

CO-CHAMPIONS FOR DIVERSITY IN ENGINEERING: THE OFFICE OF STUDENT AFFAIRS/UNIVERSITY FACULTY/K-12 SCHOOL DISTRICTS/INDUSTRY

Mary R. Anderson-Rowland¹, Doris Roman², Maria A. Reyes³, Dana C. Newell⁴,
Richard D. Filley⁵, Joseph E. Urban⁶, Janita Pickett-Gordon⁷, Margaret A. Fussell⁸, Patricia M.
Secola⁹, Cathryne L. Jordan¹⁰, Shawna L. Fletcher¹¹, Jennifer K. Adair¹², Leyla D. Newton¹³
College of Engineering and Applied Sciences
Office of Student Affairs
Arizona State University Tempe AZ 85287-5506

Abstract--- *The Office of Student Affairs in the College of Engineering and Applied Sciences at Arizona State University is charged with the recruitment, retention, and placement of students. The Office is led by an Associate Dean of Student Affairs and includes a Student Affairs Liaison Officer, an Office of Recruitment, a Women in Applied Sciences and Engineering (WISE) Program, an Office of Minority Engineering Programs (OMEP), an Inclusive Learning Communities Program, and an Engineering Internship Program. The WISE Program includes an NSF-sponsored WISE Investments program that works with junior high school, high school, and community college mathematics and science teachers and counselors to help them introduce engineering concepts in their classroom and through Saturday Academies for young women. The OMEP includes a Mathematics Engineering Science Achievement program, which is a K-12 intervention program that works with underrepresented minority students to increase the number of students who are competitively eligible to enter the university.*

The College goals of increased enrollment and increased minority and female representation support the University goals. To accomplish these increases, the staff in the Office

of Student Affairs collaborate and team to leverage resources and ideas within their Office and with the University faculty, local K-12 school districts, and industry, including an Advisory Council. Enrollment as a college is growing and the percentages of women and underrepresented ethnic minorities within the college are increasing. The one-year retention of all students, as well as of women and ethnic minorities, has improved. The internship program is expanding and assists with job placement. This paper will describe the major collaborations that occur to make recruitment, retention, and placement more effective and successful. The effects of individual programs will also be described.

Index Terms--- *Collaboration, Diversity in Engineering, Minority/Women Programs, Student Affairs.*

Introduction

The present Office of Student Affairs (OSA) in the College of Engineering and Applied Sciences (CEAS) at Arizona State University (ASU) began in 1993 with the appointment of an Associate Dean of Student Affairs and Business, the

¹Mary R. Anderson-Rowland, Arizona State University, CEAS Associate Dean of Student Affairs, PO Box 875506, Tempe, AZ 85287-5506, mary.anderson@asu.edu

²Doris Roman, Arizona State University, CEAS Office of Student Affairs, PO Box 875506, Tempe, AZ, 85287-5506, doris.roman@asu.edu

³Maria A. Reyes, Arizona State University, Office of Minority Engineering Programs, PO Box 875506, Tempe, AZ 85287-5506, mars@asu.edu

⁴Dana C. Newell, Arizona State University, Women in Applied Science and Engineering Program, PO Box 875506, Tempe, AZ 85287-5506, dana.newell@asu.edu

⁵Richard D. Filley, Arizona State University, Engineering Internship Program/Corporate Leaders Program, PO Box 877406, Tempe, AZ 85287-7406, filley@asu.edu

⁶Joseph E. Urban, Arizona State University, Department of Computer Science and Engineering, PO Box 875406, Tempe, AZ 85287-5406, urban@asu.edu

⁷Janita Pickett-Gordan, Arizona State University, CEAS Development Office, PO Box 875506, Tempe, AZ 85287-5506, janita.gordan@asu.edu

⁸Margaret A. Fussell, Arizona State University, Office of Recruitment, PO Box 875506, Tempe, AZ 85287-5506, peggy.fussell@asu.edu

⁹Patricia M. Secola, Arizona State University, WISE Investments, PO Box 875506, Tempe, AZ 85287-5506, patricia.secola@asu.edu

¹⁰Cathryne L. Jordan, Arizona State University, Office of Minority Engineering Programs, PO Box 875506, Tempe, AZ 85287-5506, leonaj@asu.edu

¹¹Shawna L. Fletcher, Arizona State University, Women in Applied Science and Engineering Programs, PO Box 875506, Tempe, AZ 85287-5506, shawna.fletcher@asu.edu

