori materials, adjusted for children's developmental level so they are deeply interesting
- Have 3-hour periods in the morning and again in the afternoon when children are free to choose their own work without interruption
- If a child is disrupting other children's concentration, that child must be kept near the teacher to protect the concentration

Nine Montessori Principles Supported by a Lot of Research (see my book for more)

1. Movement and cognition are closely entwined
2. People thrive when they have a sense of choice and control over their own lives.
3. Self-regulation is the most important characteristic to develop in young children.
4. We learn and do best when we are interested.
5. Extrinsic rewards reduce motivation over the long haul.
6. Children learn well from peers.
7. Learning is best when the context is meaningful.
8. Some adult interactions are more optimal for development.
9. Children do best when the environment has order.



Montessori Practices: How we can help the children

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- **Study on the importance of the Montessori materials**
- Study on pretend play

Children do best when teachers limit classroom to full set of Montessori materials



What Belongs in a Montessori Primary Classroom?

Results from a Survey of AMI and AMS Teacher Trainers

By Angeline S. Lillard

Lillard and Else-Quest (2006) studied a group of children, some of whom attended a Milwaukee public Montessori school, and others who attended other types of kindergarten programs, and found that the Montessori children outperformed the other children on various measures. This study brought up another research question. The materials in the Milwaukee public Montessori school were largely limited to classic Montessori materials, even though many Montessori schools offer a variety of materials not described by Dr. Montessori. I was intrigued to investigate the impact of offering these alternative/supplementary materials, and so I went on to study children in what I termed Classic versus Supplemented Montessori Primary classrooms (Lillard, submitted).

The "classic" materials used to distinguish classrooms were selected mainly with reference to Montessori's books. However, teachers have sometimes responded that they are not sure about what the classic materials are. To examine whether there is an agreed-upon set of materials, and to clarify what materials elicit divergent views, American teacher educators/trainers¹ were asked to fill out a questionnaire listing 140 materials or activities that the author had seen in Montessori Primary² classrooms. Montessori materials catalogs and the AMS School Accreditation Handbook's list were also used in constructing the list. Three Montessori Primary teachers, educated at different centers, looked over the list to ensure that no important

materials were omitted and that names used for the materials clearly designated specific materials to teacher educators. For each material or activity, people were asked to state if it was Necessary, Desirable, Acceptable, or Better Not Used in a Montessori Primary classroom, and to make any remarks they might have about it. Two additional questions at the end of the survey were aimed at 1) whether Practical Life activities need always be real activities in the culture; and 2) whether duplicate (meaning more than one copy of) materials beyond Moveable Alphabets, Stamps Games, and Equation Cards are ever okay.

Montessori Primary teacher educators were asked to complete the survey based on the rationale that they are the best living "voice" for what the materials should be. There are two major types of Montessori teacher education in the United States: AMI-USA (the American branch of the Association Montessori Internationale, founded by Dr. Montessori to carry on her work) and AMS (American Montessori Society, founded by Nancy Rambusch to represent Montessori in America). A problem for a study

¹AMI uses the term "teacher trainer" and AMS the term "teacher educator" to refer to this role.

²Many schools use the term "Early Childhood" or "Preschool" in place of "Primary." The teaching credential as issued by AMS specifies the level as "Early Childhood."



Materials:

What Belongs in a Montessori Primary Classroom?

