Future chemistry students will need to learn more than just chemical concepts and laboratory skills, scientists said here on Tuesday at the national meeting of the American Chemical Society. More than ever before, students will need to learn to communicate with people from diverse backgrounds and work in multidisciplinary teams.

At a session dedicated to chemistry education 10 years from now, chemists emphasized ways to engage students from diverse backgrounds and to get them involved in research.

Both are key to stemming the loss of interest in the field. Scientists have worried for years about data showing that more students leave the science major every year as undergraduates, and few go on to graduate study.

"The classroom in 2015 is going to be much more diverse than it ever has been," said Marye Anne Fox, a chemist and the chancellor of the University of California at San Diego. Students need to learn to work with people from diverse cultures, she and other speakers emphasized, and faculty members need to teach students with varying learning styles.

Isiah M. Warner, a professor of chemistry at Louisiana State University at Baton Rouge, discussed his department's success in recruiting and retaining minority undergraduate and graduate students.

Since the mid-1990s, the department has had more than 30 minority students in its graduate program every year.

Mr. Warner boasted that Louisiana State is the No. 1 producer of African-American Ph.D.'s in the United States. "I brag about that because I want someone to challenge me," he said. "No one has challenged me yet."

To achieve such success, "simply being a teacher is not enough," he said. Faculty members need also to act as mentors and to provide students with research experiences.

Giving undergraduates research experience can be difficult because faculty members can usually take only one or a few students in their labs at a time. Gabriela C. Weaver, an associate professor of chemistry at Purdue University at West Lafayette, is part of a team developing ways to reach more such students by bringing research into the classroom.

Research, she said, helps students "engage in and think about the scientific process." Her program, called the Center for Authentic Science Practice in Education, is working on developing modules for introductory courses that involve experiments and collecting data that will be useful for a faculty member's research.

Purdue has tested three pilot modules this year, with 19 students volunteering to do the lab work. "The students were really excited that what they were doing actually had impact onto somebody's work," she said. Purdue plans to offer the module for one section of its general chemistry course, and will expand if it succeeds.

Ultimately, Ms. Weaver said, the goal is to provide a framework so that other institutions can also bring research into the classroom.

That's an excellent way to engage students, said Eileen L. Lewis, a lecturer at the University of California at Berkeley. Traditional teaching is too often teacher-centered, she said, and as a result students have trouble moving past their own misconceptions to understand and apply the concepts of the course.

The ideas discussed about students' needs were perhaps not new -- students for decades have needed to develop communication skills and take risks -- but some of the approaches discussed were at the cutting edge, said William F. Polik, a professor of chemistry at Hope College and the symposium's organizer.

"The challenge now," he said, "is in implementation."