



Diversity Focuses on the Future

Gwendolyn E. Boyd

In his statement about diversity to the faculty and staff of The Johns Hopkins University, President William Brody said, “maintaining a diverse community reflecting a plurality of perspectives is essential to the pursuit of academic excellence” (*JHU Gazette*, 1996). In his statement to the APL staff about diversity, Director Richard Roca noted that “a diverse staff is one measure of an organization’s commitment to quality.” He also highlighted the “strategic importance” of attracting and retaining staff of the highest caliber and further described diversity as “a critical business objective.” Diversity is an issue that cannot be left to chance. Inclusion of women and underrepresented minorities is a necessity in today’s environment. Therefore, with vision and encouragement from leadership, the promotion of diversity initiatives has received favorable support. This article highlights some of the proactive and strategic initiatives implemented at APL to recruit capable, qualified, and diverse professionals.

BACKGROUND

Diversity has clearly been acknowledged as a key factor in the continued growth and development of a cutting-edge proactive work environment. Diversity of thought and participation in both academic and corporate environments are essential. Through the years APL has been an advocate for excellence and equal opportunity. To that end, the Laboratory designed and endorsed a proactive concept and introduced an initiative to increase diversity among the professional staff and promote the mission of cooperation and collaboration between University Affiliated Research Centers (UARCs), Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), and Minority Institutions (MIs). APL is one of six UARCs in the country. At the December 1998 meeting of all UARC directors, the concept of

implementing a program that would bring highly qualified students from selected HBCUs/MIs/HSIs to APL for summer internships was presented. The resulting program was the APL Technology Leadership Scholars (ATLAS) program. This unique program combined applied scientific research internships with personal and professional development workshops and sessions. The concept was highly praised by meeting conveners from DoD: Dr. Hans Mark, then Director, Defense Research and Engineering, and Robert Neal, Director, Small and Disadvantaged Business Office. The goal of the program was to introduce APL to the capabilities and competencies of the participating colleges and universities and also to invite students attending those schools to apply for summer opportunities in APL’s technical departments (Fig. 1).



Figure 1. Dr. Rich Roca, Director of APL, with Mercedes Biggs from Clark Atlanta University, a student in the ATLAS program.

Students meeting the selection criteria have an opportunity to participate in dedicated research projects at APL for 12 weeks during the summer. When appropriate, they may travel in connection with their work assignments as part of the project team. Undergraduate students who have completed their junior year with majors in electrical engineering or computer science are the best match for ATLAS. However, a limited number of positions are available for students majoring in mathematics, physics, and mechanical engineering. Professional development seminars are incorporated into the students' total summer experience at the Laboratory. Final presentations of their research projects are also required before the students depart.

THE PROCESS

Students are recruited for ATLAS during career fairs and conferences through the Laboratory's website (<http://www.jhuapl.edu>) and by letters sent to their colleges and universities. Emphasis is placed on those institutions that have graduate programs in engineering and computer science. To apply for a position as an ATLAS scholar, students must meet rigid requirements. These criteria were established and are enforced by an APL-wide committee of representatives from each of the technical departments. Besides applying when they are completing their junior year with a major in electrical engineering or computer science, students must have a minimum cumulative grade point average of 3.5 or better on a 4.0 scale. They must also submit a completed application, provide a letter of recommendation from their academic adviser, include a resume, and write a statement indicating their primary areas of technical interest. Students selected by the committee are then assigned a research project that is the closest match to their area of interest and expertise. The selection panel reviews applications received by the December 31 deadline. The time frame for selecting the students is considered "early" based on the spring APL selection process for interns but is somewhat late in comparison to industry's selection of highly competitive students for internships.

ACTIVITIES

Upon arrival at APL, ATLAS scholars receive orientation briefings, meet with their supervisors, and are assigned a mentor. Throughout the summer, students meet regularly to share information, attend training sessions, and participate in field trips. In addition to regular internship meetings, their agenda includes professional development seminars that cover topics such as professional development/career management, making effective presentations, an overview of the Laboratory, reasons for pursuing a doctorate, and applying for GEM¹ (the National Consortium for Graduate Degrees for Minorities in Engineering and Science Inc.) fellowships. Our first group of ATLAS scholars had an opportunity to visit Dr. Mark at the Pentagon in 1998, where he applauded APL for its foresight in implementing such a unique program and encouraged the students to follow their dreams.

When feasible, ATLAS scholars meet and share lunch with members of the APL Senior Leadership Team. To complete their internships, each student gives a formal presentation highlighting his or her accomplishments and the status of the work performed while at the Laboratory (Fig. 2). Year after year, students exhibit exceptional skill and talent as documented in their performance evaluations at the end of the 12-week summer program.

FEEDBACK

Students are asked to provide a written assessment of their participation in the program. A few quotes represent the consensus of the group:

"My experience through the ATLAS program provided me with more than just a summer job. The trips, meetings, and luncheon provided me with a clear view of not only where the work that is conducted by engineers and scientist at these types of labs goes but also a vision of the amount that



Figure 2. Electrical and computer engineering students who participated in the ATLAS program following their project presentations. Scholars are (from left to right): Joseph Akinyele from Bowie State University, Joseph Bostic from Tuskegee University, and Leah Lewis from Morgan State University.

can be accomplished once my bachelor's degree is complete. The opportunities for further education and advancement are not only in existence but accessible to those who have the drive to learn. The tours of the Lab also provided me with a view into the many different types of projects that one can participate in at research facilities as opposed to the business world."

