

PARTNERSHIP BUILDING FOR MINORITY ENGINEERING TRANSFER STUDENTS

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Abstract — Several years ago, the University of Missouri-Rolla (UMR) recognized the importance of community colleges in the preparation of students for baccalaureate degree programs. They were especially appealing because of their high concentration of minority students, particularly those institutions located in major metropolitan inner cities. In 1989 UMR worked collaboratively with the three St. Louis area community colleges and Emerson Electric to establish a program and strategy that has facilitated the recruitment and enrollment of minority students in Bachelor of Science in engineering programs. Since 1990, four additional such partnerships have been established. The key to success in building these corporate partnerships is to ensure that everyone is a winner. The students receive financial assistance, the community college and university attract more minority students who have an interest in engineering, and the corporations expand their potential talent pool by working with the students through mentoring, scholarships, and internships.

Index Terms— Academic support, corporate partners, St. Louis Community College, transfer program

INTRODUCTION

The Minority Engineering Transfer Program (METP) is an effort by UMR, St. Louis Community College, and Emerson to recruit and support minority high school students whose overall high school GPA may not normally qualify them for admission or scholarship assistance at the university, but who are viewed by their science and math teachers as having the potential to successfully complete an engineering degree.

The cooperative METP provides minority students with the academic and financial assistance necessary to successfully earn a bachelor's degree in engineering from UMR. Selected participants begin the program at the St. Louis Community College, where they enroll in the pre-engineering program. After successful completion of the pre-engineering program, the students transfer to UMR in the engineering program of choice, at the junior level.

RECRUITING AND SELECTION OF PARTICIPANTS

Recruiting and selection of student participants is a joint effort between Emerson, St. Louis Community College, and UMR. A recruiting brochure and special direct mail project, directed to the potential St. Louis area participants, is made by UMR and St. Louis Community College. Luncheons to acquaint St. Louis area counselors and administrators with the program are sponsored by Emerson Electric.

Students selected to participate in the minority engineering grant program must meet the following criteria:

1. Be a high school graduate
2. Hold an overall high school grade point average of 3.0 or better
3. Hold math and science grade point average of 3.0 or better
4. Have a composite ACT score of 18 or better
5. Have a math and science ACT score of 18 or better
6. Have strong recommendations by high school math and/or science teachers.
7. Be an underrepresented minority

Other and more recent recruiting efforts include:

1. Providing a means whereby a larger number of minority students can have more exposure to the UMR and community college campuses through activities such as live-in weekends, summer camps, etc.
2. Collaborative efforts between local universities, the community college district, the public school system, and the National Science Foundation to improve the science and mathematics preparation of students.
3. Target media coverage to reach minority students, parents and the community. This includes promotion of success stories, radio announcements, brochures, etc.
4. Involve UMR students in mentoring and enrichment programs for pre-college students. Also include them on student panels, high school visitation programs, and at career fairs.

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FINANCIAL SUPPORT

Emerson provides financial support to selected participants in the form of a grant, on a semester by semester basis, for up to six semesters. The grant covers the cost of books and courses taken at the St. Louis Community College. Upon transfer, UMR provides a continuing scholarship. The amount of the scholarship is dependent upon the student's transfer GPA as computed by UMR. A student who has achieved a cumulative GPA of 3.0 or higher will receive a \$4,000 annual award. The amounts of the scholarship are reduced for a lower GPA, and no scholarship is awarded to a student if his/her GPA is below a 2.5. The scholarships are continuous for the second and third years, upon maintaining a cumulative GPA of 2.5. In addition, UMR encourages and helps the student participant obtain co-op positions and/or summer intern jobs.

Because a large number of the students transfer into the university with a high GPA, they also qualify for department and other targeted scholarship opportunities such as the Minority Engineering Program and the Alumni Transfer Programs.

Beginning in 1990, Emerson increased its financial support by also providing renewable \$1,500 scholarships to the students upon transferring to UMR.

UMR has and will continue to assure that no student will be unable to transfer because of financial barriers.

ACADEMIC AND CAREER COUNSELING SUPPORT

An engineering guidance committee, including representatives from Emerson, St. Louis community college and UMR has been established to monitor and review student progress and recommend grant and scholarship continuation. Participants receive counseling from UMR while at the community college through the Transfer Assistance Program (TAP). Through the TAP program the student is provided a model transfer program appropriate for his or her major, year and term of enrollment. These model transfer programs are essentially contract agreements with the student identifying catalog year and a semester by semester program to follow.

Upon admission to the METP program, St. Louis Community College provides orientation sessions to acquaint students with their new environment and familiarize them with the academic policies and procedures of the college. This helps students make a positive adjustment from high school to college. Advising and registration follow the orientation session. During the advising session, placement test results are interpreted by an academic advisor in the pre-engineering program at St. Louis Community College and the Model Transfer Program for engineering students who plan to transfer to UMR is reviewed. Appropriate courses are selected.

