

Key Discussion Points from the Symposium on Diversity in the Sciences University of Washington, October 27-28, 2006

At the UW Symposium, participants engaged in small-group discussions to address challenges that affect diversity in the sciences. Sessions were organized according to participants' institutional role (student, faculty, or administrator groups), or interest in a specific topic (e.g. student recruitment, gateway courses, etc.). Each session had a facilitator and a note taker. Facilitators asked participants to brainstorm at the beginning of the session to make a list of challenges then vote to select one or two challenges to discuss in depth. This report summarizes the points raised most often in the 22 group discussions. The summary uses wording recorded by the note takers to accurately reflect the discussion.

Section 1 describes the five most frequently cited challenges.

Section 2 summarizes ideas that participants offered as possible solutions.

Section 3 summarizes the students' group discussion.

Section 4 lists participants' response to the question: "how could a consortium of colleges and universities, like the one assembled at this meeting, help your institution achieve its goals?"

Section 1: Major challenges faced by institutions

Getting Administrative and Faculty buy-in

Administrators and faculty report that enhancing diversity is a stated goal of most institutions' strategic plans but implementation falls short. Both groups consider achieving broad-based support for diversity initiatives to be a major challenge. Several administrators note that it is unproductive to blame the faculty and transfer the burden. Faculty members are already overextended with research, teaching and/or service obligations. Asking them to do more is unrealistic, especially when the institution lacks an appropriate reward system. Asking faculty to do things differently is more reasonable, but also requires activation energy, guidance, and adequate rewards. Administrators and faculty also caution against depending too heavily on those few individuals who are generous with their effort, but sacrifice too much at the expense of advancing their careers. Institutional barriers to achieving adequate support are systemic and overcoming them requires clear and sustained commitment by top-level administrators and faculty leaders.

Lack of funding

Too often, diversity programs rely exclusively on external grants so existing programs may vanish with the next grant cycle. It is difficult to convince faculty to invest efforts and retain talented staff with only short-term funding. Long-term financial investment by the institution is required to sustain effective diversity programs. Two areas of need identified by participants as very high priorities for institutional support are scholarships for minority students and funds to recruit and retain faculty of color.

Recruiting and retaining diverse faculty and students

Administrators, faculty and students stressed the critical need for better strategies to increase diversity at their institutions. Many are very concerned about their institution's poor success at recruiting minority faculty. The lack of faculty role models sends a strong message to students and discourages them from pursuing advanced degrees. Many institutions have not been successful at attracting a critical mass of students from underrepresented groups to their campuses.

Training faculty mentors

We need to train many more faculty members to be effective mentors but can we convince faculty to obtain the training they need?

On data collection and analysis

Some participants were frustrated by the lack of institutional infrastructure to collect data on student performance. Several participants noted reluctance on the part of their institution to release student data. Others noted that participation at this symposium helped them obtain data from the research offices faster than they would have otherwise. Other challenges included: knowing which data points should be collected; identifying standards and best sources of information for data analyses and comparison with peer institutions; and deciding how to define success.

Section 2: Effective Strategies

Defining diversity

As a first step, campus communities should define what diversity means in the context of their institution and region, and be encouraged to take a broad and realistic approach to increasing diversity. Recognize that there is no “one” group that is underrepresented in the sciences – there are many -- and that there is no single “one-size-fits-all” solution for success. Each institution can begin by building on the strengths of its setting to contribute to increased diversity in the sciences nationwide. Make it a priority to reach out to local and regional communities. Each administrator and faculty member should hold his/her own program or course responsible for evaluating whether or not it is being responsive to the needs of all students.

Recruitment strategies

Persistent efforts are needed by faculty search committees and departments to recruit faculty of color. Success may require taking a hard line to achieve a successful outcome. Extensive effort may be required to attract a diverse applicant pool. Administrators should strongly encourage diversity efforts, rather than take away positions if not filled for lack of diversity this round. Flexibility is crucial to enable opportunity hires.

Critical mass is needed to attract students from underrepresented groups. Know your student applicant pool, document with data, so you can be strategic in expanding the pool and improving recruitment efforts. Be sure that your programs are reaching out to minorities in the local community. Build bridges with other institutions, including local high schools, colleges, and also universities that are nearby or that share academic areas of strength. These types of partnerships may also broaden external funding opportunities. Have faculty or academic advisors work closely with the scholarship office to identify opportunities for minority students and welcome newly arrived minority scholars. Recruiters who can represent more than one unit or institution might be hired and shared to forge connections. Encourage faculty and students to visit HBCUs or other minority-serving institutions, attend their college science fairs and national meetings such as the SACNAS annual meeting.

Strategies for retaining and promoting URM student success

Institutions and programs should routinely assess climate and respond to improve climate. The nature of the questions asked to assess climate is critical. Human Resources offices on campuses can help programs do this properly. Seek input from staff, undergrads, grads, postdocs, faculty, and administrators. These efforts can encourage communication, promote action to improve climate, and build trust.

