

# Expert Input on Measuring Montessori Implementation

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## Introduction

Researchers have employed a variety of methods for measuring Montessori implementation. A tool for trained Montessori observers was developed by the Riley Institute for Education Policy in 2016. In 2012, Lillard measured time spent with Montessori materials as a gauge of authenticity, followed by Murray, Daoust, and Chen, who piloted a teacher report questionnaire to assess Montessori practices in 2019. Each of these approaches has limitations, so we are developing an EC classroom observation tool that will be psychometrically validated and can be used across multiple studies.

## Background

### Rigorous evidence of Montessori effectiveness is limited

Although a logic model summarizes agreement on key components, variety exists regarding extent to which Montessori classrooms adhere to these criteria. (Culclasure, Daoust, Cote & Zoll, 2019). Inconsistencies in implementation make it difficult to assess Montessori outcomes.

### Higher fidelity has been linked to better outcomes

Lillard (2012) examined outcomes in classic and supplemented Montessori EC classrooms and found that children in high-fidelity classrooms performed better. In a subsequent study conventional materials were removed from supplemented classrooms, and within four months children in those classrooms performed significantly better (Lillard & Heise, 2016).

## Methods

As part of developing a classroom observation instrument, we surveyed EC Montessori experts regarding items where supporting literature was limited or conflicting. The purposive sample of 48 included well-known teacher educators familiar to the research team as well as attendees at the 2019 MACTE Symposium in Washington, D.C. Participants completed a 15-minute online Qualtrics survey that included both closed-ended as well as open-ended questions. Sample detail below:

Participants	
AMS EC Credential	56%
AMI EC Credential	24%
Other EC Credential	20%
Mean Years EC Classroom Experience (SD)	14 (8.7)
Mean Years Teacher Educator Experience (SD)	21 (14.3)
Working for AMS TEP	71%
Working for AMI TEP	11%

## Results

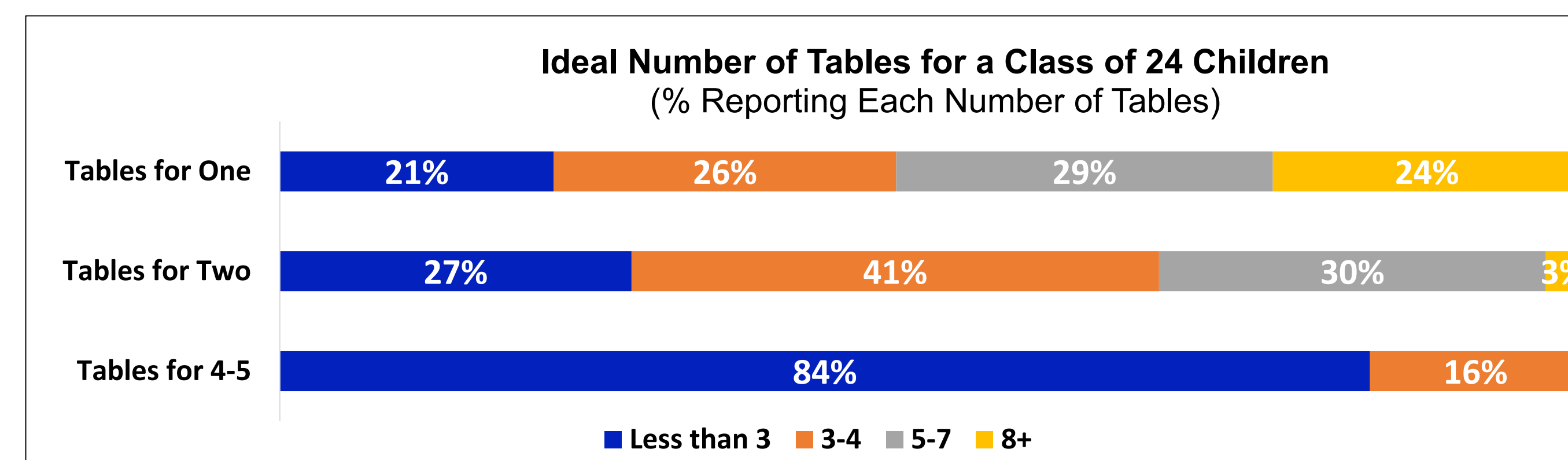
### Percent Agreement that Item Reflects an Important Feature of High Quality EC Montessori

All classroom areas are well lit.	86.70%
Work rugs are a light, neutral color with neat, finished edges and no decoration.	82.20%
Commercial décor is avoided or limited to 1-2 pieces (e.g. calendar).	77.80%
An unobstructed elliptical line for walking is available and in good condition.	66.70%
Almost all furniture is of a similar design, or a few different kinds that complement each other.	62.00%
At least 1 inch of space exists between most materials on shelves.	60.00%
At least 1 observation chair/stool is stationary in the classroom.	53.30%
There are 12 or more breakable items out in the classroom.	46.70%
Classroom has a full set of cursive sandpaper letters.	44.40%
75% or more of classroom flooring is hard surface (e.g. wood or tile).	26.00%

The areas with the greatest agreement include classroom lighting, work rugs and limited commercial décor. Less consistency existed in the appropriate number of breakable items, need for cursive sandpaper letters, and the proportion of hard surface flooring in a classroom.

Where disagreement existed, the primary reasons were as follows:

- **Breakable items** – Half of reasons related to a belief that while breakable items are required, no minimum number is established. A smaller proportion thought the requirement ignores economic and ability diversity.
- **Cursive sandpaper letters** – The largest group believed that cursive letters were not necessary for quality while almost as many specified that print letters are also acceptable, suggesting inconsistency about cursive.
- **75% hard surface flooring** – Majority suggested that hard surfaces are unrelated to quality while a much smaller proportion believed that 75% was either impractical or simply too high (25% was suggested instead).



A range of opinions existed about the appropriate number of tables for one or two children, but there was wide agreement that less than three tables for 4-5 children was ideal.

## Results

Types of Plants	Types of Animals
<b>Mean=5.4 (SD=1.5, N=21)</b>	<b>Mean=2.2 (SD=1.1, N=23)</b>
One-third of participants said, "many," "variety," or "several"	Concerns: licensing, allergies, safety, space, cage aversion
Types: spider, amaryllis, peace lily, broadleaf, prayer plant, friendship plant, succulents, aloe vera	Types: fish, birds, gerbils, frogs, hamsters, snakes, turtles, guinea pigs, reptiles rabbits, dogs (2)

### EC Classroom Features

An ideal library would consist of comfortable seating (60%) in a designated corner (38%), with a variety of books (48%).  
 Snack should be set up in the classroom as self-serve (95%) with a designated snack table for 1-4 students (55%).  
 A light color palette should be used either everywhere in the classroom (37%), or should coordinate with furniture (24%).  
 It is most important to use minimal and simple décor (61%) and artwork (1-3 pieces) at the child's level (52%).  
 Teacher should be at child's level and avoid standing behind and over a child (47%) but this depends on a child's specific needs (24%).

## Discussion

This study provides invaluable guidance for developing a classroom observation instrument. Items in this study are not well documented, so we sought consensus for what constitutes important elements of quality Montessori EC classrooms. Resulting modifications to the observation instrument include refining wording for several items, removing furniture items, reducing ideal number of breakable items, and shrinking desired amount of hard surface flooring. We will continue to investigate cursive letters with a larger sample of actual classroom observation data. The observation instrument will also include items not evaluated in this study when there was consistent support (i.e., popular Montessori materials and teacher instructional practices, observation, and supervision).

## References

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