

Shaping the Future of Smith
Conversation with Alumnae in Science and Engineering
April 21, 2006

President Christ welcomed guests to dinner at the Smith Club to debrief on the many activities of the day and ask for comments and suggestions—what the college should maintain and what it needs to develop—in science and engineering education.

She reviewed the major themes of numerous conversations among faculty and with alumnae over the past year, noting that, as a liberal arts college, Smith is in a unique position of being large enough to provide hands-on research opportunities for many students but not so large that they lose the personal attention and mentoring of faculty.

She noted that alumnae conversations have emphasized the need for stronger quantitative reasoning skills, a statement that elicited nods and confirming murmurs around the room. Sustainability is also an issue for today's students, who will live with the consequences of environmental decisions. Environmental literacy is also desirable, and the new building for the sciences and engineering has been designed as a teaching facility in every sense.

Alluding to the afternoon's panel discussion, President Christ pointed out that the issue of work-life balance is now at the forefront of many discussions. Noting that perhaps work-life integration is a better term, she described a recent gift from an alumna that will fund research and coursework on Life narratives as a means of opening up useful discussions among students, alumnae, and others on the challenges women face as they move through the stages of their personal and professional lives.

She then opened the session for comments from the audience.

The first speaker noted that the actual greenness of the new building was not as much the issue as demonstrating that environmental awareness was part of the college's values and that Smith is responsive to the emerging global crisis; the awareness is as important as the actual scientific aspect.

The next speaker wanted to express her appreciation for the role of the faculty, noting that, without their inspiration, she would not have taken mathematics. Their enthusiastic engagement with their subjects—seen today and in her own time at Smith—is outstanding. The audience applauded her comments.

President Christ affirmed the dedication of the Smith faculty to their teaching and the sense of a community of scholars that she sees here.

The next alumnae to speak noted that one of the most important things the college can do is to get students involved in hands-on research directed by faculty. However, that type of intensive collaboration requires more than money to support it. Faculty have to provide many additional hours of time to make such a system work, and their own balance

between teaching and research can be strained. In view of all the additional time and attention faculty are expected to provide, how are they compensated for the hours they spend? She noted the possible techniques of buyouts, release from departmental duties, and compensation based on the actual number of research students supervised as actions some institutions use to address this issue. The more students doing research, the more the college needs to increase faculty support.

President Christ agreed that, as Smith becomes more research-oriented, the college needs to address those issues. Our greatest cost, in dollars, is faculty time, and if we value their teaching, how can we take them away from that to do other things?

She went on to raise the issue of making a capstone experience part of every student's experience and asked how that would affect thinking about faculty time.

An alumna from the Class of '64 stated that one of the most important comments from her table was that students must have some form of research experience, either during the terms or in the summer. She said that her group had two other points to offer:

- 1) Every student must be able to present ideas well. She was impressed with the NASA proposal the students had developed and their DVD presentation of their experience as demonstrations of essential skills.
- 2) If Smith is to be at the forefront of technology, it will be very expensive; however, it is essential that students have exposure to the best technology available.

Another speaker noted that one of the core values here is a strong emphasis on interpersonal skills. She described having a history of observing managers who cannot communicate effectively and are therefore not good managers. A good leader is also a good communicator.

An alumna from the Class of '90 said that she is a technology coach and had heard from a colleague in business development that although some people want to hire Smith economics majors, they appear to have fewer math skills and tracked lower than other applicants in performance.

An alumna from the Class of '84 stressed the importance of the collaborative work she had observed, noting that all work is now multidisciplinary; everyone depends on the skills of others, so knowing how to collaborate is extremely important.

President Christ interjected that two of the skills most often raised in alumnae sessions are public speaking and the ability to collaborate effectively.

An alumna from the Class of 2004 stressed that one of the reasons we see fewer women in engineering, as opposed to increased numbers in medicine, is that doctors see their patients get well, or at least be aided by their physicians. Engineers need to be taught the

human impact of their work, the societal context of engineering, which Smith consciously teaches.

An alumna from the Class of '81 wanted to be sure we had as many students as possible exposed to computer science, given the impact of this discipline on all areas.

An alumna from the Class of '76 urged the college to look at the next generation of women scientists by continuing its outreach to K-12 students. There are many opportunities to collaborate with education departments. Noting the value of the summer science program, she asked whether we are making connections between music and the arts and science and connecting them with science and engineering careers.

President Christ noted the major in art and architecture that is being funded with a grant from the Sherman Fairchild Foundation.

An alumna from the Class of '81 commented that she thought the idea of a research *college* offered the best of both worlds, and those that do it well are very successful. However, she thought one of the disadvantages—and the trick to doing this well—is getting enough faculty time for the necessary mentoring without the availability of post doctoral and other grad students to relieve faculty.

President Christ said there is a proposal from the engineering faculty for a postdoctoral program student to teach a course that would help with verticality in the labs.