St. Louis Community College provides academic support through the Department of Advising and Counseling, the Learning Center, math and science labs, instructional faculty and peer mentors. Study skills seminars have been developed to help students become more effective learners. They include a series of informative sessions on subjects relating to "How to Take Useful Class Notes", "Analytical Thinking Skills", "How to Be Successful in College", and "Time Management".

Monthly meetings are scheduled to get students more involved in discussing issues related to academics, future goals, and teamwork. Representatives from local corporations are invited to share information relative to specific fields of engineering. The METP student also becomes involved in an academic and career counseling program staffed by UMR which consists of a coordinator from the admissions office and designated departmental advisors who make routine visits to the campuses of the St. Louis Community College District. Through these visits the students are provided with both group and individual counseling.

During the semester preceding the student's planned enrollment at UMR, he/she is assisted by a representative of the UMR Admission and Student Financial Aid office with application procedures for both admission and student financial aid. Students participate in a special pre-registration program to assure they receive an appropriate course schedule.

Upon transfer to UMR, students are invited to participate in the transfer component of the twenty-seven year old Minority Engineering Program (MEP). It should be noted, however, that the MEP's initial contact and rapport with the students begins the summer preceding enrollment at the community college. They are expected to enroll in the MEP's Master Student class, a one credit hour orientation and community building course designed for minority students. Students' academic progress is tracked for the purpose of providing intervention such as mentoring, tutoring, counseling and other support services. Special seminars with representatives from companies that hire engineers are held to explore careers, summer internships and co-op employment opportunities.

All of the above support services provide an academic environment that promotes student success. This makes transition from the community college to UMR less difficult.

RESULTS OF THE COOPERATIVE PROGRAM

Implementation of these joint programs has proven to be effective for minority student- recruitment. These projects have reflected positively on the pre-engineering program enrollments at the community colleges and the university. Combined efforts to identify and seek talented students have increased the number of under-represented constituencies of

the metropolitan areas pursuing an engineering degree. Of the 130 students who began the program at the community college, 26 are currently enrolled at the community college and 49 transferred to UMR. Of the 49 transfer students, 30 or 61% have received their B.S. degree in engineering (see Table 2). As a result, Emerson has recruited seven of the transfer graduates on a permanent basis.

Prior to the implementation of these programs in the late 80's no more than three minority students per year were completing the pre-engineering program at the community colleges and transferring to a four-year engineering school, including UMR. As of 1999, the percentage of minority transfer students was 12.58% representing an increase of 5% compared to 1998 (see Table 3).

The attention and publicity of the program has also attracted other minority students to the pre-engineering program. Although the students are not supported by an Emerson Electric grant, they have been able to obtain sufficient financial assistance to complete the program at St. Louis Community College and subsequently transfer to UMR.

CONCLUSION

In the state of Missouri, 54% of the minority student population enrolled in institutions of higher education are currently enrolled in one of the state's 16 community colleges. Of this number, 95% are enrolled in the St. Louis and Kansas City Community College Districts. These community colleges feed a large number of qualified, motivated, and successful non-technical transfer students into four-year colleges and universities, institutions which were previously out of reach for many students in the MEPT due to insufficient financial resources or inadequate academic preparation.

We are convinced that a cooperative effort as described in this paper is necessary if we are to significantly increase the number of minority graduates in engineering. Although the results from the first cohort are encouraging, we are currently evaluating our effort in an attempt to improve our

understanding of institutional responsibilities and programs that positively influence the recruitment and retention of minority students in engineering.

FLOYD HARRIS

Floyd has directed the University of Missouri-Rolla's Minority and Women in Engineering Programs for over 26 years. He has a B.S. degree in Psychology from UMR and an MBA from Drury College. Floyd has been active in several professional organizations including NAMEPA of which he received the 1995 National Director of the Year award. He currently serves as an advisor for the Region 5 National Society of Black Engineers and is active in community organizations, both locally and at the state level.

JENNIFER VIDETTO

Jennifer Videtto is the Assistant Director of the Minority Engineering Program at the University of Missouri-Rolla. She came to UMR with 15 years teaching experience at the University of Texas, Tyler campus, where she taught Operations Management courses, and also was the Coordinator of Advising for the College of Business. She has a B.S. degree in Industrial Engineering from West Virginia University and an MBA from the University of Louisville.

MICHELLE SCHOENBORN

Michelle has worked at the University of Missouri-Rolla for approximately seven years. For the past three years, she has worked with UMR's minority and women in engineering programs, coordinating various student activities and programs. She is currently pursuing a B.A. in Business Administration with emphasis in Marketing and Management.