¹²Jennifer K. Adair, Arizona State University, Minority Engineering Programs, PO Box 875506, Tempe, AZ 85287-5506, Jennifer.adair@asu.edu

¹³Leyla D. Newton, Arizona State University, Office of Minority Engineering Programs/Women in Applied Science and Engineering Programs, PO Box 875506, Tempe, AZ 85287-5506, leyla.newton@asu.edu

first female Associate Dean in the history of the College. She was charged with creating a Women in Engineering Program, responsibility for the College space and its Engineering Lab Services, and assisting with the College budget. A college Recruitment Office operated out of the Division of Student Services within the Dean's Office and a struggling Minority Engineering Program (MEP) had existed for some years. During 1992 a new MEP Director brought with him the central and northern Arizona Mathematics, Engineering, Science Achievement (MESA) Program, a middle and high school outreach program targeting underrepresented minority students. A Women in Applied Sciences and Engineering (WISE) Program was created during the summer and fall of 1993 [1].

In 1995, a new CEAS Dean restructured the Dean's Office and now charged the Associate Dean to put all of her and her staff's attention on students. This Associate Dean was now called the Associate Dean of Student Affairs and Special Programs. The "Special Programs" part of the title includes participation with the Graduate Engineering Minority (GEM) Consortium, keeper of the data for the college for required internal metrics, and representing the Dean at various student functions. The charge for this Office was to recruit, to retain, and to place CEAS students, which include engineering, computer science, and construction majors. Since women and minority students are underrepresented in engineering, it is natural that an Office charged with increasing the enrollment of students would target those groups since they hold the largest potential for recruitment. The Office of Recruitment, along with the Office of Minority Engineering Programs (OMEP) and the WISE Program, was placed in this Office of Student Affairs and Special Programs. The MESA Program was included as part of the OMEP. In 1997, a separate Internship and Co-op Office was established to be directed half time by the Director of the Corporate Leader's Program [2]. The Corporate Leaders Program is a leadership development program with internship and community service components. Also in 1995, an Engineering Freshman Year Experience was begun which included an expanded orientation program for engineering freshmen and the designation of an "engineering dorm floor" for entering CEAS freshmen [3].

OFFICE OF STUDENT AFFAIRS INFRASTRUCTURE

OSA has grown from a staff of 6 in 1993 to a staff of 19 in 2001, 14 of whom are full-time staff in the Office. In addition to the staff, several student workers also help with the OSA programs. Of the 14 full-time staff, 12 are on the state budget. The infrastructure of the OSA is shown in Figure 1. Although this infrastructure was envisioned some time ago, it has taken several years to actually hire all of the staff in order to have the present infrastructure. As the OSA

has developed, we have been very aware of the pathways that we have developed to help recruit students starting in junior high through retaining them as college students to helping place them after graduation [4]. In late 2000, the Office of Student Affairs and Special Programs changed its name to simply the Office of Student Affairs. This change was made as the result of an action item that resulted from an all-day Office Retreat in Fall 2000. The Office staff did not like the implication that some programs were more "special" and the possible misunderstanding that they may be temporary.

A brief description of OSA follows. An Administrative Assistant and student support the Associate Dean of Student Affairs. A Student Affairs Liaison Officer (SALO) directs fundraising for all areas of the Office, coordinates the Student Affairs Advisory Council (SAAC, populated by industry and education representatives), and serves as an ambassador for the Dean in the community. An Administrative Assistant, whom she shares with the Recruitment Office, supports the SALO. A professor serves $\frac{1}{4}$ time as the Director of the Inclusive Learning Communities Program that includes overseeing the Freshmen Engineering Residence Hall Program, Academic Mentoring, and Career Mentoring Programs. Three Graduate Assistants assist this Director, one each for the Freshman Residence Hall, Academic Mentoring, and Career Mentoring. The Academic Mentoring Coordinator supervises three student academic mentors.

A Director of the OMEP oversees a Student Retention Specialist, a Student Services Coordinator Associate (who coordinates the MESA Program), an Administrative Assistant, and a half-time Student Recruitment Specialist, besides several graduate and undergraduate student workers. The full-time Student Retention Specialist works with the student organizations of AISES (American Indian Science and Engineering Society), NSBE National Society of Black Engineers), and SHPE (Society of Hispanic Professional Engineers).

