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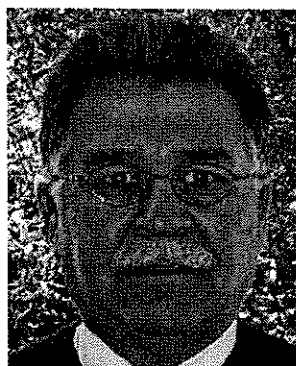
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## Colleges, Universities, and Communities



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9 JANUARY 2004

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I expect that these ideas could increase the numbers of all students pursuing MSE degrees, a real necessity in today's culture.

This is the first in a series of articles that addresses diversity issues at universities. The articles present ideas and methods that university faculty members and their institutions can use to increase the number of minority students pursuing degrees in mathematics, science, and engineering (MSE). In fact, I further expect that these ideas could increase the numbers of all students pursuing MSE degrees, a real necessity in today's culture. In this article I will discuss the definition and the impact of diversity and some of the barriers that exist in attaining it at the university level.

### Diversity means ...

What does diversity mean? Diversity means that university faculty members and students are representative of the U.S. population as a whole. Diversity means that a student coming out of our K-12 educational system can gain entrance to and be successful at our universities. Diversity means that our high school students can access the resources of a university: knowledge, expertise, training, and education.

Unfortunately, I might have already lost some readers with my remarks about diversity. When I have given presentations on diversity at conferences, I have often been approached by a faculty member who asserts that his department is already diverse. Why, they have faculty from all over the world. French, Russian, Arabic, German, and Spanish are regularly heard in the halls and elevators. International students are also strongly represented in our MSE graduate programs throughout the country. Achieving diversity does not involve recruiting students and faculty members from abroad in an attempt to have some semblance of diversity. The

goal of diversity is not to have every major language and cultural group represented among our faculty and student population. Rather, diversity is achieved when the faculty and the student population represent the local community.

A university is situated in a community. The community should view the university as a resource for its children. The local population must be made aware of the tremendous opportunities that exist for those individuals with an education, especially with an education in an MSE field. For most minority students, if a bachelor's degree in the MSE fields is to be in their future, the local university in town is the *only* conduit for that goal. Many minority families do not have the financial resources to send their children to another city to pursue higher education. Therefore, local resources play a key role in providing the minority population with a voice in higher education.

Conversely, the university should view the community as a resource for diversity. Universities complain that given the minute pool of minority faculty, it is almost impossible to have a representative faculty. Universities need to persuade the precollege students in the community to pursue an MSE career. Producing good-quality minority undergraduate students in the MSE fields will lead to an increased minority graduate population and eventually to a larger pool of minority potential faculty members to choose from.

#### **Reaching out to the community**

Serious outreach to the local community should be part of the portfolio of any university, and these outreach efforts should be integrated into the lives of the departments. Just as research and teaching are considered when evaluating a department, activities that serve to promote MSE careers among the local population should also play a prominent role in these evaluations. We all know how important it is to create new knowledge. It should be equally important to use that knowledge to motivate our students to pursue a university education.

Furthermore, this concern for outreach should be incorporated into the department in such a way that it beneficially affects the training of the undergraduate and graduate students in that department. Students in a department should be given the opportunity to participate in, and be allowed to create, outreach programs that serve to motivate precollege students to pursue MSE careers. Students can serve as excellent ambassadors to the community, especially if the students come from that community.

Although attaining diversity at the university level is possible, impediments exist in academia that hinder the full realization of diversity in the university setting. In most universities, individuals are not trained to deal with the social issues that revolve around diversity. In fact, I suspect that the notion that social issues are a part of the equation makes working scientists uncomfortable about the whole process.

Faculty members are expected to perform many functions at universities: research, instruction, committee work, outreach, and mentoring. The traditional training that most faculty members receive involves technical coursework leading to a dissertation, with perhaps some experience in teaching. This may not prepare them to recognize, much less address, diversity issues. Encouraging our students to pursue

MSE careers is too important a task to be left to on-the-job training. Let's take the time to thoroughly understand what works and what should be done so that more of our students decide to pursue careers in MSE fields. Just as departments invite faculty members to come in and give talks on technical subjects, departments should develop a lecture series aimed specifically at addressing how best to reach the local community, what outreach efforts work, and how to carry them out.

Universities are global players. Their faculties are involved in national and international projects. In maintaining this global enterprise, universities cast a worldwide net in order to attract the most promising students and the best faculty members. If diversity is to be achieved, universities must inspect that net to make sure that it doesn't have a huge hole in the middle--one that misses the local community. I am reminded of a saying that I believe applies to universities quite well: "Think globally, act locally."

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