Sense of community is especially important for non-traditional students. A physical space for students to gather between classes, meet peers, study and stay connected is important, especially for those who commute or work long hours off-campus. Remind faculty and other student advisors that many URM and first-generation college students have additional non-academic factors, such as socio-cultural, historical background, financial constraints, and family demands, which affect their lives as students.

Empowering students starts by listening to them, asking what they need, and being responsive. Faculty and students can establish a culture in which students realize that asking for and receiving help from peers and mentors is the norm for achieving academic success. Build a culture that grows students' confidence. Let students know the importance of having multiple mentors. Challenge their

perception of what role models should look like, so they know excellent mentors can share their passion even though they may have a different personal or cultural history. Students should also be trained to recognize that they have options; they may need to be advised to switch out of an environment that inhibits further growth.

Training mentors

Administrative leaders and department chairs could give excellence in mentoring higher visibility. For example, make it a part of the institution's mission statement and an expectation of all faculty members in your units. Incorporate diversity training into graduate and postdoctoral training programs. The concept that mentoring is a crucial component of student success needs to trickle down to every level. Department heads should address the need for faculty—newly hired and also some established researchers—to obtain training to become successful mentors. LSU mentoring ladder model is an attractive way to expand the pool of effective mentors to include staff, students, graduate students, and postdocs. Peer mentoring works and builds student community.

Improving introductory science courses

Multiple strategies are needed to prepare students for success in the intro science courses. Teaching students effective study skills, ways to assess their own learning styles, the value of working in groups and taking advantage of instructional resources (tutors, study centers) are especially important for students whose high school prep is inadequate. Convincing URM students that these are needed skills can be challenging; the best way is through peer mentoring. Introducing study skills to prefreshmen is ideal. Bridge programs (study skills boot camps) work well at some institutions. However, they may not be affordable at other institutions. Freshman study skills courses could serve large numbers of students and be kept affordable using peer tutors. Methods used by faculty to teach introductory courses need serious evaluation at most institutions. To improve retention in introductory courses, early monitoring and intervention strategies are needed to identify struggling students. Suggestions include: incorporating structured active learning assignments that require problem solving, student teamwork and earned points; giving a low stakes graded quiz early in the course; guiding students in an in-depth analysis of “complete vs. incomplete” answers. Supplementary instruction should not be given remedial status. Provide positive incentives and interactions; make the content skill-based, challenging, and confidence building.

Providing research opportunities

In large research universities, most professors prefer to take advanced undergraduates into their labs. Many more need to be convinced to take students earlier. One way to prepare beginning students for research is through summer research programs. Large universities often have advanced graduate students or postdocs serve as mentors for undergraduates. Providing formal training in mentoring to grads and postdocs (through courses or workshops) works well for mentors and mentees.

Some institutions have only a few faculty members who offer research opportunities for undergraduates. Promoting authentic research experiences in small groups for even short periods in the summer or in “lecture” courses can help students get started. Payment through work-study, involvement in lab meetings, and connecting students with affiliated institutions with research programs are possible avenues. Collaborations between institutions may open up research opportunities for students from smaller schools and may provide new opportunities for external funding. Off-campus research experiences can be exciting for many students, but problematic for others who are unable to leave their local vicinity. Several participants noted that this is a concern for Native American students and is an issue for which new approaches are needed.

Strategies for improved collection and use of institutional data

Be clear on the purpose of why you are collecting data and use the data to derive solutions, rather than point blame. Comparisons of your institution's data to the national collective can give context. It may free the climate for more open discussions of how your institution is doing and help define priorities and benchmarks for efforts at your institution. Design a plan to regularly collect and evaluate data. Seek experts at your institution who could help your unit to improve methods of data collection and access institutional data more efficiently. Continually advocate for the use of data to make informed decisions and to improve institutional efforts for data collection.

Strategies for institutional change—toward sustainable diversity programs with broad faculty and administrative buy-in

Leadership. Lead administrators, program chairs and directors need to make the case for diversity. These leaders can play key roles in opening the campus dialog to keep diversity issues up front and high priority. Leaders should insist that their institutional efforts are data-driven. Expect departments and programs to provide diversity plans and data on URM student recruitment, retention and performance in annual reports, and expect improvements based on data. Provide funds for additional staff help as needed to support data collection and analysis. Hold programs, chairs and directors accountable. Often one or two prominent faculty leaders can lead cultural change and make it a departmental mission that all faculty members contribute to diversity efforts. Leaders can reward progress and show that there are benefits to the unit and the institution.

Build institutional memory and stable support structure. Institutions might hire a Diversity Officer who is supported by the highest officials and can administer funds for units to apply for and to get programs started. Consider empowering talented professional staff leaders who can partner well with faculty to coordinate campus diversity initiatives to realize efficiencies, seek funding opportunities, write grants, etc.