The Director of WISE oversees a Student Services Coordinator Associate, who coordinates retention activities for CEAS women, and a half-time Student Recruitment Specialist, an Administrative Assistant, graduate assistants, and student workers. The WISE Director also serves as a counselor for SWE (Society of Women Engineers). Associated with the WISE Program is the NSF-sponsored WISE Investments (WI) program for helping junior high and high school teachers and counselors to understand engineering and to have these teachers and counselors develop and test curricular modules that are presented to junior high and high school young women through Saturday Academy Workshops. The Program Coordinator of WI reports to the Associate Dean of Student Affairs, who is the PI of the project. The WI program coordinator supervises three graduate assistants and two student workers. The WISE Office provides secretarial support.

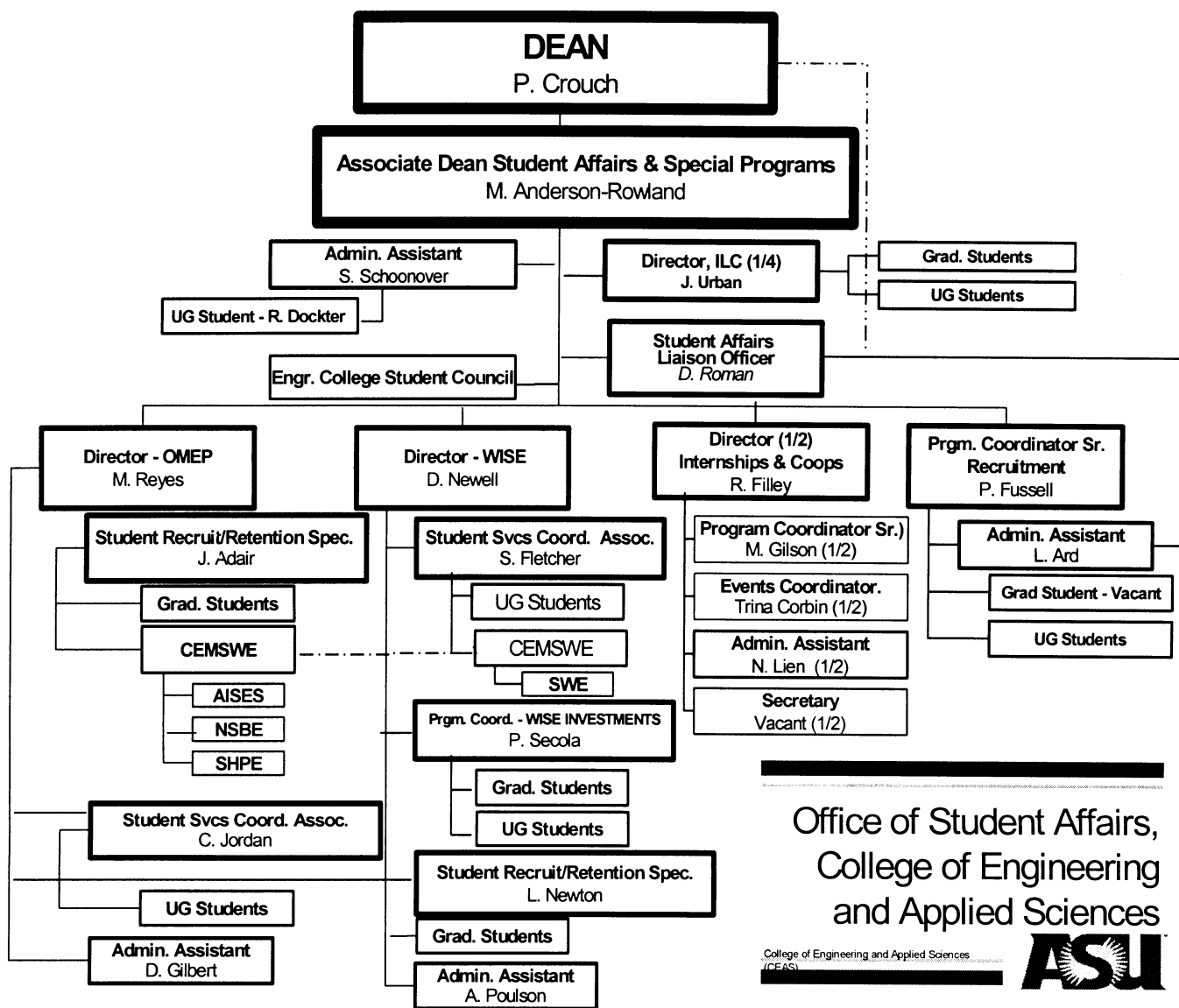


FIGURE. 1
ORGANIZATION CHART OF THE OFFICE OF STUDENT AFFAIRS, COLLEGE OF ENGINEERING AND APPLIED SCIENCES,
ARIZONA STATE UNIVERSITY

A full-time staff member runs both the Engineering Internship Program (EIP) and the Corporate Leaders Program (CLP). For this second half of his job, he reports to the Academic Associate Dean. A Program Coordinator, Senior; an Events Coordinator; an Administrative Assistant; and a Secretary support the Director.

