
*I*t is important to the vitality of teaching in mathematics, science and engineering, therefore, that the best of new programs become known, and seriously considered for adaptation, where appropriate, for use at other institutions. Faculty in other departments and at other institutions must learn about the best of the innovations and must have access to the financial and human resources needed to evaluate and adapt worthy ideas to other settings.

—NSF Report. NSF 91-21.

Focusing on What Works.

Such stories are illustrations of how transforming program and space go hand in hand, and they are being enacted on campuses across the country. Institutions of all sizes and in all sectors are beginning to explore why and how to translate their mission into better environments for learning for their students in science and mathematics.

Focusing on *what works* in curricular transformation in other settings is a helpful next step in your facilities planning process. By talking with colleagues on other campuses who are actively involved in curriculum reform efforts, and/or who have been involved in recently completed facilities projects, you will gain important perspectives on what will work and what might not work for your campus community. On each visit, talk with as many persons as possible, including students. Bring a camera.

In industry, such cross-pollination is called “benchmarking,” an occasion to learn about what others are doing and to evaluate possibilities for local adaptation. Benchmarking is a critical step in facilities planning, and such trips should be encouraged at an early stage in the process. Remember, there are no intellectual property rights on good ideas in higher education.

As you visit other campuses, keep in mind you are there to gain ideas to *adapt* for your local circumstances; institutional circumstances differ, thus you should not be planning to *adopt* what others are doing. Ideally, it helps to visit both institu-

tions with a similar identity and mission, and those with distinctly different missions. (See Appendix for a Listing of PKAL Programs that Work.)

Remember that the process of planning is an evolutionary one, and that each separate activity, such as visits to campuses and departmental meetings on curricular dreams, will be repeated at different stages during the months and years of planning, by different individuals and groups.

As the process becomes more formal, develop a standard list of questions to ask during such benchmarking visits, such as the following questions on planning facilities:

- What most influenced the design? What do you like most? What do you like least?
- What would you do differently now? Any surprises? Any failures?
- How was it decided to build new/renovate?
- If new: what influenced the site selection? How will the old space be used?
- How was the campus planning team (the Building Users committee) assembled? Was there a project shepherd and/or project manager? What staff support was necessary?
- How were decisions made and communicated throughout the process? How was the budget determined?
- How were the design professionals and construction firms selected? Were they responsive to your needs? Was it easy to be a good client?

As you make these benchmarking visits, there are also important questions about *why and how* program and space have been transformed:

- What drove the decision to make changes in the curriculum?
 - What drove the decision to make changes in the spaces?
 - What kind of learning environment were you working toward? How important were undergraduate research, hands-on learning, use of technology, etc.?
 - Did this project involve one department or several?
 - What fields within the disciplines are represented in the department(s)?
 - Is there now a different balance between lecture and lab, demonstration and discussion?
 - How did departmental offerings shape the new spaces; what was the impact of the new spaces on departmental offerings?
 - Has interdisciplinary activity been facilitated by the new program or new spaces?
 - In what new ways are computers and technologies being used? Can you make use of multimedia technology from your classrooms, seminar rooms, and labs? Do labs accommodate computers for real-time data acquisition and analysis?
 - How sophisticated is the instrumentation available for your students and faculty? Where is it located?
 - Do faculty and students have access to all major instrumentation without disturbing others?
- Can your students run multi-week projects?
 - Can lecture classes break into small group work? Do furniture and layout allow students to work in teams during laboratories?
 - How do the traffic patterns work between offices, research space, classrooms, and informal spaces?
 - What has been the overall impact of the new space on teaching, research, sense of community?

These are the kind of questions that might be used also at your home campus to identify problems and potential with your current space and program.

