

Openness and Teacher Beliefs Among Conventional and Montessori Teachers

Christina M. Carroll, Claire Armstrong, and Angeline S. Lillard

University of Virginia, Department of Psychology



Introduction

The literature comparing conventional and Montessori student outcomes is expanding. However, there is a paucity of research comparing conventional and Montessori teachers. Are there significant differences between conventional and Montessori teachers that could potentially influence student outcomes?

Openness

- Open to new ideas and experiences (John et al., 2008)
- One of the big five personality traits
- Teaching an alternative pedagogy, such as Montessori, may require a degree of openness to new experiences and ideas.

Teacher Beliefs

- Defined as a dynamic system of conceptions about students and teaching, consciously or unconsciously held by individual teachers (Fives & Buehl, 2012).
- Pedagogy-specific pre-service teacher certification training and first-hand teaching experience may have a unique influence on Montessori teacher beliefs relative to their conventional counterparts.

Research Questions

- What is the relation between openness, pedagogy, and teacher beliefs?
- According to teachers, did teacher certification training shape their beliefs? If so, in what way?

References

John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The BigFives*. H., & Buehl, M. M. (2012). Spring cleaning for the “messy” construct of teachers’ beliefs: What are they? Which have been examined? What can they tell us? In K. R. Harris, S. Graham, T. Urdan, S. Graham, J. M. Royer, & M. Zeidner (Eds.), *APA Educational Psychology Handbook, Vol 2: Individual Differences and Cultural and Contextual Factors*. (pp. 471–499). American Psychological Association. <https://doi.org/10.1037/13274-019>

Five Inventory. University of California, Berkeley, Institute of Personality and Social Research.

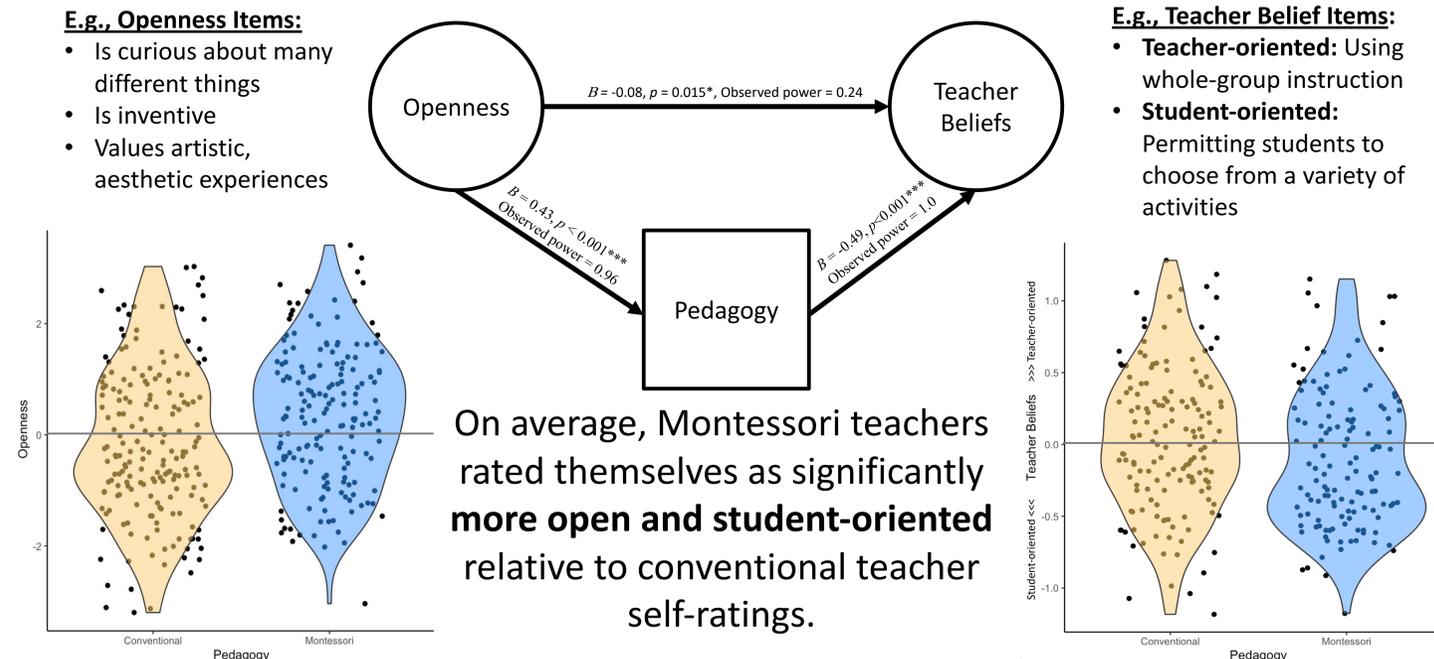
John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative big five trait taxonomy: History, measurement and conceptual issues. In *Handbook of Personality: Theory and Research* (3rd ed., pp. 114–158). The Guilford Press.