A Program Coordinator Senior, who is assisted by an Administrative Assistant shared with the Student Affairs Liaison Officer, runs the Office of Recruitment. Student workers also support this Office.

Programs and research results generated by this Office have been well documented in other publications [for example, 5, 6, 7, 8, 9].

BUILDING COLLABORATIONS

For several years, the OMEP and WISE Offices acted quite independently. Within the OMEP, the student organizations of AISES, NSBE, and SHPE operated quite independently, although all were supported by the OMEP. A room across the hall from the OMEP Office was available for students affiliated with AISES, NSBE, and SHPE. The former program coordinator of the OMEP had been the President of SHPE during the time she earned her BSE in Civil Engineering. She was well aware of times that the organizations had worked well together and when there had been difficulties. However, true to her vision of successful collaboration between these three minority targeted societies, she worked with the leaders of AISES, NSBE, and SHPE emphasizing that a coalition would be helpful to each of the organizations. This process took almost a year before a partnership emerged. This partnership was called "CEMS," (pronounced "seams" as in seams binding separate pieces of cloth into one garment). CEMS was an acronym for the Coalition of Engineering Minority Societies [10]. The student room available across the hall from the OMEP became known as the CEMS Room. The CEMS collaboration is now CEMSWE with the addition of SWE [11]. Four major events are sponsored by CEMSWE each year: a mid-year leadership retreat in January, an Awards Banquet in April, a leadership retreat in May, and a Diversity Evening with Industry (DEWI), including a career fair and banquet in the Fall semester.

As the Office of Student Affairs has grown, collaboration has been essential. During full meetings of the staff, brainstorming and problem solving are facilitated by a give and take between the units. However, building a strong trust and confidence between the offices within the Office of Student Affairs is a continuing exercise as new personnel join the OSA and as joint funding proposals are prepared. There is a strong belief in having separate programs for women and underrepresented minority students, although strong collaboration between the two is beneficial to both.

While both are underrepresented minority groups, each has its own special needs. By each group having its own student room and set of offices, we are better able to foster a "critical mass" for each group.

An essential ingredient in this mix for collaboration is the strong support of this Office by the Dean. The fact that the Dean has dedicated an Associate Dean solely for the recruitment, retention, and placement of students gives the OSA the confidence to carry out their mission. The strong support by the Dean for the infrastructure of the Office in personnel and space allows it to carry out the comprehensive program that it supports.

Some of the collaborative efforts and partnerships, both formal and informal, of the WISE Office and the OMEP Office that have made them co-champions for diversity in engineering have already been described [12,13]. These activities will now be described briefly, along with additional current areas of collaboration.

COLLABORATIONS

There are many ways to collaborate that are of benefit to a couple, several, or all of the programs. Some of these collaborations happened by design, others more spontaneously.

Student Affairs Advisory Council

Over two years ago a Student Affairs Advisory Council (SAAC) was formed to partner with and to support the OSA. This Council is kept apprised of events in the OSA primarily through three council meetings per year and participation in two major events, the DEWI and the CEMSWE Awards Banquet. In this way, WISE and OMEP work together with the SAAC and the CEMSWE to ensure successful events. The membership dues for SAAC include support for a banquet table at each of these two CEMSWE events, participation in the DEWI Career Fair, and a resume book. The projects and needs of the OSA are presented to the SAAC. SAAC members sponsor several of the summer programs for grades 6-12 offered by the OSA (eleven for Summer 2001).

Shared Staff

For the past several summers, WISE, OMEP, and Recruitment have shared student workers for their summer programs. In this way, the students had employment for most of the summer. The student workers were trained in their first summer program and then were more efficient as they assisted with additional programs. This past year a staff member worked half time for WISE with industrial support and half time for the OMEP supported by salary savings.

Assessment and Evaluation Discussion

The Office of Recruitment and the Student Affairs Liaison Officer share an administrative assistant. Whenever one office within the OSA has a large event, the other OSA areas try to give as much staff support as possible for that event.

Shared Summer Programs Recruitment

For the past several years, publicity on all of the summer programs offered by the OSA has been shared through a common brochure or fact sheet. Information on all of the summer programs is sent to Arizona Middle and High Schools throughout the state. A common initial information request form is used for the summer programs. An additional student worker should be available this spring at a central desk to take calls and requests for more information for all of the summer programs.