**A Survey of
AMI and AMS
Teacher Trainers**

By Angeline S. Lillard
University of Virginia

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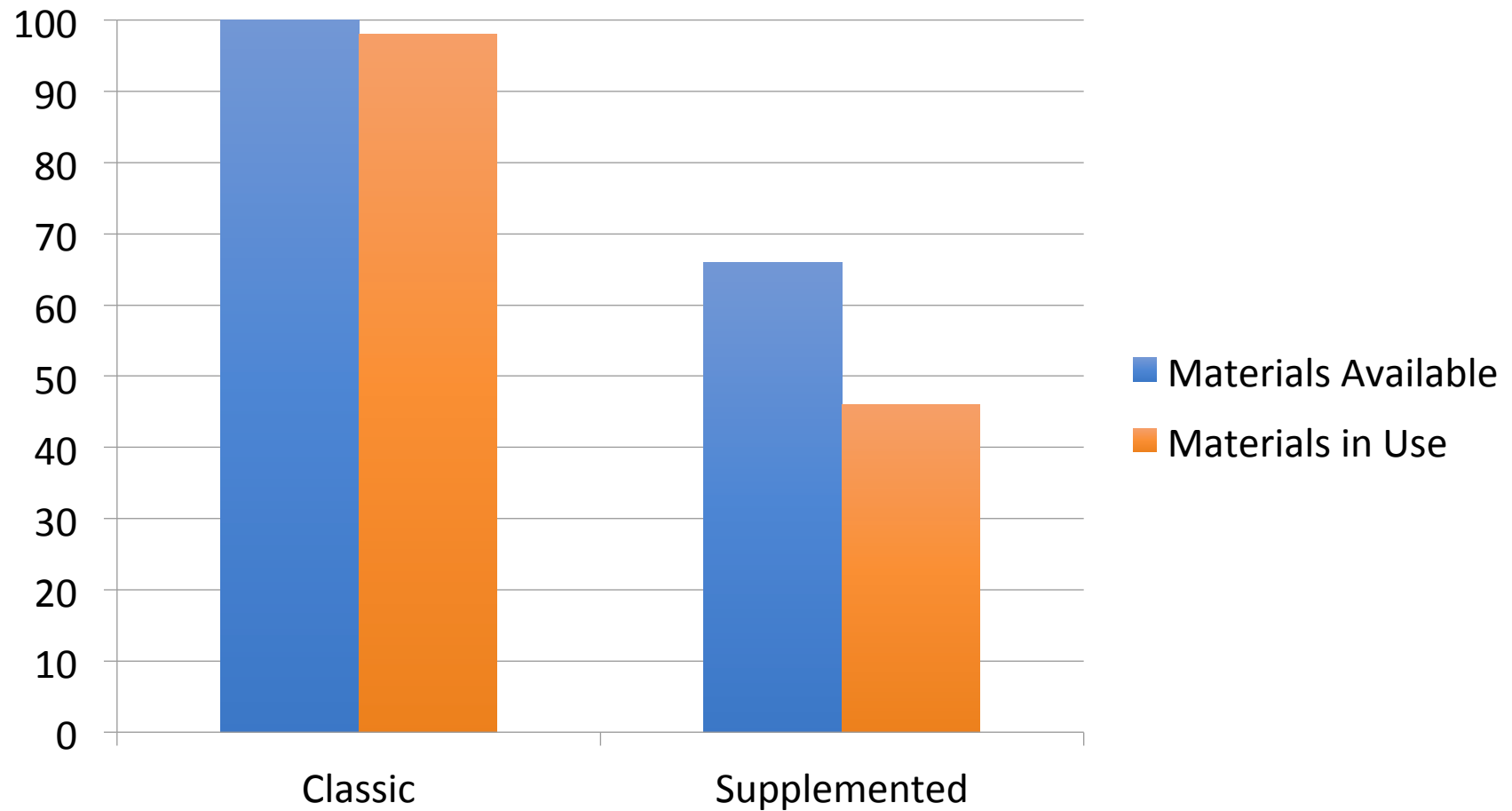
Preschool children's development in classic Montessori, supplemented Montessori, and conventional programs ☆

