

Closing the Math Achievement Gap of Native American Students Identified as Learning Disabled: More Than a Research Study - A Sacred Mission

The fact that disproportionate numbers of Native students identified as LD fail to achieve academic success is a concern for Wisconsin tribes (Fiedler et al, 2007; Leary, 2007). However, this problem is not unique to Wisconsin, it is a problem facing tribes across the nation (Deloria & Wildcat, 2001; Demmert, 2001; Soldier, 2005). This is a problem that impacts the self-sufficiency of tribal nations, since success in today's society, on and off the reservation, requires mathematical competence. However, empowering teachers to empower students is more than an economic driven goal. When failure results in underdeveloped potential, learned helplessness, and discouragement, *empowering teachers to empower students with mathematical competence* becomes a sacred mission. The Closing the Math Achievement Gap of Native American Students Identified as learning Disabled embraced this mission.

STUDY FINDINGS (additional findings available upon request)

WKCE Math Achievement

The mathematics results of 56 target students in grades four to eight who completed the standardized state test, the Wisconsin Knowledge and Concept Exam (WKCE), in both 2008 and 2009 were analyzed and compared. Students on this test are rated as having achieved minimal, basic, proficient, or advanced competency. These competencies are also scored numerically as 1, 2, 3, or 4 respectively. The 2008 test resulted in a mean score of 1.68 with a .88 standard deviation. The 2009 test resulted in a mean score of 2.02 with a .96 standard deviation. A t-test comparing these results indicated a significant improvement ($\alpha = .001$) in the 2009 test results over the 2008 results.

Why did target students' math achievement improve?

The 10 commonly shared reasons (from teacher survey):

1. Students were solving and writing their own word problems, and this improved comprehension;
2. Students were solving problems in different ways, trying new ways to solve;
3. Students were thinking about what the problem was asking, not just adding numbers;
4. Instruction was not textbook and worksheet driven;
5. Students could use manipulatives when solving problems;
6. The chalkboard and whiteboards were used more often;
7. The teacher asked more "Why?" questions;
8. Students worked in groups, and more students were teaching students;
9. Students were thinking through math more;
10. Students were writing number sentences and understanding what they meant.

Student Attitudes about Math (from teacher survey)

1. They are coming up with a solution that makes sense to them, and this makes them feel good.
2. There is not somebody saying that is not right, do it differently. So they are feeling better about themselves. I see the kids enjoying math more, so much more. They love it.
3. It's not a matter of them seeing that they get F's on their paper or their work is marked wrong. They just explore, and they have fun doing it.
4. They love story problems and graphing.
5. They love math.