K-12 Summer Institute

Since 1994 the summer programs offered by the OSA have expanded from one two-day commuter program for middle school girls to eleven summer programs planned by OSA for summer 2001. The number of participants in these summer programs has grown from about 40 to 322 students in summer 2000. Due to the success of these programs and the impact they have had on their participants, we are receiving community pressure to expand our offerings to include 500 students. With the staff stretched to the limit with the current programs, expansion of these programs is only possible with additional administrative help in coordinating the summer programs. The schedule of the summer programs has been changed so that more programs are held at the same time. This change will prevent students from hopping from one program to another during the summer and make lab presentations by faculty and graduate students more efficient by being in a compact time frame. Additional marketing is also needed to bring in the additional students. The OSA led by the SALO is seeking funding through several avenues to fund this "next step" for OSA. At present funding has been secured for additional marketing (30,000 printed brochures) and web master and registration assistance. We plan to grow the summer programs, as we are able to obtain funding to support such a large summer program. If more students register for the summer programs in 2001 than we can handle, we plan to hold special fall events to accommodate the additional students.

Shared Ideas in Retention Programs

An Academic Mentoring Program is run through the Inclusive Learning Communities (ILC) Program. A similar, but different academic retention program is run by the OMEP, called Academic Excellence Workshops. After the Inclusive Learning Communities Director started attending OSA staff meetings, the leaders of these two programs sat down together and exchanged ideas in running their

programs. There is little course coverage duplication between the two programs, so this cross thinking worked to strengthen each program.

Shared Programs within OSA

After including the Director of the Engineering Internship Program (EIP) and the Corporate Leaders Program (CLP) in staff meetings last semester for OSA, it became apparent that WISE/MEP collaboration with the EIP/CLP Program would be beneficial to both groups. This semester a series of WISE-sponsored workshops on resume writing, interviewing, internships will be given by the Director of the EIP/CLP Programs. In addition, recently, the Director of the EIP/CLP Program gave a workshop on the EIP and CLP Programs to a joint meeting of AISES, NSBE, SHPE, and SWE (CEMSWE). Each organization cancelled their meeting that week so that their members could attend this meeting. The students were very interested in learning about internship and leadership opportunities in the EIP/CLP Program and have now registered with the EIP/CLP Office by submitting their resumes, making them eligible to attend any of the five internship career fairs held by the EIP/CLP Office during the year.

Joint Marketing

Until this year, each Office (WISE, OMEP, and Recruitment) wrote and published its own annual or bi-annual report. Starting this year, the reports of these offices, along with the activities of the ILC Program, SAAC, and the EIP/CLP Office will be reported in one publication. Some conference papers and presentations are joint efforts, such as this one. In addition to shared presentations, each office or program also reports on their exclusive activities. A recent joint venture has been to meet with local legislators, provide them with fact sheets, and make the legislators aware that our Office is a resource for matters pertaining to the under representation of women and minorities in engineering and the applied sciences.

Shared Database. Each office within the OSA has kept its own data on a database. We are now in the process of creating a common database for the entire office. A database expert within the Dean's Office has been assigned time to support the development of this project. We want the database to include the tracking of all of our students reached through recruitment events, retention data, program data, internship information, and placement data after graduation. As we design this database, we hope to be able to create an efficient, useable, expandable version that will be useful and timesaving as we seek to document the effect of our programs and efforts.

Assessment and Evaluation Discussion

Shared Fundraising

Individual programs did most fundraising in the OSA until the past couple of years. With the addition of a SALO, fundraising within the OSA changed. The SALO is responsible for working with a member of the College Development Office and with the rest of the OSA to coordinate and spearhead grant writing and fundraising. In many cases, a fundraising project will benefit most of the programs within the OSA such as the K-12 Summer Institute. At other times, the program needing the most support in the shortest timeframe will be the object of the fundraising efforts until the need is met.

Shared Strategic Plan

Although the mission of the OSA is to recruit, to retain, and to place students, there are many ways in which that can be accomplished. In an on-going development of the Office, it is now at the point of defining a strategic plan for the next five to ten years. This plan is not yet complete, but includes increased marketing at the college, university, state, and national level. The plan includes the development and use of a strong database to document and assess its programs. The plan also includes the K-12 Summer Institute and, indeed, a K-12 Consortium that is university-wide. Although this plan will be fluid, it will be substantially set during the next year.

