

## Teaching Mathematics to Struggling Learners (UNI) Logic Model 2015

**Situation:** There is an ongoing achievement gap between children who receive Special Education services and those who do not. University of Northern Iowa Center for Teaching and Learning Mathematics developed a professional development program for elementary, K – 6, teachers that addresses this issue. The program utilizes Specially Designed Instruction (SDI) around **Do the Math** textbook series, enhances mathematics content knowledge, and incorporates supplemental instruction about diagnostic, formative and progress monitoring assessment.

Inputs	Outputs		Outcomes		
	Activities	Participation	Short	Medium	Long
Grant dollars Research Principal Investigator and Lead Instructor Advisory Development Committee from pilot district. Volunteer teachers <ul style="list-style-type: none"> <li>· Experimental group</li> <li>· Control group</li> </ul> <b>Do the Math</b> district textbook series <b>Cognition-Based Assessment &amp; Teaching</b> supplemental text for experimental group Supplemental material about assessment.	September to December 2014 <ul style="list-style-type: none"> <li>· Program development</li> <li>· Recruit experimental group from district teachers</li> </ul> January to May 2015 <ul style="list-style-type: none"> <li>· Recruit control teachers</li> </ul> Instructional Sessions for grant participants <ul style="list-style-type: none"> <li>· January to May 2015</li> <li>· Summer 2015</li> <li>· September to May 2015/16</li> <li>· Summer 2016</li> <li>· September to December 2016</li> </ul> Session formats will include <ul style="list-style-type: none"> <li>· Face-to-face instruction</li> <li>· Implementation support instruction (focused opportunities)</li> <li>· Online support</li> </ul>	Advisory Development Committee from pilot district, intermediate state support agency and UNI professors.  Teachers and instructional coaches from pilot district.	Teachers will . . . Review and begin to better utilize information from <b>Do the Math</b> textbook series. Become familiar with and start using concepts from <b>Cognition-Based Assessment and Teaching</b> Refresh content knowledge in the following elementary mathematics domains: <ul style="list-style-type: none"> <li>· Addition</li> <li>· Subtraction</li> <li>· Place Value</li> <li>· Multiplication</li> <li>· Division</li> <li>· Fractions</li> </ul> Review assessment concepts of <ul style="list-style-type: none"> <li>· Diagnostic</li> <li>· Formative</li> <li>· Progress Monitoring</li> </ul>	Teachers will begin to demonstrate increased. . . . . . Routine use of <b>Do the Math</b> textbook series. Understanding of content knowledge in elementary mathematics domains following instructional sessions. Routine use of assessment concepts in classroom instruction. Confidence in teaching elementary mathematics.	Teachers will be able to refine and differentiate. . . . . . Use of <b>Do the Math</b> Use of assessment tools <ul style="list-style-type: none"> <li>· Diagnostic</li> <li>· Formative</li> <li>· Progress Monitoring</li> </ul> Teachers will be confident in their ability to teach mathematics to struggling learners. The growth rate on the mathematics subtest of the Iowa Assessments will be greater for students taught by teachers participating in the grant than student peers who are taught by control group teachers.

**Assumptions:** Few elementary teachers are comfortable or confident in teaching math to struggling learners who are receiving Special Education services. Increasing a teacher's math content knowledge and improving pedagogy will result in an increase in student mathematics achievement.

**External Factors:** Teacher will be provided the encouragement, support and time by the school district administration to participate in the professional development. Funds for the grant will continue through the whole contract time.