



**AMERICAN MONTESSORI SOCIETY**  
education that transforms lives

# Current Montessori Research

Saturday, March 12, 2016

4:00 – 5:30 pm

**2016 Annual Conference**

# Presenters


- **Angela Murray, PhD**
  - University of Kansas
  - AMS Senior Researcher
- **Michael Miller, PhD**
  - University of Wisconsin River Falls
  - AMS Research Committee



**UNIVERSITY OF WISCONSIN**  
**River Falls**

# Agenda

- **Evaluating overall Montessori outcomes**
- **Examining specific Montessori practices**
- **Finding Montessori in the headlines**
- **AMS research initiatives**



# **Evaluating overall Montessori outcomes**

# Growing body of evidence on Montessori effectiveness

- “Expanding Access to Montessori Education: An Opportunity for Disadvantaged Students” available at [www.amshq.org/research](http://www.amshq.org/research)
- Excerpt handout entitled “Does Montessori Work?” is available

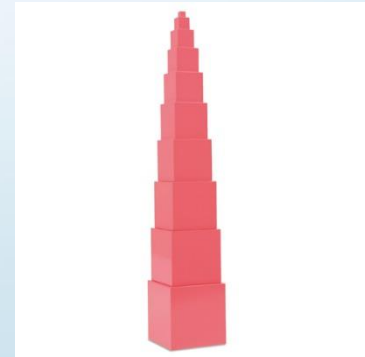


CUNY Institute for Education Policy

AT ROOSEVELT HOUSE

# “Classic” Montessori yields strong ECE results

- Material use as index of Montessori fidelity
- 172 3-6 year old children participated
- Classic had greater school year gains than Supplemented and Conventional programs on:
  - executive function
  - reading
  - math
  - vocabulary
  - social problem-solving




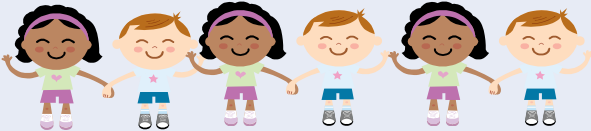


Lillard, A. (2012). "Preschool Children's Development in Classic Montessori, Supplemented Montessori, and Conventional Programs." *Journal of School Psychology* 50.

# Latino children saw most benefit

- 14,000 Title-1 pre-K Montessori & High/Scope in Miami
- Beginning and end of 4-year-old pre-K year
  - Socio-emotional and behavioral skills
  - Pre-academic skills (cognitive, motor, and language)
- Latino Montessori children
  - began at most risk
  - had greatest gains
  - ended above national averages
- Black Montessori children had healthy gains but slightly greater in conventional



# More Montessori students “highly creative”

| Identified as highly creative in | Montessori  | Traditional  |
|----------------------------------|---|--|
| improving a toy task             |   |   |
| parallel lines task              |   |  |
| storytelling task                |   |  |
| drawing task                     |  |  |



# More Montessori students “highly creative”

- Matched 40 Montessori and French elementary children on age, SES
- Montessori performed better than traditional and Freinet schools
- Creativity not taught directly, likely due to...
  - Socio-cognitive context in project work emphasizing personal initiative
  - Builds cognitive, conative or affective resources involved in creativity

# Montessori preschoolers more active

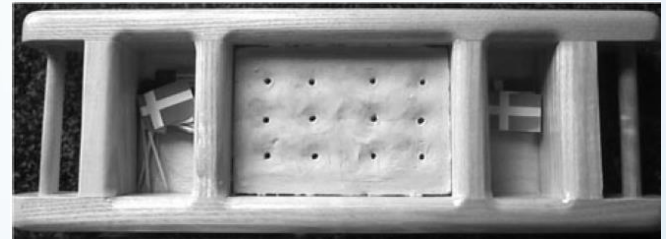


- 301 children in 9 Montessori and 8 traditional preschools in SC using accelerometers
  - Adjusted for sex, race/ethnicity, body mass index, parent education and neighborhood poverty index
  - In-School light, MVPA and total PA higher
  - Non-School and All Day MVPA higher
  - Private higher than public Montessori for light, MVPA, and total PA

Russell R. Pate PhD, Jennifer R. O'Neill PhD, Wonwoo Byun PhD, Kerry L. McIver PhD, Marsha Dowda, DrPh, and William H. Brown PhD. (2014). "Physical Activity in Preschool Children: Comparison<sup>10</sup> Between Montessori and Traditional Preschools." *Journal of School Health*, 84(11). pages 716–721.

