Faculty to Improve Pedagogy

LEARNING SPACES: INVOLVING FACULTY TO IMPROVE PEDAGOGY

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In every type of higher education institution in the United States, renovations of existing learning spaces are taking place or new construction projects are under way: updating class rooms, libraries, and computer labs in buildings that date to the 1960s or even the 1900s; constructing new classrooms, offices, and labs; renovating and adding on to library buildings, often including information or learning commons. In addition to the need for fresh paint, flooring, lighting, and HVAC systems, a key driver in space renovation or new construction is the need to accommodate new technologies, including wireless access, connections to the campus network, and provisions for updated hardware for faculty and students. However, the role of these technologies in teaching and learning, as contrasted with their use in faculty members' research or students' social lives, is often not clearly articulated in the renovation or construction plans.

A number of underlying assumptions may prompt the way in which technology is integrated into learning spaces and the physical layout of those spaces: assumptions about what classrooms should look like, based either on existing models or on ideas of what is needed; assumptions about faculty's readiness to engage in their trial-and-error methods of teaching and how they might do it if technologies are more readily available in the classroom; and assumptions about what role technology should play in the improvement of learning. Some key institutional players may see classroom facilities projects as opportunities to institute reforms in teaching and learning, based on the findings of many studies and reports that advocate pedagogies emphasizing such elements as active and social learning (in contrast to the traditional, passive lecture approach). But such expectations may not be clearly articulated by faculty, who have the main responsibility for teaching. The result is often a gap between what is perceived (by planners, administrators, and others) to be the value of the renovation or the new learning space and what actually results. If a costly renovation of a classroom building and the installation of smart podiums and projection equipment results merely in faculty using PowerPoint presentations rather than overhead projector slides in their lectures, administrators might well question whether there will be a healthy return on investment.

Before a project begins, administrators need to ask: Who in the institution has clearly thought out and articulated what should result from the renovation or new construction of the learning space, and does that person or group have the ability to deliver anticipated changes? The planning process for a major renovation or new construction project will involve individuals from many planning and design processes: campus administrators, academic administrators, faculty, and students. As planners work with the architects and designers, they will be asked questions about the programming of the space, in this phase of the design process, they will articulate the uses intended for the space and provide insight into their priorities for the space. The nature of this process, the stakeholders involved, and the extensive analysis of the planning process will vary from campus to campus. Unfortunately, if this phase is not extensive enough and does not meaningfully involve faculty, facilities may simply be updated in their current configuration—for example, a certain number of lecture amphitheaters, medium-sized classrooms, and small seminar rooms—or new buildings may merely replicate traditional classroom spaces elsewhere on campus. The main results will be a refreshing of the environment and the development of a technology infrastructure (new wiring, wireless access, addition of many power outlets), with no allowance for significant pedagogical changes that could have a major impact on student learning.

Tapping into Faculty Motivation and Interest

Occasionally, a subgroup of faculty or a parallel group will work on an overall review of the curriculum, addressing faculty members' pedagogical style and preference and their use of technology in teaching and learning, in preparation for changes in the learning space. Those campuses that do engage in this type of curriculum review in conjunction with space planning have the opportunity to achieve significant pedagogical changes. For example, at MIT, faculty have played a strong role in the design of new facilities, guided by a Conceive, Design, Implement, Operate (CDIO) process. In this process, learning principles are identified and the types of learning activities that will take place in the space are stipulated before an architect is hired. "The learning needs of the discipline drive the planning process." Project Kaleidoscope (PKAL) is an organization that works on undergraduate science, technology, engineering, and mathematics (STEM) education and assists colleges and universities in developing a robust planning process for science buildings and other facilities. The organization has developed a website (http://www.pkal.org) with rich resources on facilities planning and engaged learning. The list "What Works—Facilities" states: "Spaces that link insights about how people learn into curricular reform . . . lustrate the inter-relationship between curriculum, spaces, and pedagogic and the implications for the way classrooms are set up and equipped, can have major dividends for both students and faculty. Administrators at Estrella Mountain Community College, working in partnership with Herman Miller Inc. and a local business, saw a classroom renovation project as an opportunity to improve teaching and learning at their institution. Two key factors in their planning process were that the discussion of instructional pedagogy would precede the design and prototyping of the learning spaces and that all sectors, including faculty and students, would have genuine input into the process. "The college held meetings, formed focus groups, and conducted surveys to discuss instructional pedagogy and delivery strategies. From this input emerged consensus for classroom design, media/technology, flexibility, furniture, lighting, electrical access, wireless access and other desired classroom teaching aspects." Faculty and students also experimented with prototype classrooms. The result was model "studio" classrooms intended to increase student engagement in learning. Estrella is now involved in an ongoing process of feedback, assessment, and development of additional learning spaces.

As noted, a successful process must address faculty motivation for making changes in the curriculum and/or pedagogy. For example, faculty may want to improve content learning because of concerns that too many students are unsuccessful in...
introductory-level courses, especially in math and science. Or faculty may want to encourage more advanced development of writing skills or critical thinking skills. At the College of Biological Sciences at the University of Minnesota, Robin Wright teaches an introductory course in research and as a "concept laboratory." According to Wright, students bring what they have learned from the textbook and use that knowledge to collaboratively "build new ideas, connections, and applications." Students gather in groups at round tables equipped with three laptops per table; the laptops are connected to a screen so that the classroom is ringed with displays of what the students are developing. The professor can send images of examples of interesting work to all of the tables. Wright makes the rounds of the tables during the class, asking questions and making suggestions. In this type of classroom, instructors can teach not only the disciplinary concepts but also the critical thinking skills that are aligned with the discipline. In a video of the classroom in operation, Wright describes the excitement and enjoyment she feels when working in this environment. Ideally, this type of motivation to reach students in a new way using technology, coupled with the appropriately configured classroom spaces, will lead to highly desired educational outcomes.

