How does small group student lead learning in math and reading provide culturally responsive instruction while increasing academic achievement in a K-4 elementary building in a small suburban community?

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2020

**Annotated Bibliography**

Bottoms, S. I., Ciechanowski, K., Jones, K., de la Hoz, J., & Fonseca, A. L. (2017). Leveraging the community context of Family Math and Science Nights to develop culturally responsive teaching practices. *Teaching and Teacher Education*, *61*, 1-15.

This article inspects how elementary teachers experience family mathematics and science nights with linguistically and culturally diverse learners and families. The authors analyze weekly reflections using a culturally responsive teaching model to examine cultural diversity and influences in math learning among the students. The purpose of this paper is to understand the dynamics of four critical areas, including the changing beliefs and attitudes, improved pedagogical associations, grappling with resistance, and to leverage diversity and culture. An action-based emphasis establishes that teacher candidates require adequate practice to disrupt typical perspectives of teaching to permit culturally responsive practices. This article determines that diversity among the families triggers the varying abilities among students. Besides, the emphasis on math and science improves the performance of the students. This article is significant in the current research as it provides first-hand information about the experiences by the educators on diversity among the learners and the effect of learning math and science on the overall student’s performance. While some teachers may not focus on cultural differences and family backgrounds of the learners, this paper suggests that focusing on these aspects of the learners improves the learner teachers' connection and hence enhanced academic performance. Also, this article underscores that eradicating traditional perceptions about a community or a group of people is a process requiring a lot of practice by the teachers to adopt a culturally responsive instruction model. As such, teachers must emphasize on the focused guided reflections on the context.

Cason, M., Young, J., & Kuehnert, E. (2019). A meta-analysis of the effects of numerical competency development on achievement: Recommendations for mathematics educators. *Investigations in Mathematics Learning*, *11*(2), 134-147.

This article examines the impacts of developing mathematical proficiency in math classes. In their research, Cason, Young & Kuehnert (2019) conducted an extensive quantitative literature review yielding 17 studies with 40 outcome sizes. The research demonstrates that numerical competency in math class dramatically impacts the overall academic performance of a child. Notably, the analysis highlights that the overall effect size complements the empirical benchmarks for the yearly achievements in math skills for learners at varying levels, including K-4. The research reveals that numerical competency helps in the overall understanding of mathematics.

Nonetheless, the study points out that students from poor backgrounds may need special attention in some cases for the achievement of the desired outcomes. Consequently, the research concentrated on early elementary grades up to K-4 in most of the numerical proficiency studies. The authors conclude that researchers and mathematics teachers should support the evolution of mathematical proficiency instructions for early elementary students up to K-4 grades. This article is helpful in the current research as it brings new insights concerning numerical competency and how teachers must observe students in math classes for improved academic achievements. Also, the article suggests that teachers must critically find the student performance and relate to the background so that they can communicate to the parents for additional information regarding specific behaviors, perceptions or attitudes exhibited by the learner. This article demands further examination of competency and guides for kids with disabilities and the effect of grouping the students.

Mogari, D. (2017). Using culturally relevant teaching in a co-educational mathematics class of a patriarchal community. *Educational Studies in Mathematics*, *94*(3), 293-307.

This article focuses on the use of culturally relevant instructions in classes within diverse communities and particularly in patriarchal societies. Mogari (2017) conceptualizes this article around the idea that sociocultural activities provide the learners with the context that facilitates math learning. The researcher notes that sociocultural activities introduce contextual fun in mathematics, thus increasing learner's interest in learning mathematics. This article derives its data from lesson activities while using video recordings, observations, and semi-structured interviews. In this article, Mogari (2017) establishes that the prevalence of culture-based stereotypes may hamper the learner's progress. For instance, the marginalization of girls by the boys increases the lousy attitude among the marginalized gender.

Consequently, the learner may begin to focus on the beliefs and cultures of the other gender while limiting concentration on the subject. As such, this article suggests that educators should enhance their culturally responsive instructions by understanding some cultures. The latter often creates a harmonious learning environment for the entire class. Besides, math teachers should understand the concerns of their students and address them to enhance impartiality in class. Notably, social prejudice, discrimination, and stereotypes are some of the behaviors that educators must eliminate in courses as a strategy for improving culturally responsive practices. This paper helps to understand the need for the teachers to use culturally relevant teaching programs for improved academic achievements among the students.

Sherfinski, M., Jalalifard, M., Zhang, J., & Hayes, S. (2019). Narrative portfolios as culturally responsive resistance to neoliberal early childhood teacher education: A case study. *Journal of Research in Childhood Education*, *33*(3), 490-519.