Shared K-12 Vision

The shared vision of the Dean and the Office of Student Affairs towards K-12 outreach is embodied in the Student Affairs Liaison Officer. This Officer is charged with assisting in grant writing and fundraising for the entire OSA and a large part of that effort is directed at K-12 Outreach. At the same time, the SALO represents the Dean in K-12 Community Activities. The SALO also assists the Dean in researching all of the current K-12 efforts in our College. This data provides information for the Dean as he participates in K-12 Consortia nation-wide and teams with the ASU Dean of the College of Education in addressing K-12 Outreach issues in national forums. The Dean is sponsoring a College Faculty Workshop on the Recruitment/Retention of Underrepresented Minority Students (includes women) in the near future to encourage them to work with the OSA in their recruitment and retention programs.

Collaborations with University Faculty

The OSA cannot do its programs without the support and direct help from faculty. Some college faculty provide a lab and a graduate student for college tours by potential students and summer programs. Other faculty provide a lab themselves in summer programs ranging from Junior High

to High School to teachers and counselors participating in the WISE Investments Program (WIP). The chair of Civil Engineering and several of the department faculty assist with a Summer Transportation Institute targeted for underrepresented high school youth. Faculty write joint grant proposals with members of the OSA or include parts of OSA Programs in their grants. Faculty serve on search committees for the OSA, help develop curriculum for summer programs and Academic Excellence Seminars, talk with students in a Dinner with a Professor Program, and mentor junior high and high school teachers in the WIP. In turn, members of the OSA assist faculty with the educational component of their grant, help recruit for student positions targeting underrepresented minorities and/or women, and assist with recruitment at both the undergraduate and graduate level. To assist in the graduate recruitment, the OSA has a booth at the Career Fairs of AISES, NSBE, SHPE, and SWE. OSA plans to introduce the Office and the support that we offer to new CEAS faculty during an orientation program.

The OSA also collaborates with faculty from other colleges. Faculty from mathematics, physics, and chemistry work with the coordinator of the Academic Excellence Program administered out of the OMEP. The Associate Dean of Student Affairs often speaks at events coordinated by two faculty women in the College of Education (COE) that target math and science teachers or bright, young freshmen women, many of whom are undecided in their major. At these events, the Associate Deans talks about the myths of mathematics and engineering, informs the audience about engineering, and encourages students to explore engineering as a possible career. In turn, these two Educational Psychology faculty are collaborating on a CEAS-based grant proposal. An Elementary Education faculty member from the COE presents gender equity sessions for the teachers and counselors in the WIP.

K-12 School District Partnerships

The ASU MESA Program is active in ten high schools, ten middle schools, and two elementary schools across 9 school districts, serving over 600 students. A partnership with the school districts is essential as each school is financially responsible for a \$5,000 annual commitment, half of which is an in-kind donation. In many cases an industry partner for a particular school provides the \$2,500 cash commitment. Six school districts partnered with the OSA and WISE by pledging their support in the WISE Investments Program. The teachers either receive a stipend or continuing education credits (administered through the school district) for the two-week summer workshop. The school districts are also supportive of the teachers attending workshops in the program during the academic year. The district administrators help to recruit the teachers and counselors for the WISE Investments Program and also serve on the

Assessment and Evaluation Discussion

Program's advisory board that reviews and suggests changes in the curriculum.

Industry Partners

The role of industry through the SAAC Advisory Council has already been described. Industry partners with the OSA in many additional ways. Industry supports all or part of seven of the summer recruitment programs. Industry provides workshops, such as the WISE Industry Network (WIN) sponsored by a local high tech corporation. Industry also provides speakers and refreshments for student organizational meetings. Industry partners with the Engineering Internship Program. Through that program, a \$1,000 scholarship is established with each internship to help recruit and to support a new freshmen or transfer student in the major of the internship holder. Other companies, not SAAC members, help support the CEAS student organizations. In addition to direct support of recruitment or retention programs, industry is also providing support for additional personnel in the OSA to help administer the programs.

Government and Foundation Collaborations

We cannot forget the support of government and foundations. The OSA has been built on their support. Funding from NSF for the Foundation Coalition, formed nearly 10 years ago, provided initial funding for WISE and later for some OMEP programs. An NSF funded Western Alliance to Expand Student Opportunities (WAESO) has provided funding for the MEP Bridge Program. NSF is funding WISE Investments for three years. The OSA is currently working with a local foundation and a private foundation for support to establish the Summer Institute. The OSA is further collaborating with a Rural Systemic Initiative to help support Native American teachers to attend WISE Investments. An initiative through the US Department of Commerce is providing matching support for five MESA schools. The US Department of Transportation, Federal Highway Administration, provides funding for a Summer Transportation Institute (STI). The funding for the STI is partially matched by the Arizona Department of Transportation.