Angeline S. Lillard

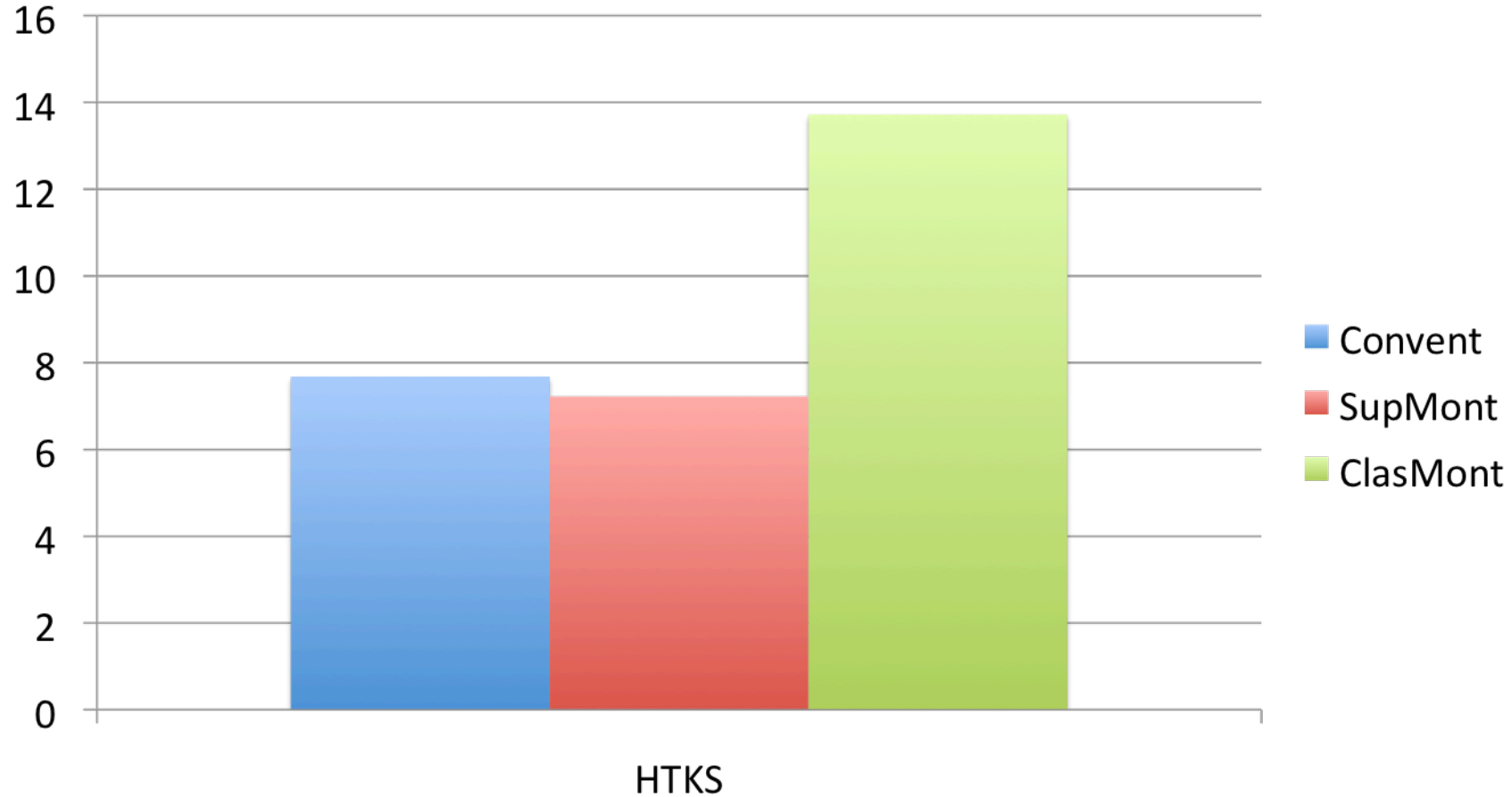
Department of Psychology, University of Virginia, Charlottesville VA 22904-4400, USA

- 172 children ages 3 to 6
- 5 Montessori Schools (14 classrooms)
 - 3 Classic classrooms
 - 11 Supplemented classrooms
- 2 Conventional Schools (~8 classrooms)

