

Abstract

Making the Transition from High School to College (MaTHSC) is a joint project among Plymouth State University, Keene State College, the New Hampshire Community and Technical College System, the University of New Hampshire, 10 high schools, including Colebrook Academy, Contoocook Valley, Laconia, Monadnock Regional, Nashua, Salem, Shaker Regional, Timberlane Regional, and Winnisquam Regional, and the New Hampshire State Department of Education. MaTHSC will create a Steering Committee with representation from all partners that will direct project activities, while the NH-IMPACT Center at PSU oversees the project and expenditure of funds.

MaTHSC will collect and analyze data from all partner institutions on courses taken for high school graduation, courses taken by college students, determine how students make decisions about the courses taken at each level, and identify any gaps in knowledge from high school courses taken and college expectations. Project personnel will identify rigorous mathematics curricula that are aligned with the NH Grade-Span Expectations and national standards, such as those defined by the National Council of Teachers of Mathematics and the ACT's core curriculum identified in *Crisis at the Core*.

MaTHSC will design programs to prepare mathematics faculty from each partner institution to provide professional development to colleagues and assist staffs to review and understand the research findings and classroom implications of the information gathered. To complement this latter activity, the project will establish and operate a program that brings scientists, mathematicians, and engineers into contact with high school teachers to broaden teachers' knowledge of mathematical applications.

MaTHSC will be evaluated by an external evaluator, the DMB Consulting Group.

Program Goals and Objectives

Project Goal: The primary goal of the MaTHSC project is to help students make a successful transition from high school to IHEs in NH. To assure that the goal is met, we will accomplish the following objectives:

- 1) Create a Steering Committee comprised of members of the partner schools to collect information about the current status nationally, throughout the State, and in local districts with regard to courses commonly taken by all high school students in the field of mathematics, how students make decisions regarding courses taken at the high school level, courses commonly taken by students majoring in quantitative fields and non-quantitative fields in college, and why those courses are taken. A report detailing those results and the gaps that may exist will be written and shared throughout the State. This information gathering will begin in the spring and go through the fall of 2005.
- 2) Identify rigorous mathematics curricula to help students bridge the gaps found between high school study and what is needed at the college level. Information regarding curricula for both students majoring in quantitative fields and non-quantitative fields will be analyzed and reported. Research showing the need for a rigorous mathematics curricula which emphasizes problem solving and having students work mathematically is needed by every student in high school, regardless of their intent to go onto college or not. This information will be shared and advocated. This part of the project will begin in the fall of 2005.

3) Identify at least two faculty leaders from partner institutions who will be trained to share the information from the Steering Committee study, the rigorous mathematics curricula identified to bridge the gaps, and recent research about the teaching of mathematics in the winter and spring of 2006. Those faculty leaders will then conduct workshops at their home institutions in the summer and fall of 2006.

4) Hold a forum for administrators and mathematics faculty in the summer of 2006 to share the findings of the Steering Committee studies. In particular, the data regarding the mathematics courses taken in high school and college and gaps that may exist; the innovative and challenging curricula identified to bridge the gaps found; and recent research about learning mathematics. Funding for this will come from the school districts attending the summer session.

5) Compare and analyze the innovative and challenging curricula identified to see how well they align with the GSEs for grades 9 and 10. Recommendations about those GSEs will be made, and suggested GSEs for grades 11 and 12 will be developed. This aspect of the project will be done in the spring of 2006.

6) The NHCTCS Fellow will explore the potential to expand “Running Start” courses in mathematics as well as work among the IHEs and high schools to identify other interventions or strategies to eliminate or lessen the need for remediation. Running Start allows high school students to take college level courses with the incentive of reduced tuition and portable college credit. The MaTHSC grant will help provide the resources needed to promote the importance of higher levels of mathematics for students currently enrolled in technical or vocational Running Start courses. The NHCTCS Fellow will work with high school vocational directors, academic faculty, and counselors to better prepare students for college success by “demystifying” expectations and emphasizing rigorous mathematics for these students.

7) Arrangement for a series of talks and presentations by mathematicians, scientists, engineers, and statisticians will be made. These presentations will be held to inform faculty from partner institutions about the wide range of opportunities to use a mathematical background and to increase interest in pursuing mathematics as a field of study.

8) A sub-committee of the Steering Committee will develop an end-of-grade-eight assessment based on the State’s GSEs. This assessment will be field tested in the spring of 2006. This sub-committee will also begin working on a set of high school formative assessments that will provide guidance to students, faculty, school administrators, and parents on the kind of mathematics the students need to know.