RESULTS

The mission of the Office of Student Affairs is to recruit students to the CEAS, to retain the students, and to place students in internships and upon graduation. In spite of declining national enrollment of engineering students, the enrollment of undergraduate students into the CEAS has increased for each of the past five years. Over the past four years, enrollment increases have averaged 5.6%. Since 1992, the percentage enrollment of women in the CEAS has

increased from 17% to 20.7% and absolute numbers has increased from 544 to 880 females in Fall 2000 [14]. Minority undergraduate enrollment has more than doubled since 1991, increasing from 315 to 688 in Fall 2000 [14]. Underrepresented minorities increased from 10% in 1991 to 12.5% in 1992 to 16.2% in Fall 2000 [14].

Retention of first year CEAS students has also risen noticeably over the past few years. From 1993 to 1995, the average retention of undergraduate first-time, full-time freshmen CEAS students was on average 69% in the University and 58% in the College. Since 1996, the average retention at the University level has been over 74% and about 63% in the College. The retention of first-time, full-time freshmen female CEAS students was around 72% in the University and 53% in the College during 1993-1995. During three of the past four years, the women were retained at over 80% in the University (University goal is 78%) and around 65% in the College. The retention of first-time, full-time minority freshmen students has also shown improvement for the past four years, about the time that the Minority Engineering Bridge Program was instituted. Before 1996, the retention was about 65% in the University and 53% in the College. After 1995, the retention has been about 75% at the University and around 64% in the College. Minority students that attend the Minority Engineering Bridge Program show remarkable first-year retention. For the Fall 99 cohort, 89.5% were retained in the University and over 84% were retained in the College after one year.

The number of students placed through the Engineering Internship Program has more than doubled during the last year. Many other students receive internships through DEWI or in direct recruitment from the companies. Since many high-tech companies are located in ASU's backyard, many students are able to take advantage of part-time work and half-time internships during the school year and full-time employment or internship in the summer.

CONCLUSIONS

Collaborative efforts require trust and goodwill. Collaborative efforts usually do not come easily or quickly. However, we have found that in the long run, they are worth the effort. By forming many collaborations within and without the Office of Student Affairs, we are able to draw on the strength of the diversity of backgrounds, ideas, and the various strengths brought to the table by individuals. An assumption made for these collaborations to be successful is that there is positive, creative, supportive administration throughout the organization. Equally important is a dedicated, passionate staff. Knowing that there are others on the team, who are concerned with individual success and the success of programs, makes work much easier and a lot more fun.

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MARY R. ANDERSON-ROWLAND

Mary R. Anderson -Rowland is the Associate Dean of Student Affairs in the College of Engineering and Applied Sciences at Arizona State University. She is responsible for the Office of Student Affairs that includes the Office of Minority Engineering Programs, the Women in Engineering Program, Inclusive Learning Communities, Recruitment, Internships, the CEAS GEM Program, and Student Organizations. She is a board member of the International Gender and Science and Technology organization. She was recently awarded the YWCA Tribute to Women 2001 Award in the Scientist/Researcher category.

DORIS ROMAN

Doris Roman is the Student Affairs Liaison Officer from the Dean's office, for the College of Engineering and Applied Sciences and works within the Office of Student Affairs. She has almost 20 years experience in the design, development and delivery of comprehensive student support services in the academy. She has presented at numerous national conferences and has worked extensively with NSF, the National Action Council for Minorities in Engineering (NACME), the National Association of Minority Engineering Programs Administrators (NAMEPA), the National Association of Pre-College Directors (NAPD) and many other national societies.

MARIA A. REYES

Maria Reyes is the Director of the Minority Engineering Program. She has a BSE and MS in Civil Engineering. While Maria was Program Coordinator for OMEP she developed a highly successful Minority Bridge Program, facilitated the formation of CEMS, the Coalition of Minority Societies and later was instrumental in the formation of CEMSWE, the addition of SWE to CEMS. She is the President of the CEAS Alumni Association and serves on the ASU Commission on the Status of Women.

