



McREL's ACE project helps students with visual impairments learn science

The Challenge

Teaching science often relies on models and visual representations, so it can be particularly challenging for teachers to adapt lessons for students with visual impairments. Without training, teachers of students with visual impairments are ill-equipped to help them succeed.

Strategic Solution

To help mainstream science teachers better meet the needs of students in grades 6–12 who have visual impairments, McREL, in conjunction with Edinboro University of Pennsylvania, launched the three-year Visualizing Science with Adapted Curriculum Enhancements (ACE) study, which was funded through a \$1.5 million Mathematics and Science Special Education Development Research Grant from the U.S. Department of Education.

ACE engaged more than 20 teachers in Colorado and Pennsylvania in developing materials and a framework consisting of three components: understanding the spectrum of visual disabilities; determining the needs of visually impaired students in the classroom; and implementing ACE science visualization techniques, including models, tactile graphics, and observation tools.

ACE intervention participants received a resource manual with techniques, criteria, and examples, and McREL facilitated professional development sessions, with assignments that included readings, reflections, and data gathering tools.

Results

Enthusiasm for the project has been high, according to McREL Senior Director Sheila Arens, the study's co-principal investigator, and participants have begun using the materials and applying what they've learned about students with visual impairments in the classroom. The research team is observing participants' use of tactile graphics and interviewing students to collect information about their interest and motivation in learning science.

Next Steps

McREL is looking for ways to continue this effort so more teachers who have students with visual impairments can learn how to better meet the needs of all of their students.

About McREL services for

Developing curricular pathways to success

Successful learning for any student starts with the right curriculum. But what is “right” for one student may not be exactly “right” for another. McREL works with schools and districts in identifying and meeting the curricular needs of specific student populations while at the same time ensuring standards alignment.

Conducting curriculum audits

We conduct curriculum audits, helping districts identify strengths and weaknesses in their enacted curriculum, including areas where the existing curriculum fails to align with standards, sequence effectively through grade levels, or support student mastery of key knowledge and skills.

Creating a guaranteed and viable curriculum

Through intensive professional development and technical assistance, we help schools and districts offer a “guaranteed and viable curriculum”—one that identifies essential content for all students, sequences it in a way that gives students ample opportunity to learn it, and ensures that teachers address the content in their classrooms.

Helping translate standards into classroom curricula

We help schools and districts “unpack” the learning expectations embedded in standards and benchmarks, so they can develop curricula—and teachers can write lesson plans—that help students master the standards. We also develop instructional materials, including exemplar activities, lesson plans, and classroom assessment items to help teachers create standards-based classrooms.

Related services

Learning starts with the right curriculum, but it doesn't stop there. Research shows that student achievement is directly affected by instruction, so McREL offers a suite of *Classroom Instruction that Works* (CITW) products and services to help teachers refine their practices with the most effective research-based strategies available. Choose from three CITW workshops: CITW (Basic and Advanced), Using Technology with CITW, and CITW with English Language Learners.

For more information on any of our customized curriculum or instruction services, e-mail info@mcrel.org, or contact McREL at 800.781.0156.

