

ABSTRACT

MEASURING THE FOCUS AND COHERENCE OF A KINDERGARTEN THROUGH GRADE 8 MATHEMATICS CURRICULUM

by

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The purpose of this research was to investigate curriculum focus and coherence. This case study used the Common Core State Standards of Mathematics (CCSS-M) as a case for this investigation. The developers of the CCSS-M made it explicit that they strove for focus and coherence. Focus and coherence are meant to fuel greater achievement in a rigorous curriculum. Using a single case study design with embedded units, this research measured the focus and coherence of a Kindergarten through Grade 8 mathematics curriculum with particular attention paid to the major clusters identified as leading to high school Algebra. Algebra is recognized as the gateway to higher education, career opportunities and successful participation in our democratic society.

Focus was measured as the percentage of lessons aligned with the identified major clusters of the grade. My research indicated that the majority of the curricula failed to meet the overall focus expectation for the year. In spite of this failure in overall focus, the majority of the curricula did meet the second measure of focus, related to the curricula's focus per semester.

Coherence was measured using a trajectory model and method developed for each grade. Using a ratio to quantify coherence, each grade level was evaluated with the coherence value indicating a lack of coherence with the trajectory model, thus a score of zero would indicate perfect coherence. The findings demonstrated coherence to be difficult to measure and evaluate. The coherence values ranged from a low of 0.039 to a high of 0.352, indicating a gap of 0.313. Critical to the findings was the number of standards from major clusters not identified in the curriculum. Missing standards had an impact on the trajectory model's development and the coherence values.

The content of the CCSS-M are not emphasized equally, but all standards need to be taught. It is critical as curricula is developed that the standards from the major work leading to Algebra are given greater emphasis based on the depth of the ideas, their potential importance to future mathematics and the time that it may take students to master the concepts.