DANA C. NEWELL

Dana Newell is the Director of the Women in Applied Science and Engineering (WISE) at ASU. She has a BA in Applied Mathematics and an MA in Higher Education Administration. Her responsibilities include supervising staff who coordinate programs for summer and academic year recruitment and retention, fundraising and grant writing for program sustainability and expansion, creating new programs based on student need, and evaluating and assessing all functions of WISE. Prior to her position at ASU, she spent several years working on access to education, health care and employment that pay a living wage for the poor.

RICHARD FILLEY

Dick Filley currently serves as director of the Corporate Leaders Program at Arizona State University and also as director of both the College of Engineering Internship Program and the International Corporate Leaders Program. These programs serve both graduate and undergraduate engineering and business students. Filley founded the ASU Corporate Leaders Program in 1986 and the International Corporate Leaders Program in 1998. He came to ASU in 1985 from Industrial Engineering magazine, where he served as an editor, and he has authored over 50 national magazine articles.

JOSEPH E. URBAN

Joseph E. Urban is a professor of computer science and currently serves the College of Engineering and Applied Sciences as Inclusive Learning Communities program director at Arizona State University. He is responsible for the Software Process, Environment, and Automation Research Group. He has worked at the University of Miami, the University of Southwestern Louisiana, and part-time at the University of South Carolina while with the US Army Signal Center. He has over ninety technical papers. He has supervised development of seven software specification languages. His research areas include software engineering, computer languages, data engineering, and distributed computing. His research efforts have been supported primarily through industry.

Assessment and Evaluation Discussion

JANITA PICKETT-GORDON

Janita is the Associate Director of Development for the College of Engineering and Applied Sciences. As a major gift officer, she is responsible for soliciting gifts of \$10,000 and greater from industry, foundations and individuals. Janita has been working with Student Affairs to increase funding for the Office of Minority Affairs, Women in Applied Science and Engineering and the Corporate Leaders program at Arizona State University. Prior to coming to ASU, Janita served as the Director of Institutional Advancement or the College of Urban Planning and Public Affairs at the University of Illinois.

MARGARET A. FUSSELL

Peggy Fussell is the Recruitment and Retention Specialist, Senior for the CEAS Office of Undergraduate Recruitment in the College of Engineering and Applied Sciences at Arizona State. Peggy encourages young people to explore the many opportunities in the careers of Construction and Engineering through high school visits and events at ASU. She works closely with ASU Undergraduate Admissions recruitment events and is also responsible for several annual CEAS high school events; such as the Engineering and Applied Sciences Conferences, TEAMS (Test of Engineering Aptitude, Mathematics and Science) Competition, and CEAS Community College Night. A former elementary teacher, Peggy graduated with a BS degree in Elementary Education from Truman University in Kirksville, Missouri.

PATRICIA M. SECOLA

Patricia Secola is the Student Services Coordinator Associate in the WISE Investments Program at Arizona State University. Pat has been employed at Arizona State University for 16 years. Prior to working with WISE Investments, she was a Senior Financial Aid Counselor. Through her career at Arizona State, Pat has served on several university committees that have address diversity and student recruitment and retention concerns.

CATHRYNE L. JORDAN

Cathryne Jordan is a Student Services Coordinator, Associate. Her primary responsibility is the ASU Central Arizona MESA Program. She has a BS in Speech Communication and a Masters in Public Administration. Directing and working with K-16 students within the university, public and or private sector outreach programs to prepare students academically to enter four-year accredited institutions and pursue undergraduate and graduate level degree in the mathematics, science, and technology disciplines.

SHAWNA L. FLETCHER

Shawna Fletcher holds B.S degrees in Physiological Psychology and Microbiology with a minor in Women's Studies from Arizona State University. She is a Student Services Coordinator Associate. Her primary responsibilities include coordinating retention programs for women in the CEAS. In addition to directing student workshops and seminars, she is also responsible for the Student Success Program and its components. Shawna joined the WISE staff in May of 1997.

JENNIFER K. ADAIR

Jennifer K. Adair is the Program Coordinator of ASU's Minority Engineering Program (MEP). She coordinates both the MEP Summer Bridge Program and MEP's Academic Excellence Workshops Program. She has a bachelor's degree in Cultural Anthropology from Brigham Young University and completed an undergraduate thesis with the Himba tribe of Namibia. Prior to her work with Arizona State University, Jennifer worked for a mental health agency in Utah, providing social and family skill training to children diagnosed with mental illness.

LEYLA NEWTON

Leyla Newton holds a B.S. degree in Microbiology and is currently working towards her M.P.A. in Public Administration here at ASU. She is a Student Services Coordinator. Her primary responsibilities include coordinating recruitment programs for both the women and underrepresented minority students in the CEAS.