Percent of Montessori Material Available/Used

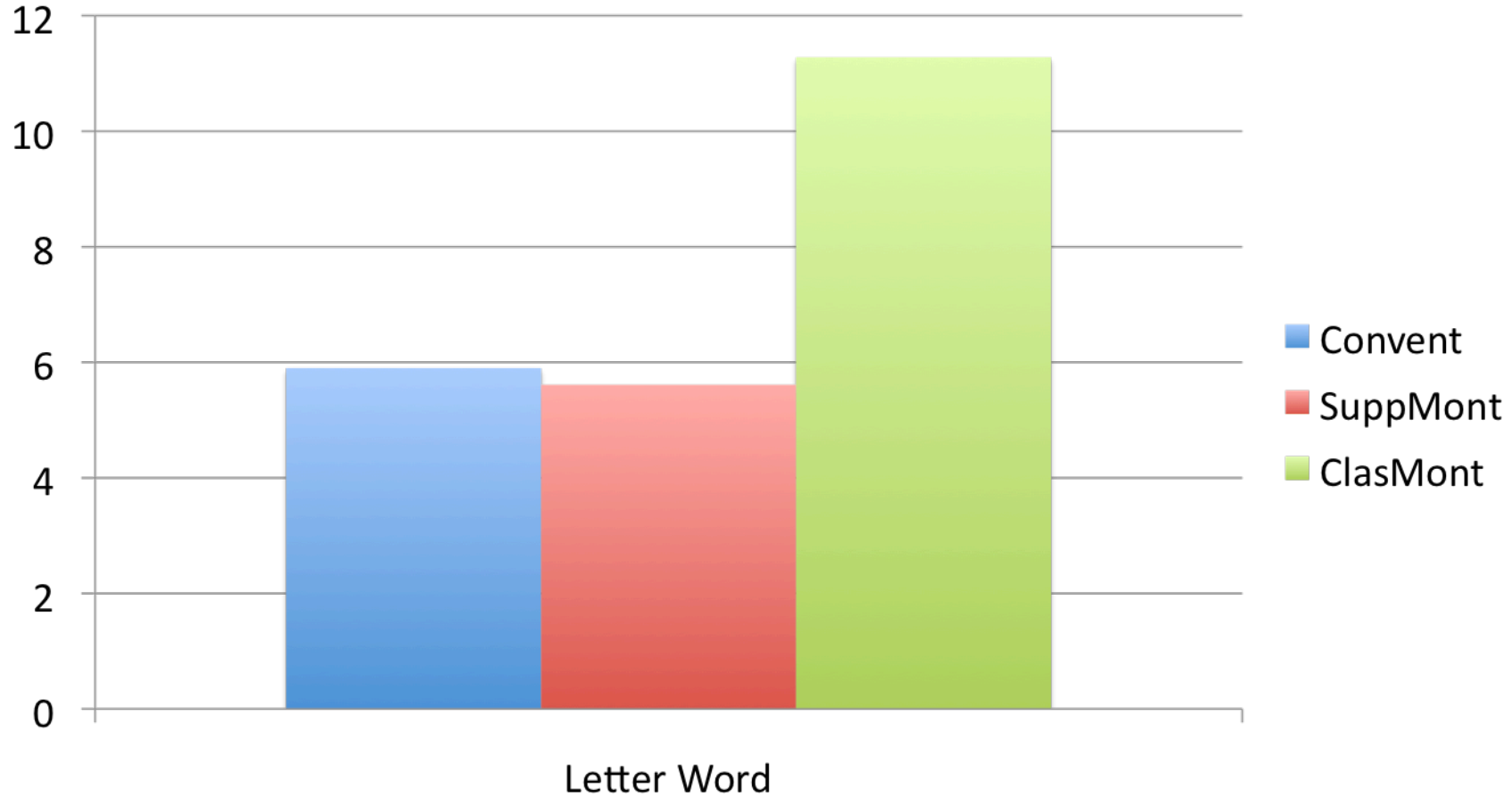


School Year Change: Self-Regulation



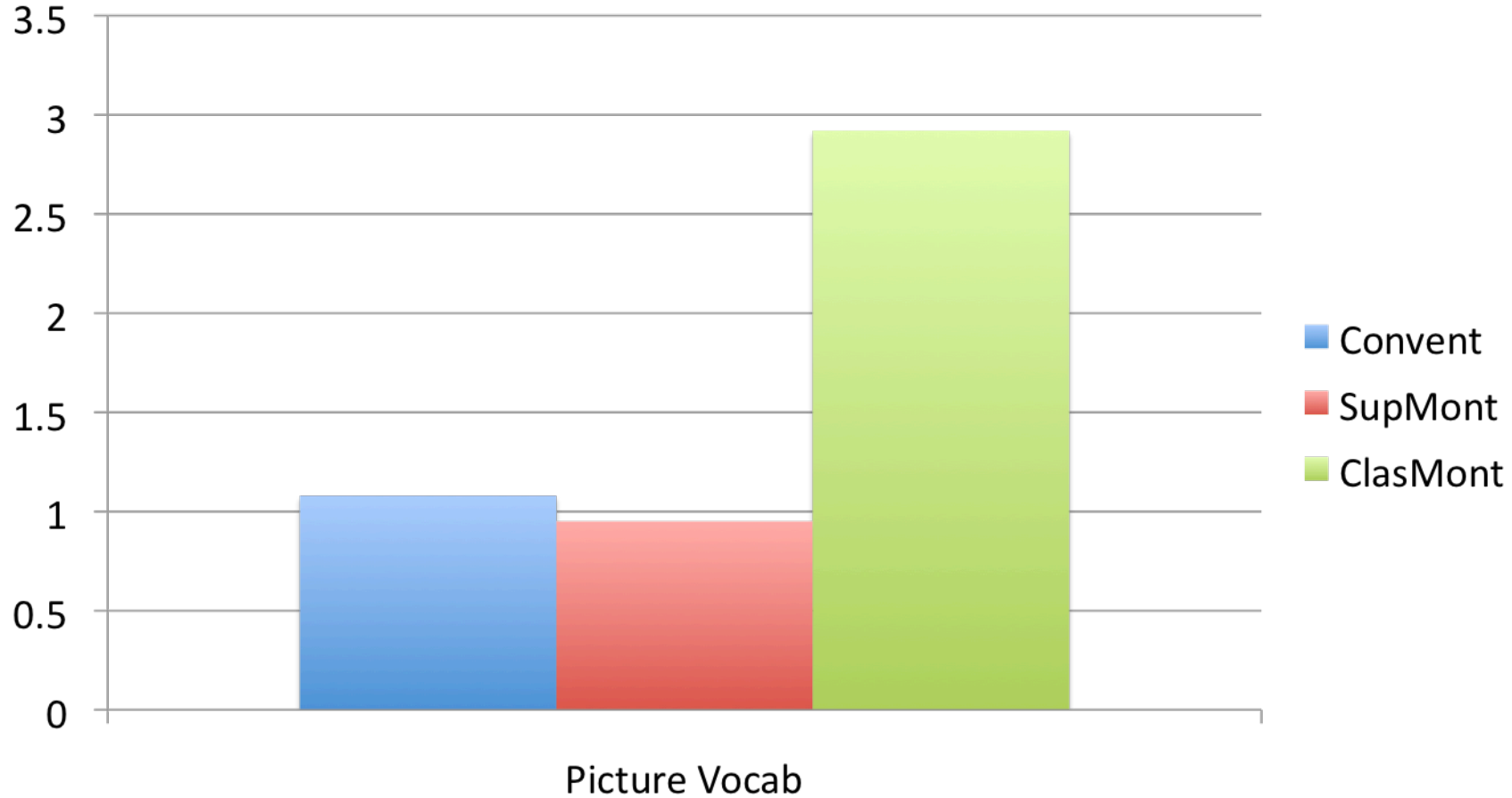
$F(2, 170) = 11.09, p < .01$

School Year Change: Reading