Educating faculty. Share success stories of other institutions, programs and faculty who balance high quality research and mentoring. Celebrate faculty colleagues who contribute to or are product of positive diversity experiences. Remind those not yet on board that practices that encourage retention of students from underrepresented groups are good for all students, the program and institution. Provide mentoring training opportunities to faculty, postdocs, graduate students, and staff.

Define opportunities. Use program evaluation, accreditation reviews, outside leverage such as training grant requirements to convince administrators, department chairs, and faculty of the need to improve efforts. Federal initiatives (e.g. NSF, NIH training and education policies) have widespread impact, especially on research-focused institutions.

Recalibrate the reward system. If criteria for program review, promotion, tenure and merit review, and sabbatical requests value mentoring, scholarship of teaching, and enhancing diversity, then chairs and faculty will respond accordingly. Recognize that changing institutional reward system requires work within the institutional structure to find the most effective means. Consider acting through the Faculty Senate. Start with incremental increases, e.g. require that program annual reports describe diversity efforts; allow faculty one merit increase based predominately on teaching, or provide one additional quarter of sabbatical release or reduced teaching load based on substantive plans for teaching or mentoring innovations. Help your institution develop metrics for contributions to mentoring, enhancing diversity, innovations in teaching; insist on high standards that define excellences for these contributions to be as respected and on par with excellence in research.

Section 3: The Students' Perspective – A summary of comments from student groups

Finances play a huge role in determining whether students are able to dedicate efforts to pursue science. Most minority students and first-generation college students must work 20+ hours each week. Many have family obligations. Students view pursuing science as a full time effort and consider other disciplines easier to pursue as part-time students. When asked what kinds of financial support would be most helpful, these students rated support for research opportunities and lab experiences as the most desirable.

Students felt that institutions spend major efforts on recruitment, but not enough on retention. They knew students who were recruited to programs, but felt isolated or discouraged along the way, then left the program. They felt that research experiences are key for retaining students, but note that most professors prefer to take advanced students in their labs, leaving beginning students without connections to lab groups or research mentors.

Students addressed what they could do to make a difference at their institution. A common suggestion was to serve as an example and mentor to younger students. These student participants are intensely interested in helping fellow students. They feel that students reaching out to students and having a network of mentors worked for them. Some asked about how to invite students to a diversity program, without making them feel singled out as a prospect for failure rather than an investment for success. Others felt that once a program has a strong reputation for increasing opportunities, providing community, and really understanding students, then students don't worry about perceptions of "needing special treatment". If a program is worthwhile, the students spread the word to other students and this is the most effective recruitment strategy. Students discussed the importance of being persistent to recruit those students who think they want to go it alone, are too busy working, etc. to respond. E-mailing them lets them know you are out there and care.

Students suggested visiting their high school to stay connected to HS teachers and help recruit HS students to college. Graduate students saw opportunities to encourage undergraduates when serving as TAs for courses. They reach out to students to tell them about their own backgrounds, why science is rewarding, connecting them to other students, grads and faculty, labs to work in and being persistent to encourage students to stay involved and pursue science. They also explain on how to approach and work with a P.I. and encourage them to not give up. Grads can also explain how graduate school works and the rewards of pursuing a Ph.D.

Students can advocate for all URM students to faculty and administrators. Student can inform each other and faculty mentors about fellowship opportunities and also spread the word about conferences like this symposium. Students feel that many faculty need to be reminded that they can have a huge impact on students who are deciding whether or not pursuing science. They reported that their own decisions to pursue science were profoundly influenced by a faculty member who reached out to make contact in a large class, extended an invitation to attend a seminar or other activity, or pulled students into their research lab.

Students have encountered environments that were not welcoming. They discussed how students can best deal with these situations. One suggestion was to seek out faculty who have some sort of alliance with underrepresented groups and convince them of the need to advocate for students. Faculty who run training grants or diversity programs were mentioned as good candidates because they understand

what granting agencies are expecting and what programs should do. Students agreed that some times this education work has to be done one professor at a time.

Section 4: What could a consortium of institutions, such as the one assembled at this meeting, do to help your home institution?

- Consider a national broadcast or teleconference to open this type of meeting to many more participants.
- Expand the number of regional meetings so more students and faculty can attend symposia like this.
- Identify a group of experts willing to serve as an external review group to provide an objective evaluation of our home institutions relative to peer institutions.
- Accumulate and share more success stories, expand coverage to include more STEM fields.
- Continued learning through example of what is realistic and effective, and also what is unrealistic.
- Share ideas (such as an acting troupe to demonstrate good and bad mentoring practices) to visit campuses; use these events to increase campus awareness and begin faculty training and other diversity initiatives.
- Share the data that we and others have contributed; peer institutions' data will help us establish benchmarks.
- Recommend social scientists who can help analyze institutional data.
- Promote inter-institutional collaboration, rather than competition for students, and facilitate the best matches between students and programs.
- More regional partnerships could be established now that we have some connections and common goals. Regional exchange is likely to be more successful than long distance partnerships, since many students, especially those who might be first generation college students, may want/need to stay close to home.