



Julia Volkman

New research by Lillard shows greater gains for classic

We often hear the terms "authentic," "classic," and "high fidelity" used to describe Montessori programs. For those outside the Montessori lens, these terms have little meaning. If someone says they offer a Montessori program, that must be what they offer, right? But for the rest of us, for those who have been irrevocably transformed by the wisdom and genius of that Italian doctor, these words are loaded.

We, Montessori's disciples, sometimes wear our beliefs like a straight-jacket. We have a vision of what Montessori intended and if we don't see that happening in our classrooms, many of us think it is because times, and children, have changed. But there are many others, maybe even most, who have a lurking suspicion that we're just not doing it right. That maybe we're just missing something, some fine point, some art of pedagogical delivery, or some new educational discovery.

Fortunately, Dr. Angeline Lillard has once again come to the rescue with the liberating facts of science. Dr. Lillard had a question: Why do some research studies show a marked benefit to Montessori education while others show no clear advantage? Could it be the way in which Montessori programs are implemented that causes this variability? So, being a research scientist, she decided to conduct a study: "Preschool children's development in classic Montessori, supplemented Montessori, and conventional programs."

And what did she find? Children in the classic Montessori programs had larger gains in executive function, social problem solving, and academic skills. And what

agreement on exactly what materials were and were not "Montessori" materials.)

And the results? The executive function, social problem solving, and academic scores for children in the classic Montessori programs rose significantly more than those for the supplemented or traditional programs. (The theory of mind scores showed similar gains across all children in all of the schools studied.) Not only that, but these results could be predicted based on the percentage of children using Montessori materials in each classroom. So, the more children who were using Montessori materials in a classroom, the greater the scores of the children in that classroom would increase. Holy cow!

So what does this tell us? That, assuming we are trained teachers and assuming we have a mixed age group of children, are main job is to prepare the environment with the Montessori materials in our albums and give children lessons on how to use those materials.

To test this idea out, Dr. Lillard did another, unpublished study where she took a few Montessori classrooms that were full of supplemental materials and stripped them down to the basic Montessori materials. Guess what? After just 4 months, the children in those stripped classrooms had significantly larger gains in two learning areas than the other classrooms. I repeat, holy cow!

So, once again, to put the power of this research into practice, follow this adage: *If it isn't in your albums, take it off your shelves.*

Okay, but let's dig a little deeper and see if there isn't something else going on here.

Factor* The traditional school teachers had 5 to 12 years of experience. Research does not show a significant difference in learning outcomes based on the amount of teacher experience.

So, when I look at the information side-by-side like this, it gives me a lot to think about. See those three gaping holes on the "classic" side? The last one is talking about materials just like we've been talking about materials. But those other two are talking about interrupting concentration and substituting traditional, teacher-centered pedagogy for the Montessori, child-centered one. I wonder what we'd find if we did a study that isolated those factors?

So, while we should never put all our eggs in just one basket, I find this pretty compelling evidence to encourage us to go back to the basics. What would happen if, after the first few weeks of school, we took those supplemental materials off of our "transitional" shelves and stripped everything else down to the basics? What lessons would we give? What would the children learn? Would we see the gains reported in this study? Well, there's only one way to find out...

Note: This study was published in 2012 in the *Journal of School Psychology*. You can find a full copy of the study on Dr. Lillard's website, <http://virginia.academia.edu/AngelineLillard>

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Dizney's guide to plant poisons

By Ronda Dizney

Some part of each of these plants contain toxic elements. It could be the leaves, stems, roots, flowers or seeds. Eaten in mass quantities—like apple seeds can be sickening or fatal. Some plants, such as oleander, when burned can be deadly by breathing smoke! Guides and children need to research their environments and learn which plants are edible, medicinal or poisonous.

Children need not be kept in the dark about this subject. We want the children to spend time in Nature but not to get ill or die from their experiences.

Children and Poisonous Plants taken from the index of "Deadly Harvest" by John M. Kingsbury

Apple seeds

sic?" The percentage of children who were using Montessori materials as opposed to supplemental materials. So, before I go into the details, let me cut to the chase with the key implication of this powerful study: *If it isn't in your albums, take it off your shelves.* (Any of you who have read my work before or met with me in person have heard me say this more times than there are kernels on a cob...but now, there is proof! I may turn out to be insufferable...)

Here are the details. Dr. Lillard looked at 172 children ages 3 to 6 who attended one of five Montessori schools or one of two traditional private schools. All students began school at age 3 and were demographically matched to rule out parent variables in the results. In the fall and then again in the spring, the study assessed the children in the following areas:

- Executive function (which looks at working memory, attention, planning, and inhibitory control)

- Theory of mind (which looks at a child's ability to take on the perspective of someone else, that is, to realize that not everyone knows what the child knows or shares the same experience)

- Social problem-solving abilities

- Academic skills (reading, vocabulary, and math)

The main factor used to determine if a program was "classic" or "supplemented" was the percentage of children using Montessori materials. Trained observers went into the classrooms twice in the fall and twice in the spring and took note of what every child in the room was doing. The observers didn't judge how the child was using the material, just if it was a Montessori material or not. (Note: If you wonder if everyone agrees on what a Montessori material actually is, read Dr. Lillard's earlier study, published in *Montessori Life*, that surveyed AMI and AMS trainers to find

could have caused these results, right? I've summarized these in the following table. (see Figure 1).

Source: Lillard, D. (2012). The effects of Montessori materials on children's learning outcomes in psychology at Harvard University's Extension School, a former Advisory

Figure 1

Factor	"Classic" Montessori	"Supplemented"
Percentage (%) of children using Montessori materials	95-100%	38-56%
3-year mixed age group	✓	✓
2-3 hour work cycle	✓	✓
Materials organized by curriculum area	✓	✓
Individual snack chosen by the child during the work cycle	✓	✓
Primarily small group or individual lessons	✓	✓
Did not use external rewards	✓	✓
Circle taped on the floor	✓	✓
4-5 group tables (that accommodated 4-6 children) and 4-5 individual tables	✓	✓
Some whole class circle time	✓	✓
Older children stayed for lunch and a second 2-3 hour work cycle	✓	✓
Teachers with 1 to 30 years of experience, Montessori certification, and college degrees*	✓	✓
Teachers held AMI credential	✓	✓
Teachers held AMS credential		✓
Second adult observed the children but rarely interacted with them	✓	
Second adult in the classroom was involved with the children as a main teacher		
Interrupted the morning work period 1-2 times per week for specials (like 30-minutes of music or Spanish)		✓
Offered conventional preschool materials like craft projects, beads, puzzles, workbooks, commercial games (like Memory), and commercial materials (like Lego's) on the classroom shelves	✓	

*The traditional school teachers had 5 to 12 years of experience. Research does not show a significant difference in learning outcomes based on the amount of teacher experience.

Apricot seeds
 Beans, Lima
 Beet tops
 Bird of Paradise
 Bleeding Heart
 Boxwood
 Buttercup
 Cabbage family
 Candelabra cactus
 Caladium
 Carolina Jessamine
 Carrots, Wild
 Celery
 Crown of Thorns
 Elephants' Ear
 False Parsley
 Four O'clocks
 Flowering tobacco plant
 Foxglove
 Climbing Glory Lilies
 Grass, Dallis
 Hemlock
 Horsetail
 Hydrangea
 Jack-in-the-Pulpit
 Japanese Yew
 Jimson Weed
 Johnson Grass
 Lantana
 Larkspur

Plant Poisons
 Continued on page 14