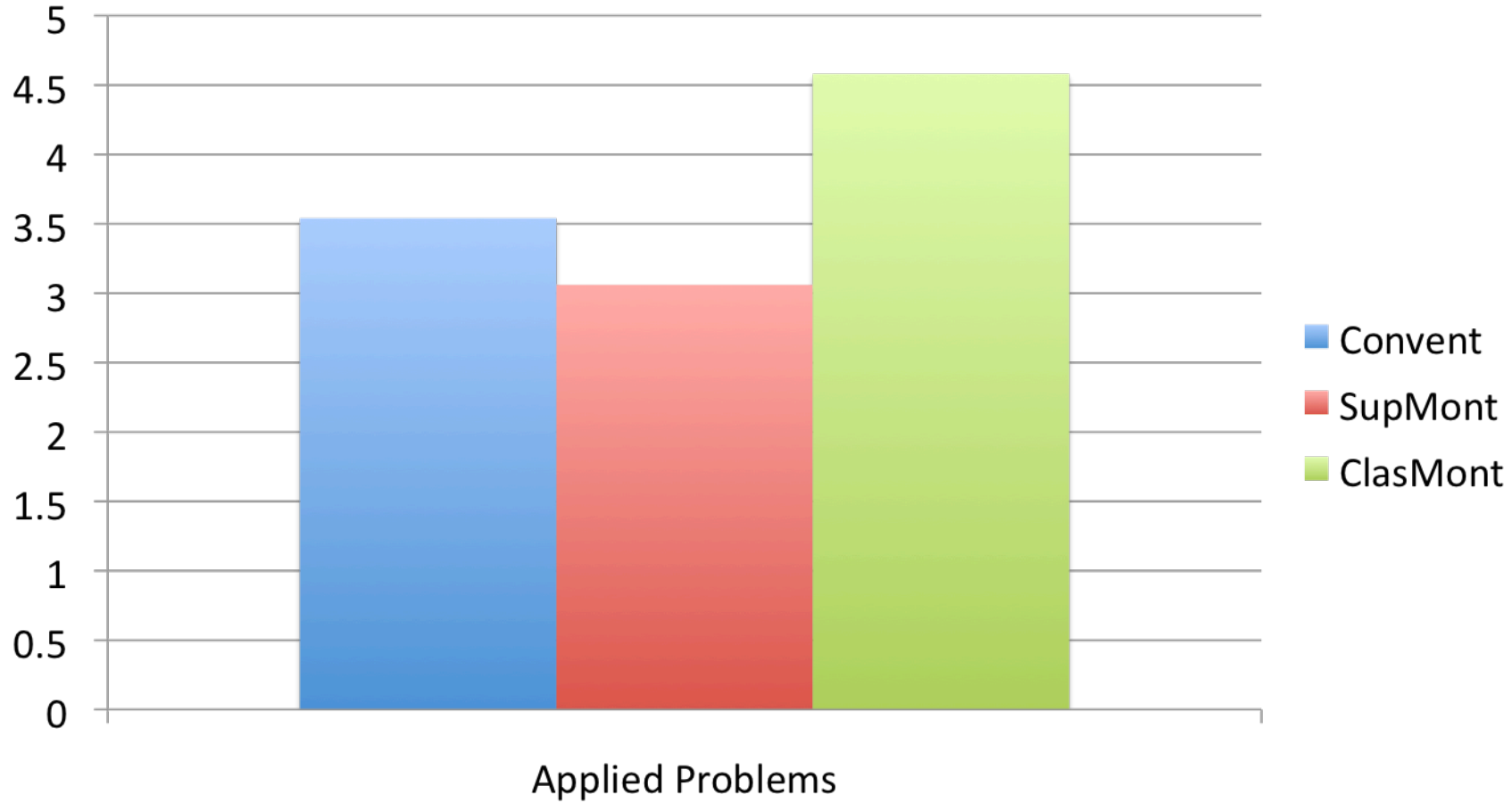
$F(2, 169) = 4.17, p = .02$

School Year Change: Vocabulary



$F(2, 168) = 4.08, p = .02$

School Year Change: Math



Kruskal-Wallis: 6.37, $p < .05$



The material should be limited in quantity... Evidence should certainly modify the notion that a child is helped in proportion to the number of educational objects that are placed at his disposal. The confused multitude of objects with which he is surrounded only aggravate the chaos of his mind.