# Montessori showed superior fine motor development

- Five year olds:
  - 50 in 4 Montessori schools
  - 50 in high-performing suburban school
- Practical life impact on fine motor development
- Montessori moderate to large effects on fine motor development
  - accuracy, speed, consistent use of dominant hand

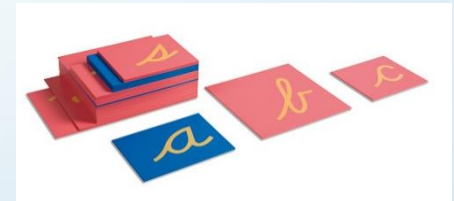




## **Specific Montessori practices**

# Embodied pedagogy (tracing)

- Finger tracing elements showed benefit
- Experiment with over 100 students
- Triangle geometry, order of operations
- Tracing students
  - correctly solved more practice problems
  - made fewer errors on follow-up test



# Playful Learning

## Free Play

- Object play
- Pretend/dramatic
- Rough-&-tumble
- Fun
- Flexible
- Active
- No extrinsic reward
- Make-believe
- Often involves peers

## Playful Learning

- Child centered
- Constructivist
- Affectively positive
- Hands-on
- Playful, fun, relaxed
- Toys for knowledge
- Adult observes, guides, questions and respects child's interests
- Can involve fantasy

## Didactic Instruction

- Teacher centered
- Teacher paced
- Listening to words not working with objects
- Typical school
- Teacher education courses seldom extol

# Playful Learning

- Meta-analyses: more directed “discovery learning” optimal
- Fantasy not necessary for optimal development
- Cultural view of pretending; no solid empirical foundation
- Guided play may help development
  - freedom to choose activities
  - interactive hands-on lessons
  - ability to involve peers in learning activities

# Prioritizing development of attention



- Materials enhance attention in children with ADHD
- 15 non-Montessori with ADD and ADHD
- Pre-post test design experiment with a control group
- Used tactile boards, sound boxes, binomial cubes and color tablets
- Measure FTFK Attention test



# Montessori models best practices in math manipulatives

Cognitive science finds four principles for maximizing the effective use of mathematics manipulatives

1. Use of manipulative consistently, over a long period of time
2. Begin with highly transparent concrete representations and move to more abstract representations over time
3. Avoid manipulatives that resemble everyday objects or have distracting, irrelevant features
4. Explicitly explain the relation between the manipulatives and the math concept





# **Finding Montessori in the headlines**

# *What's Lost as Handwriting Fades?*

NYT 06/03/2014



- "...findings demonstrate that handwriting is important for the early recruitment in letter processing of brain regions known to underlie successful reading. Handwriting therefore may facilitate reading acquisition in young children."

James, K.H. & Engelhardt, L. (2012). The effects of handwriting experience on functional brain development in pre-literate children. *[Trends in Neuroscience and Education](#)*, (1)1.

## ***Why Kids Need to Move, Touch and Experience to Learn. KQED News. MindShift: How We Learn.***



- “...when students use their bodies while doing mathematical storytelling (like word problems, for example), it changes the way they think about math.”

Kontra, C., Lyons, D., Fischer, S. & Beilock, S.L. (2015). Physical experience enhances science learning. *Psychological Science* 0956797615569355.

# ***Standards, Grades and Tests are Wildly Outdated, Argues 'End of Average'***

**nprED LEARNING & TECH**



- "We've come to embrace a way of thinking about ourselves as people that was intentionally designed to ignore all individuality and force everything in reference to an average person... which works really well to understand the system or the group, but it fails miserably when you need to understand the individual, which is what we need to do."

Rose, T. (2016). *The End Of Average: How We Succeed In A World That Values Sameness* HarperCollins, New York, NY

***Masters of Love.* The Atlantic, June, 2014.**  
**Science says lasting relationships come down  
to *kindness* and *generosity*.**



- Masters of positive relationships are "...scanning the social environment for things they can appreciate and say 'thank you' for. They are building this culture of respect and appreciation very purposefully."

<https://www.gottman.com/about/research/>

# *The end of college rankings as we know them*

## Washington Post, 02/04/16.

### Gallup-Healthways' definition of Well-Being

Well-being is comprised of five elements – and all five are **interrelated** and **interdependent**.



- **Purpose:** Liking what you do each day and being motivated to achieve goals
- **Social:** Having supportive relationships and love in your life
- **Financial:** Managing your economic life to reduce stress and increase security
- **Community:** Liking where you live, feeling safe, and having pride in your community
- **Physical:** Having good health and enough energy to get things done daily

HEALTHWAYS

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- Fewer entering college freshman are relying on rankings while at the same time, different, better rankings are emerging.
- Introducing Gallup's College Well-Being Certification

<http://www.gallup.com/services/170939/higher-education.aspx>



# **AMS Research Resources**



# Did you know about...

- Montessori Research Facebook Interest Group
- Online Research Library [www.amshq.org/research](http://www.amshq.org/research)
- Teacher Research Panel
- Funding
  - Research Mini Grants
  - Outstanding Thesis and Dissertation Awards

# Action Research Highlights

- Including the titles
  - Building math vocabulary and math operations in a Montessori e1 classroom
  - Importance of handwriting: how Montessori didactic materials support handwriting
  - Multiage learning environments in the secondary Montessori classroom
  - Using nontraditional text for Socratic dialogue in a middle level Montessori music classroom

# We need teachers and parents!

- Join the Montessori Teacher Research Panel
  - <http://tinyurl.com/MontessoriTeacherPanel>
- Invite your parents to join the Montessori Parent Panel
  - <http://tinyurl.com/MontessoriParentPanel>
- Online surveys related to Montessori education
  - Each only takes 10 to 15 minutes
  - No more than 3 per year
  - Withdraw at any time