An alumna from the Class of '70 said that her field is pharmacology, and she knows that to train people in laboratory work is enormously expensive in time and equipment. She wondered whether the effort to keep an egalitarian approach to various areas was affecting the science faculty, whose work intrinsically involves more time and technology than many other fields. The college should look at modeling science studies differently from many other disciplines.

An alumna from the Class of '77 offered that one of the things that might help with the time issue would be to have alumnae come back and teach a “master class” as part of a 12-week course. She described possible blocks of content and said each session requires prep time and one day for the actual teaching. She asked if that was something the college could formalize and whether students could also give back with outreach to the high schools and elementary schools.

President Christ noted that students hunger for actual life experiences related to their career aspirations, and that alumnae can provide that perspective beautifully.

Dr. Hunt asked who in the room might be willing to return to Smith to teach, and the room was nearly filled with raised hands.

An alumna stated that she had been in the glee club and learned that time management is more important than generally imagined. She emphasized that *daily* reading and writing is essential to perfecting those skills.

An alumna from the Class of '60 identified herself as a businesswoman and thanked the trustees for bringing this group back to campus. She said she hoped that the college is investing in strategic marketing, as she is overwhelmed by what she has just seen and did not think we were adequately projecting all that is being done at the college. She hoped the college will put some more resources into that aspect of promotion.

An alumna from the Class of '75 stated that research is so important for graduate studies and medical school, but time for mentoring in those settings is extremely limited. If she were to mentor a student, she would want to be with her for a summer or longer in order to provide the appropriate blocks of time as a mentor.

President Christ pointed out that the Praxis internship program provides students with a summer stipend to do an internship appropriate to their professional plans.

An alumna from the Class of '83 wanted the college to be aware that it is now becoming a black mark against applicants if they take a year off for unrelated activities before coming to medical school. If they are working at a hospital, that's fine, but if they simply want to enjoy an extended senior year, that is very shortsighted. "Smith needs to track its medical school acceptance rate," she said, as she was unable to get any solid figures on med school acceptance, and anecdotes are no longer sufficient for any reviewing body.

An alumna from the Class of '67 seconded the statement that a year off to travel in Europe is not a good idea, but a year spent in additional research is valuable.

An alumna from the Class of '73 noted that the next day was Earth Day, and that she was inspired in her biology career by the concept of environmental stewardship. The areas of landscape studies, engineering, and biology provide many opportunities to demonstrate information to the community. A research niche at Smith can tie the college closer to the community and give students more opportunities. Ms. Collier noted that those who have an interest in environmental studies as a major would do well to major in a specific science, not an environmental program. Employers want specific expertise in a scientific area. [Ms. Collier is a licensed professional planner, a member of the American Institute of Certified Planners, and a certified senior ecologist.]

An alumna from the Class of '78 said that she wished to add a second comment about enhancing strategic marketing. The greatness of the college depends on getting the best students. The college should conduct more focus groups with high school juniors and seniors and have earnest conversations with high school guidance counselors as an investment in getting the best students to come to Smith.

The next speaker stated that in addition to telling students about Smith, we need to keep in close touch with industry. Interns from liberal arts colleges are often lacking in

quantitative skills, and engineers don't know about schools like Smith and the way they are teaching engineering. Smith needs to track people coming out of its programs, in terms of their careers and to see where the college has connections.

An alumna from the Class of '78 said that she seconded Carol Collier's remarks about choosing a specific science rather than environmental science as a major; those with a bachelor's degree need to have some standing as a specialist. She also asked the college to cast the net wider by creating a "math is for everyone program," because math is a phobia for so many women.

President Christ responded that the mathematics faculty are considering a post-baccalaureate program for women who require more math to proceed into certain areas.

An alumna from the Class of '82 said that the statistic she had heard (that Smith provides 2% of the women Ph.D. candidates in the sciences) made her wonder why graduates of Smith make it through the many obstacles to women in science. Possibly some of the traits that make it possible for women to get through the doctoral programs also help them stay in their professions.

An alumna from the Class of '63 added a postscript to the 2 percent statistic by referencing research at MIT in the Fifties which showed that, even after the Ivy League schools opened to women, the number of Ph.D. candidates from women's college was still higher than from other colleges, possibly because of institutional expectations for the women and better mentoring.

An alumna from the Class of 2002AC identified herself as a computer science major and said that one of the points raised during the day's events was the high—even prohibitive—cost of science and engineering textbooks. She said she uses a website that, for a contracted fee, can deliver relevant parts of textbooks. The URL is <<http://www.books24x7.com/login.asp?ic=0>>.

An alumna from the Class of 2001 remarked that it is important for the college to establish relationships with some of the largest companies, as information often gets lost when specific staff changes. Some sort of ongoing program offers stability and induces people who may want to work at a specific company to attend a specific college because of its connections. All large companies are open to this kind of dialogue.

President Christ thanked the participants for their time, ideas, and perceptions, and for acting as ambassadors for Smith. She is encouraged by the support demonstrated in the "hands-up" response to the concept of alumnae as teachers and hopes to pursue many of the ideas and connections offered by members of the group.