(Montessori, 1906/1967, p. 105)

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What about play?

The Impact of Pretend Play on Children's Development: A Review of the Evidence

Angeline S. Lillard, Matthew D. Lerner, Emily J. Hopkins, Rebecca A. Dore,
Eric D. Smith, and Carolyn M. Palmquist
University of Virginia

- There is not good evidence that pretend play helps development.
- Pretend play is fun and very creative, but is it *all* children should do?
- We asked the question, What do they want to do?



Children's Activity Preferences



This girl is pretending to bake cookies. See, these are pretend cookies.



This girl is really baking cookies. See, these are real cookies.

Which would you rather do? Would you rather pretend to bake cookies or really bake cookies?

Method



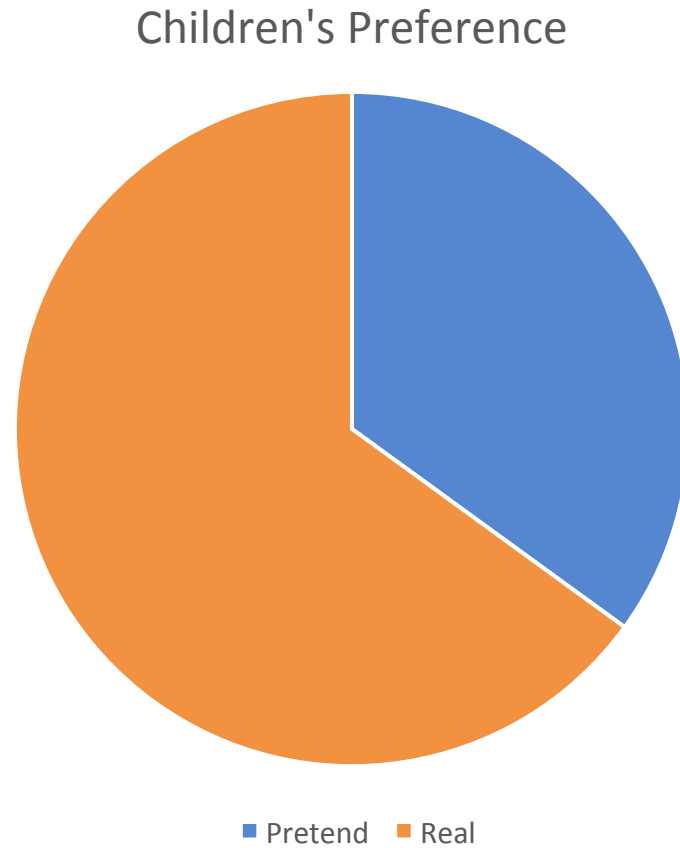
- 100 children ages 3 to 6 (average age 4 years, 10 months)
- 9 choices of pretend and real activities presented in a book
- Boys saw a book of boys; girls saw a book of girls
- Children were asked which activity they would rather do, and why

9 Activities: Would you rather really or pretend to...

(All things US children commonly pretend do to and can really do)

- Bake cookies
- Fish (“go fishing”)
- Eat ice cream
- Feed a baby
- Ride a horse
- Drive a tractor
- Talk on a telephone
- Cut vegetables
- Wash dishes