This article analyzes a narrative portfolio project created by teacher educators involving the prerequisites of a culturally responsive educator in a modern environment of early childhood education. The researchers explore experiences both by teacher educators and pre-service teachers from a project of four cohorts while using a case study design. As such, Sherfinski, Jalalifard, Zhang & Hayes (2019) collects data from interviews and narrative vignettes both by teacher educators and early childhood teachers. According to the authors, both teacher educators and pre-service teachers expanded their knowledge on how to employ culturally responsive pedagogy as part of their teaching skills in four years. However, the research establishes that educators experience various challenges that decline their skills in culturally sensitive instructions after getting a position in the teaching profession. Notably, teacher educators advance their knowledge for supporting early childhood teachers in their thinking about culturally responsive teaching as a resistance strategy to neoliberal education.

Nonetheless, the continued decline of the assessment contexts influences their chances of the scaffolding of portfolio narratives. Of importance, this article gives an account of the overwhelming benefits of culturally responsive instructions. This article is helpful in the research as it provides a different dimension of a possible resistance in the education system towards culturally sensitive instructions. The authors determine that culturally responsive directions to small groups of students enhance their cooperation and hence improved academic outcomes.

Turner, E. E., & Drake, C. (2016). A review of research on prospective teachers’ learning about children’s mathematical thinking and cultural funds of knowledge. *Journal of Teacher Education*, *67*(1), 32-46.

This journal article analyzes how elementary teachers prepare to teach math in a culturally diverse class. Notably, elementary teachers must have the willingness to help students from different backgrounds, cultures, and religions as well as ethnicities and races. Besides, elementary teachers should encourage students to exhibit differences in linguistic backgrounds. According to the researchers, the grouping of students into small groups permits high-level interactivity while enhancing their cooperation for improved relationships. In this article, the researchers focus on the teacher's understanding of CMT (Children's Mathematical Thinking). Sometimes, the researchers considered capturing CFoK (Children’s Cultural Funds of Knowledge) concerning math. Turner& Drake (2016) establishes that most elementary teachers do not prepare sufficiently for their math classes, particularly in culturally diverse communities. However, this article notes that adequate planning for math class enhances the academic performance of the student. Some of the suggested math classes involve small groups for sharing and consulting among the students. This article suggests that teachers may overcome the challenge of unpreparedness when attending math class by integrating various attributes, including a willingness to change, engaging in a more diversified environment for exposure, and understanding both the CMT and the CFoK. Besides, the researchers focus on materials concerning the prospective teachers (PSTs) and the best way to link CFoK and CMT in math instruction. The researchers use reviews to describe various components necessary for the formation of a robust theoretical framework. This paper demonstrates the effectiveness and the need for preparation among the teachers when attending different math teachers.

**Part 2: Topic description**

Usually, elementary teachers use varying techniques to impart knowledge to the students. Besides, the level of preparations differs from one teacher to another, even if they have the same syllabus or using the same curriculum. This research tries to unfold how the elementary K-4 teachers emphasize the importance of learning mathematics in groups. Also, this research determines how teachers embrace culturally responsive instructions for increased academic achievement, especially among the suburban communities (Bottoms, Ciechanowski, Jones, de la Hoz & Fonseca, 2017). The annotations demonstrate that disrupting the traditional thinking about the education system among the teachers require repetitive practice to institute culturally responsive instructions. Understanding cultural diversity among the learners is critical for the teachers to ensure impartiality in classes. While teachers must explore different strategies to ensure that students grasp all the concepts taught, teachers must prepare adequately for the lesson (Turner & Drake, 2016).

According to the research by Sherfinski, Jalalifard, Zhang & Hayes (2019), teachers receive considerable knowledge on culturally responsive instructions. However, as soon as they get to the profession, they start facing other challenges that dwindle their efforts on maintaining the practice. Although some students and parents may not value the influence of mathematics in academic achievement, the research by Mogari (2017) emphasizes that learning mathematics in small groups is a culturally responsive practice. Educators who practice small groupings in teaching math claim that they realize good academic outcomes.

Notably, small groups encourage interactions among students from diverse backgrounds. As such, teachers employing culturally responsive instructions prepare the students to become more accommodative while eradicating the possibilities of student bullying. Student bullying creates a negative attitude among the students being bullied. The latter develop other psychological challenges among the students while making them decline the performances. On the contrary, culturally responsive instructions enhance cooperation and interaction among students making learning to become. According to Cason, Young & Kuehnert, (2019), culturally sensitive instructions make students like different subjects, including mathematics and science. Notably, increased competency in numbers enhances the learner's academic achievements.

References

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