Teachers for a New Era

The preparation of teachers has long been a key commitment at Michigan State University. In 2002, MSU took yet another major step forward when it became one of four partners of the Carnegie Corporation of New York's groundbreaking reform initiative known as Teachers for a New Era (TNE). As part of the project, MSU will receive $5 million over five years to establish a model for preparing high-quality teachers for the myriad demands of the contemporary American classroom. The University is expected to raise an additional $5 million to further the project activities.

Assessment is pivotal to all aspects of the MSU initiative. The project is committed to identifying or developing assessment tools and promoting their use in continual program improvement and in tracking student progress. Another important goal is to have graduates use assessment tools as an integral part of their teaching to support student learning. After five years, MSU expects that its university-wide teacher education program will be preparing teachers who are more knowledgeable and skilled in their subject areas, better able to teach their subject to diverse learners, and more proficient in using assessment information to guide their teaching. MSU expects that its experiences and results will serve as a model of teacher education reform for other programs and institutions.

MSU's Teachers for a New Era project will lead to changes in five areas of teacher preparation:

- design of new content courses in English, mathematics, the social sciences, and the sciences that are well integrated with education courses focusing on pedagogy and student learning
- overhaul of education coursework and teacher education field experiences, both in subject matter and teaching methods so that content and context are central
- development of a new two-year induction program for beginning MSU teachers
- creation of a new MSU focus on preparing teachers for urban schools and educating more teachers from groups of people underrepresented in the teaching profession
• use of assessments to strengthen the entire MSU teacher education program and evaluate its effectiveness

Assessment efforts being used to inform TNE and help it achieve its goals include:

• examining the characteristics of students who enter the TE program, including: analysis of entry characteristics, course-taking patterns, and entry surveys

• outcomes assessment of TE program participants, including: performance on the Michigan Teacher Competency Tests of general academic competencies and specific disciplinary knowledge, surveys of current students, mathematics program graduates, internship completers, and graduates (in conjunction with Career Services and Placement Office)

• curriculum and course re-design, including: pre- and post-test assessments in mathematics courses (which have led to the development of a new course in probability and statistics to address student need), course mapping in literacy courses, model-based reasoning in science courses

• teacher and pupil knowledge in mathematics and science: MSU’s PROM/SE research project has conducted the following assessments, all of which are being used to inform program improvement as a part of TNE:
  
  o Student Assessment in Mathematics and Science, grades 3-12: 204,000 students in 587 schools were assessed in mathematics and science during April and May 2004. The design and form construction occurred in the six months preceding the assessment. Mathematicians, mathematics educators, scientists, and science educators at Michigan State University created blueprints for the student assessments.
  
  o Teacher’s Background Survey: A background survey was distributed to all mathematics and science teachers together with the student assessments during April and May 2004.
  
  o Teacher’s Content Goals Instrument: This instrument asked teachers to indicate how many lessons they taught in specific mathematics or science topics.
Principal Questionnaire: This instrument was sent to schools at the same time as the student assessments for school principals to complete. It contained items to assess the school context in which mathematics and science classroom instruction occurs and to learn more about the professional activities of school principals.

Mathematics Knowledge for Teaching Survey: Instruments for teachers at three levels, elementary, middle school, and high school, were given to the PROM/SE Mathematics Associates to further research into the specific knowledge needed for the teaching of mathematics.

District Roadmap: This instrument was given to the PROM/SE Partners for distribution to and completion by each District. It was to be completed by the district personnel most knowledgeable about each section which included items addressing the demographics of the district, policies and budget related to mathematics and science instruction, course offerings, and textbooks use and adoption, technical resources, and the professional development of teachers.

Topic Trace Map: Curriculum specialists in each district were asked to indicate which mathematics and science topics were intended to be taught at which grade(s).

- Development of *Teacher Knowledge Standards* for social studies, including: interviews with faculty, assessment of Integrative Social Science, and student surveys
- Student assessment in Teacher Education: The plan is to measure students’ informed reasoning about teaching and learning and their capacity for deliberate action in designing, assessing, and executing instruction. This will be accomplished through embedded assessments built into the sequence of TE courses from the junior-level course through the internship (see above for more information).
- Induction-related studies, including: beginning teacher survey to identify needs of new teachers and gaps in their academic curriculum and practica, qualitative pilot
to develop mentoring as a practice, qualitative pilot on lesson study websites, and self-assessment tools for new teachers for use in their work with mentors

- PTEDS: examining U.S. math majors in comparison with math majors at other universities in six other countries. Preliminary data suggest U.S. students compare favorably in mathematics knowledge, but lack comparable opportunities to practice integrating mathematics into teaching experiences.