Choices made by 100 children ages 3 to 6



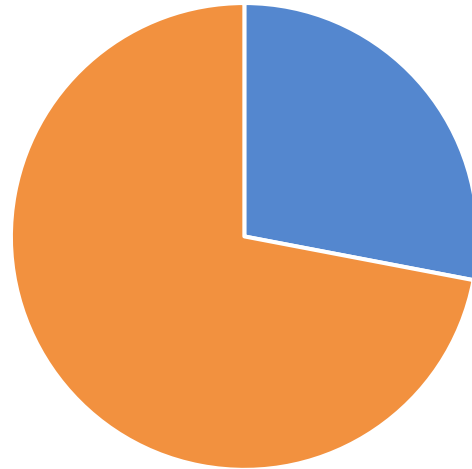
Changes with Age

3-year-olds



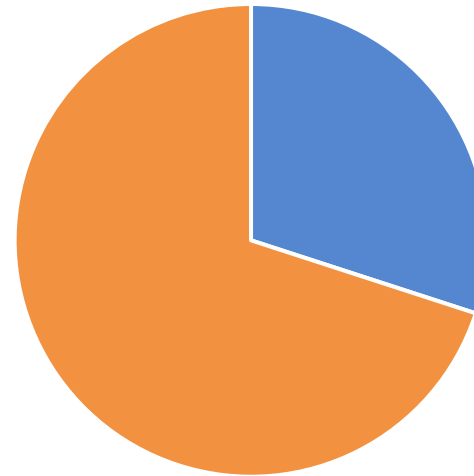
■ Pretend ■ Real

4-year-olds



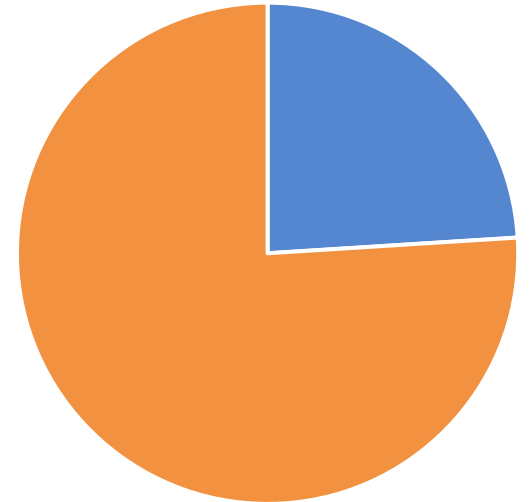
■ Pretend ■ Real

5-year-olds



■ Pretend ■ Real

6-year-olds



■ Pretend ■ Real

Why do children prefer real activities?

- Want to be useful (40%)
 - *“We could learn how to feed babies in case my mom becomes a babysitter and I help”*
- Enjoy the activities (38%)
 - *“Because I like to cut vegetables.”*
- When a child said he or she preferred pretend, the most common reason was because they felt incapable of or afraid of or would be prohibited from doing the activity for real
 - *“I might pull up a shark or a big dangerous other thing [if I were really fishing].”*

Follow Up Studies

- Was not just that our real pictures looked more fun-children in another study said the pictures look equally fun
- It's not just the pictures we used: Children in another study still preferred real even when exact same picture was used, described as pretend or real
- On going study: it's what really do, not just what claim would rather do based on a book



It was the children themselves who showed that they preferred...the small 'real-life' utensils to toys...Having given the child real things in a real world, we expected to see [the child's] joy and delight in using them. But actually we saw far more than that. The child's whole personality changed, and the first sign of this was an assertion of independence. It was as though [the child] were saying: 'I want to do everything myself'.



(Montessori, 1967, pp. 169-170)

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Conclusions

- Dr. Montessori made brilliant observations about children that are still true today.
- Montessori seems to be the best system we have for helping children.
- Read her books carefully, every day, and follow what she said.
- If you are looking for modern scientific evidence about it, my book can help.
- [See www.montessoriguide.org](http://www.montessoriguide.org)
- Articles at Montessori-science.org



Thanks to Brady Education Foundation, Sir John Templeton Foundation, and the American Montessori Society for support of research presented here today. Thanks to An Vu, David Caldwell, and Laura Hubbard for photographs.