"Out of four internship experiences, the ATLAS program has been the most rewarding. I improved my programming skills, sharpened my presentation abilities, and I was introduced to the . . . work environment."

Feedback from the APL technical department representatives overall has also been extremely positive. The students consistently performed to their supervisors' highest expectations. *Enthusiastic* and *hardworking* are adjectives used to describe their work ethic and attitudes. Each summer's projects and activities continue to be progressive and positive. One year, APL's Space Department sent an unsolicited letter to the Chair of the Computer Science Department at Prairie View A&M University acknowledging the contributions of the ATLAS student who worked on their space programs.

The continued success of the ATLAS program is due in large measure to the dedication of APL management and department leadership to the overall goal of diversity. ATLAS works because there is a commitment to change, an endorsement of innovative approaches to enhance diversity, and a sound advantage to working with students and faculty at new institutions. In the 5 years of the program's existence, APL has experienced a 25% rate of transitioning students to new full-time APL staff. Students who have chosen to go to graduate school are encouraged to consider returning to APL when they complete their advanced studies. They are also made aware of the graduate program of the JHU Whiting School of Engineering, the largest part-time engineering program in the country. In addition, those scholars interested in pursuing full-time graduate studies are encouraged to apply for fellowships through the GEM program.

OUTREACH INITIATIVES

APL was one of the founding organizations of the GEM program. The GEM consortium is a nonprofit organization that helps minority students pursue graduate degrees and post-graduate studies in engineering and the natural sciences. It is a partnership among colleges and universities, corporations, and research laboratories to provide paid summer internships, stipends, and scholarships for underrepresented minority students. GEM was conceived in 1976 by an APL staff member, Ted Habarth. APL has a representative on the GEM Board of Directors. GEM applicants must either be juniors, seniors, or graduates who have already obtained a B.S. in engineering or the natural sciences. APL

continues active participation in the program as 1 of 78 college and university members and 76 corporations and research laboratories or employee members. The program accounts for about 13% of the U.S. output of minority Master of Science degrees in engineering.²

APL also operates the MESA (Maryland Math Engineering Science Achievement) program. For over 30 years MESA has been a part of the school systems throughout the state of Maryland, providing after-school programs, tutoring, science fairs, competitions, incentive awards, and scholarships to encourage students in mathematics, science, and engineering. MESA is for all students, but its mission is to reach out to young women and underrepresented minority students to get involved in pursuing math and science career paths.

The Maryland MESA program has received many honors and awards, including the Presidential Award for Excellence for Science, Math and Engineering Mentoring from President George W. Bush in 2001 "for embodying excellence in mentoring underrepresented students and encouraging their significant achievement in mathematics, science and engineering" along with a contribution of \$10,000.

The Laboratory has engaged in another new mentoring initiative this year. The Research and Engineering Apprenticeship Program (REAP) is being launched to reach the high school population and promote mathematics, science, and engineering as career possibilities

MARYLAND MESA

Maryland MESA was established in 1976 with just two schools in Baltimore City. The Maryland MESA Program is a local pre-college program begun in 1976 by Theodore J. Habarth, then Assistant to the Director for Special Programs at APL. The program is a consortium of technical employers and universities working with individual students to ensure that the students are prepared for the rigor of college study in science, engineering, and other mathematics-based fields. Today, there are more than 140 participating schools from Baltimore City and 13 Maryland counties.

Maryland MESA is a structured, K-12 program designed to prepare students for academic and professional careers in mathematics, engineering, science, and technology. The program's goals are to (1) increase the number of engineers, scientists, mathematicians, and related professionals at technical and management levels, and (2) serve as a driving force in encouraging and assisting minorities and females in achieving success in these fields. MESA continues to strive toward its vision of providing a superior education process that enables all Maryland students to achieve and contribute to their full potential. These goals are accomplished through partnerships with school systems, colleges and universities, industry and business, government, community organizations, families, and alumni.

for all students, but again, especially women and under-represented minorities. REAP is designed to provide summer internships at APL for high school seniors who are going to college to major in engineering. Funded by the U.S. Army Research Office and administered by the Academy of Applied Science, this program will be yet another bridge to help students cross over into bright and fulfilling careers as future leaders in mathematics, science, and engineering.

CONCLUSION

It is well documented that the pipeline for new engineers and scientists overall is becoming quite narrow. By implication, for minorities and women, the pipeline is becoming completely drained. Through diversity

initiatives, the pipeline can and must be nourished and invigorated by young minds eager to become budding scientists and engineers. APL has a vested interest in seeing youth reach their fullest potential and become a part of APL's future workforce.

The Laboratory continues to proactively promote new initiatives to provide opportunities for diverse scholars that are waiting for an opportunity to make critical contributions to challenging problems facing the nation and the world.

REFERENCES

- ¹GEM website; http://was.nd.edu/gem/gemwebapp/gem_00_000.htm.
- ²APL webpage, "Employment/Education Program for Minority Students"; <http://www.jhuapl.edu/employment/diversity/employment.asp>.
- ³MESA website: <http://www.jhuapl.edu/mesa>.

THE AUTHOR

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