

## Project: MASTERY

### Math and Science Teaching that promotes clear Expectations and Real learning through the Years

US Department of Education Grant # R324A080014

University of North Carolina - Charlotte

**Project Description:** The purpose of this project is to develop mathematics and science interventions for students with significant cognitive disabilities. In partnership with the National Alternate Assessment Center (NAAC), English/language arts for this population of students will also be developed. This project focuses on students with significant cognitive disabilities who participate in alternate assessments based on alternate achievement standards or that is, the “1%.”

In this project, we have developed not only some specific examples of lesson plans, but also a strategy that teaching teams can use to similarly develop targets for learning that is both aligned with state standards and responsive to student and family preferences through the use story based lessons, inquiry based science and literacy based mathematics. Second, the instructional strategies will be the most powerful available in the current research and specifically the systematic prompting and fading using task analytic instruction found in our comprehensive reviews on mathematics (Browder et al., 2008) and science (Courtade et al., 2008), but we will also assess the extent of conceptual generalization. Third, both content and strategies will be developed and evaluated for individualization to students who have limited use of symbols and may also have sensory or physical impairments. Finally, the intervention has been developed for vertical alignment of targets of learning across grade bands (elementary, middle, secondary).

We will apply the intervention with classroom teachers and replicate it across states (Georgia, South Carolina, South Dakota, Florida, Texas, Wyoming,) to consider whether it improves academic achievement and can be implemented by real teachers in real schools.

#### Enrollment Information:

Number of participants	<b>20 Teachers, 40 students</b>  <i>Preferred, but not required:</i> <b>20</b> general education teachers, possible videos permissions for general education peers in inclusive settings (not data will be taken on general education peers)
Length of enrollment	Subjects should expect to participate for 1 calendar year (12 months) to allow for training and feedback (either 09-10 or <b>10-11 school year</b> )
Expectation of participants (teachers)	-informed consent to participate -informed consent to video tape (if willing) -attend 3 day training -submit various pieces of evidence (e.g., lesson plans, teaching videos, sample IEP goals (without student names), data sheets.)
Expectation of participants (students)	-informed consent to participate -informed consent to video tape (if willing) -data to be collected by teacher on student progress via data sheets/videos/teacher interviews

**Inclusion criteria:** Students in grades 3-12 with significant intellectual disabilities, their teachers and parents

**Exclusion criteria:** Students with mild disabilities, their teachers and parents.

## **Description of Study:** Research on Teacher Developed Lesson Plans

The project will have three primary research goals:

- (1) articulation of “high expectations” for this population in math and science,
  - a) development of a conceptual framework for language arts, mathematics and science for this population including consideration of at least three different levels of disability (presymbolic, concrete symbolic, abstract symbolic)
  - b) evaluation tools for judging the level of expectation reflected in curricular frameworks and lesson plans that derive from our alignment methodology
  - c) We have developed model lesson plans for strands in English/language arts, science and mathematics across three grade bands that can be adapted for students at multiple symbolic levels (presymbolic, concrete, abstract).
- (2) development and evaluation of an intervention model that builds knowledge across grade bands
- (3) development and evaluation of an intervention for teachers to develop instruction that links to grade level standards in math, language arts, and science. The third goal will develop and evaluate a method to train special education teachers, in collaboration with general educators, to generate grade-linked lessons in English/language arts, mathematics and science.

**Training Details:** Project MASTERY will provide a 2-day professional development for up to 100 teachers/service providers. Following the two-day training the selected **20** participating teachers will receive explicit small group training on interventions and strategies covered in the 2 day professional development. Participants will plan how to use trained strategies for their selected 2 participating students. Procedural Fidelity will be taken, and project MASTERY expectations will be covered. Teachers will then return to classrooms ready to implement strategies, plan, and submit evidence.

Two additional on-line 3-hr training sessions will occur (Jan & Feb 2011) on Data-based decision, and Writing Standards-Based IEPs. Teachers will again have time to implement in the classroom, then submit evidence to Project MASTERY staff. Follow up phone consultation will be given as needed, as well as a final phone interview will be conducted concluding the study.

**Confidentiality:** Data collected will be kept confidential by: (a) keeping separate list of participants in locked filing cabinet in the project manager's office, (b) pseudonyms will be used in any reports, presentations, or manuscripts prepared from the study's findings.

**Risks and Measures to minimize risks:** There are no foreseeable psychosocial, economic, or legal risks to participation in this study. Participants will be observed during routine activities (via video), and survey/interview questions are not likely to cause distress. Individuals' participation in this study will be confidential. Each participant will be assigned a unique identifier that will be used to label all data collected for the project. Names and other identifying information will not be associated with results that are presented or published.

**Benefits to subjects and/or society:** The most important outcome of this project is that the students who participate will have the opportunity to master new skills that are both relevant to their individual needs and that address state standards. This project primarily focuses on developing, implementing and evaluating high quality instructional planning and implementation. The teachers who participate will have the direct benefit of learning new skills. In addition to these individual, local, and nationwide benefits, the examples generated by participating teachers will provide concrete examples of how other teachers can promote achievement of state standards in English/language arts, math, science for students with significant cognitive disabilities.

**Inducements for participation:** There will be no cost for participation. Teachers will receive an honorarium for their participation in the project per evidence completed and submitted. Evidence honorariums will range from \$50-150 per piece of evidence, with a maximum honorarium award of \$600 to be paid at the end of participating school year.

**Methods of recruitment:** Teachers will be recruited through state Project MASTERY contacts for each participating state.