Rimm-Kaufman, S. E., Storm, M. D., Sawyer, B. E., Pianta, R. C., & LaParo, K. M. (2006). The teacher belief Q-sort: A measure of teachers’ priorities in relation to disciplinary practices, teaching practices, and beliefs about children. *Journal of School Psychology, 44*(2), 141–165. <https://doi.org/10.1016/j.jsp.2006.01.003>

Results

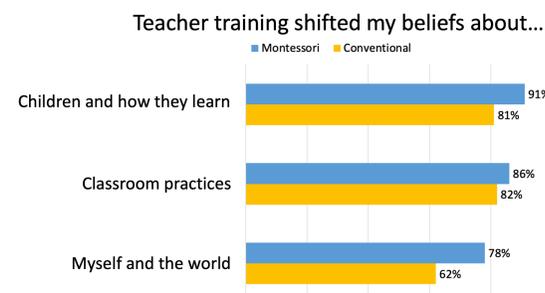
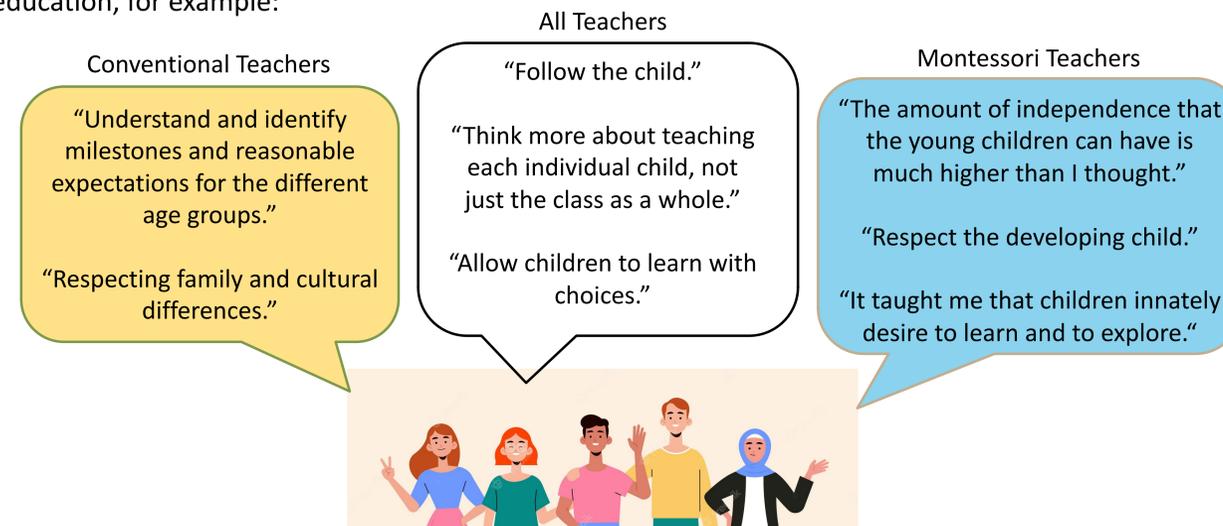
Mediation Structural Equation Model

Fit Indices: RMSEA=.038 (90% CI=.035, .042), CFI=.92, TLI=.92 and SRMR=.079



Most agreed that teacher training shifted their beliefs.
This was particularly true among Montessori teachers.

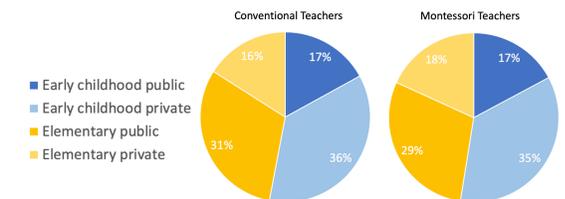
Conventional and Montessori teachers mentioned shifts in beliefs about **student-oriented education, teaching practices, how children learn, and child development** at similar rates but in different ways. Student-oriented education, for example:



Methods

Participants

- 360 teachers: 188 Conventional and 172 Montessori



Survey

- Anonymous Qualtrics survey
- Measures
 - Big Five Inventory (John et al., 1991, 2008)
 - Teacher Beliefs Q-Sort (Rimm-Kaufman et al., 2006)
 - Qualitative questions
 - Did teacher certification training shift your beliefs about:
 - children and how they learn?
 - teaching practices?
 - how you view yourself or the world?
 - If so, in what way?

Quantitative Analysis

- Factor analysis of personality traits and teacher beliefs
- Mediation structural equation model estimated with robust maximum likelihood and weighted least squares estimators
- Post-hoc power analysis using Monte Carlo simulation with 500 replications

Qualitative Analysis

- Teacher responses divided into substantive phrases
- First and second author coded each phrase based on topic and like topics were grouped into themes
- Third coder for calculating inter-rater reliability ($\kappa=.84$)

Conclusion

This evidence suggests that there are significant differences between conventional and Montessori teachers in terms of openness and teacher beliefs. These results warrant further investigation into the mechanisms that shape conventional and Montessori teacher beliefs, and the relation between teacher beliefs, implementation fidelity, and student outcomes.