Oral Defense Announcement
University of Missouri – St. Louis Graduate School
An oral examination in defense of the dissertation for the degree
Doctor of Philosophy in Education with an emphasis in Teaching and Learning Processes
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M.A. in Educational Leadership, August 2006, Maryville University-St. Louis, MO
B.S. in Biology, May, 1999, LeMoyne Owen College-Memphis, TN
The Relationship Between Number of Instructional Minutes and Science and Mathematics Achievement in Elementary School Settings
Date: November 22, 2021
Time: 1:00 pm to 3:00 pm
Place: Remote
Abstract
The Next Generation Science Standards and the Common Core Mathematics Standards were created to assist U.S.A. school districts in providing the rigorous instruction needed to equip all students for college and career readiness and citizenship. Many minority students in the U.S.A. specifically, those in disadvantaged communities are still showing deficits in mathematics and science. The relationship between the number of instructional minutes and science and mathematics achievement of fourth grade students on the Northwest Education Association (NWEA) assessment was explored. Research questions addressed the degree of mathematics and science integration in school programming, number of minutes allocated to science and mathematics instruction, staff perceptions of mathematics and science achievement of fourth grade students, and the relationship between instructional minutes (time on task) and student achievement.

Primary and secondary data sources included master schedules and district and state protocols which guided teacher expectancy for delivery of instruction. All data and information were collected and gathered during the Covid-19 pandemic and analyzed using SPSS. During the time frame of study 100% remote learning conditions were in effect. The Carroll Model of Learning was adapted and used as the theoretical basis to determine time allocation and learning ratios of science and mathematics instruction.

Key findings based on the mathematics and science readiness instrument revealed that participating elementary school programs in mathematics and science were in an early stage of development. Student opportunities were afforded in both science and mathematics, but learning ratios computed using the Carroll Model for learning equation did not meet district levels of expectancy for student opportunities. Proficiency levels of the NWEA assessment in mathematics and science were below mean levels published at the national level for fourth grade students. Additionally, comparative achievement level data in science and mathematics revealed score gaps between certain student groups at the district, state, and national levels. A t-test analysis was used to reject the null hypothesis, there is no relationship between instructional time (time on task) and student achievement of fourth grade students in the areas of science and mathematics, at a 95% confidence level.

Defense of Dissertation Committee
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