



# ARIZONA DEPARTMENT OF EDUCATION

Each reading program will be scored using a rubric. A response must meet **all** the criteria in each scored area to be included on the K-3 MOWR vetted reading program list. Peer Review will be noted but does not disqualify overall approval.

Study: <a href="#">Montessori: Evidence Based Reading Curricula – A Review of Data</a> Date of Study: SY2016-2019 Grade Levels of Study: K-8 Core Program’s Marketed Name: Montessori Method		
	Rating or Measure Select: Y or N	Rationale
ESSA Evidence Tier	Y	Tier 2 – Quasi Experimental
Independent Researchers (Y/N)	Y	Kelly Powell, Vice President and Director of Research at the Arizona Charter School Association Katie Brown, Ph.D., Director of Research and Professional Learning at the National Center for Montessori in the Public Sector Leslie Woodford, Curriculum Coordinator at Khalsa Montessori School
Established Measure (Y/N)	Y	State test data results (AzMERIT/AZM2 English Language Arts) from 2016 through 2019. Standardized test results throughout this study are largely presented in two formats: percent proficient, and standardized scale scores, or z-scores, which represent the number of standard deviations from the state average.

Sample Size	Y	<p>4,781 K-8th grade students across 26 different Arizona schools. The results are disaggregated by the number of Full Academic Years (FAY) students spent in the Montessori program.</p> <p>From the SY2019 data, the Montessori group had a proportionate and sizeable special education count—369 students, or 14% of tested students, compared to 12% in the statewide test data.</p>
Research Design	Y	<p>Standardized test scores and student background data from statewide data sets were reviewed to produce empirical evidence that students instructed in reading in schools using Montessori methods and curriculum achieve results significantly higher than the state average and expected results.</p> <p>The report compares the reading performance of students in Arizona’s public Montessori schools, the majority of which are charter schools, to that of the state as a whole.</p> <p>The majority of analyses were focused on data from the 2019 school year.</p> <p>The FAY indicator gives a measure as to what degree a student has been in the treatment setting.</p>
Outcome	Y	<p>Across all grade levels, the median ELA pass rate in Montessori schools was 77 percent compared to 46 percent in all non-treatment schools.</p> <p>On average across tested grades, scored 0.46 standard deviations higher than the non-treatment group. This would indicate a fairly substantial, or “moderate” effect size for the treatment and is highly significant (<math>p &lt; 0.0001</math>) given the t-test results.</p> <p>The most dramatic results were in the “3 or more” category of FAY. This group was 71 percent of the treatment sample in SY 2019 (compared to 46% in the larger Arizona comparison group).</p> <p>Students that had not completed a full year of the Montessori curriculum in 2019 were statistically (and practically) no different than the general population in Arizona on the state tests.</p> <p>SPED- The Montessori treatment group saw an overall gap of 0.81 (-0.23 to 0.58) standard deviations between the SPED and Other group, compared to a statewide gap of 1.05 (-0.91 to</p>

		0.14). Special education students that received three or more years of continual Montessori instruction were statistically indistinguishable from the general Arizona student population on state standardized test scores.
Effect Size	Y	<p>The comparison of treatment and non-treatment group standardized ELA scores by FAY and grade level showed that students achieve at higher levels the longer they remain in the treatment setting. Though one or two full academic years in the Montessori setting are significantly impactful on student performance, with good effect sizes 24 in both, students that remain in a Montessori setting for three or more years benefit the most (0.57).</p> <p>P&lt;.001 Table on p. 28 FAY Level and Aggregate Performance of Montessori Students</p> <p>P&lt;.001 Table on p. 30 Special Education Student Performance in Arizona Montessori Schools on 2019 Statewide ELA Test, Grades 3-8</p> <p>Regression analysis conducted &lt;.001 Data outcomes are independent of student demographics and poverty, program differences, and years in a school (FAY) by comparing predicted student scores to the actual observed scores from the 2019 school year.</p>
*Peer Review (Y/N)	N	

MOWR Committee completed review.

MOWR Committee findings:

- Meets ESSA evidence Tier 2.
- Will be added to the MOWR Core Program Vetted List.