Going beyond the Initial Planning Process

Some may feel that the role of planners, and specifically of those who are planning the technology component of the learning space, is to install a basic infrastructure so that faculty will have the flexibility and the freedom to use technology how they want and also in ways not yet imagined. This approach may work for the "early adopter" faculty or those who are particularly engaged with technology, but most faculty need to work with others in order to implement changes in pedagogical approach and to learn how to use technology in their classes. According to one survey, faculty stated that their biggest challenge in using technology was "not knowing how to use the technology;" in spite of their awareness of and satisfaction with institutionally provided technology training. Many faculty are overwhelmed by the need to use different equipment in the various classrooms in which they teach and by the challenges of keeping up with Web 2.0 technologies, course management systems, and various software.

Professionals—instructional technologists or academic technology professionals or staff in a center for teaching and learning—need to work with faculty on curriculum and course redesign. Their objective should not be to help faculty figure out how to use technology in courses; rather, their aim is to understand what the faculty member is trying to achieve and to suggest innovative strategies for reaching those learning objectives. It may be that the faculty member, perhaps in the sciences, believes that the success rate of students in introductory courses could be improved through a different approach to pedagogy. For example, Virginia Tech configured a new facility, the Math Emporium, to address such a need; the institution not only renovated a faculty that incorporated technology but entirely revamped the pedagogy for this portion of the math curriculum, in a team effort of faculty and instructional technologists.

Another useful strategy is for a campus team to develop overall design principles for classroom space. These principles could address pedagogical aims, environmental factors, and desired space configurations for different sizes of classrooms. Dartmouth College put together a team consisting of information technologists, the registrar, and staff from the Center for the Advancement of Learning to develop these principles.

Some colleges and universities have made systematic efforts to understand faculty interests and needs related to teaching, learning, and technology. These initiatives may not be tied directly to learning space planning initiatives, but they can feed into learning space projects when opportunities for facility renovation or new buildings arise. Needs assessments for faculty may include surveys, visits to department or committee meetings, and interviews. As a result of needs assessments, some instructional technology units and teaching and learning centers have tailored educational programs and curricula for assisting faculty with improving their utilization of technology in teaching and learning. Do something to make offering brief workshops on specific technologies, or developing technology-enabled resources for a course, or designing extensive, team-based initiatives to revamp a curriculum. Another key to crafting a holistic approach to learning space design is to include consideration of what ongoing services will be needed to support faculty. These services may not only include curriculum planning services but also services addressing rudimentary needs—for example, ubiquity and a degree of compatibility of equipment, ease of use, multimedia equipment in classroom spaces, additional services that are available, and ready support when things go wrong during class time.

Clearly, if a key goal of building or renovating learning spaces is to achieve a change in pedagogy, planners need to address faculty members' interest and motivation, which may differ from department to department or from individual to individual. Most faculty do not want to invest time in a learning style to use technology merely because it is in fashion, nor do they want to integrate collaborative learning into class time simply because they've heard others like that talk. They do want to address perceived problems, such as a high failure rate or weak critical thinking or writing skills, and to take advantage of perceived opportunities, such as increasing student engagement or giving students experience with technologies currently used in the discipline's work. For these reasons, faculty need to be deeply engaged in the planning process for classroom spaces.

Connecting Informal Learning Spaces and Faculty

While it seems only logical to embed faculty in the planning process for renovated or new classroom space, it may not be clear how or why to involve faculty in the planning process for new construction or renovations of informal learning spaces such as computer labs or library information commons. The fact is that faculty expect college students to spend more time learning (related to their academic subjects) outside the classroom than they do inside the classroom. Some libraries have made systematic efforts to understand faculty interests and needs related to teaching, learning, and technology. These initiatives may not be tied directly to learning space planning initiatives, but they can feed into learning space projects when opportunities for facility renovation or new buildings arise. Needs assessments for faculty may include surveys, visits to department or committee meetings, and interviews. As a result of needs assessments, some instructional technology units and teaching and learning centers have tailored educational programs and curricula for assisting faculty with improving their utilization of technology in teaching and learning.

Some institutions may have closer links to specific departments and their curriculum. For example, the Weigle Information Commons at the University of Pennsylvania is a joint endeavor of the Libraries, the College of Arts and Sciences, and the Office of the Provost. The Information Commons staff has developed strong relationships with a number of faculty; the staff might especially benefit from technology-enhanced library spaces and services or faculty who would do so if they were aware of appropriate facilities and support services. For the largest and most heavily used informal learning spaces (e.g., computer labs or library information commons), libraries may have additional spaces for collaborative student work and access to technologies, along with support for information and technology services. Computer labs provide the hardware and software that enable students to complete assignments using word processing software, statistical packages, spreadsheets, databases, and the like. Faculty who have generic ideas of what students might want to accomplish in such places, may lack knowledge of students' specific curricular needs. Although faculty may be included on planning committees for these informal learning spaces on campus, their numbers are usually too small to represent all the disciplines whose students might use the spaces.

On the other hand, institutions are increasingly involving students more directly in the planning process or are using anthropological methodologies (e.g., observation techniques) to understand students' behaviors. In addition, some librarians are conducting extensive assessments of faculty members' and graduate students' needs regarding research space and services from the library. And again, less attention is being given to supporting faculty members' needs regarding teaching and learning. For example, libraries may not have a process to identify faculty who are giving assignments in which students might especially benefit from technology-enhanced library spaces and services or faculty who would do so if they were aware of appropriate facilities and support services. For the largest and most heavily used informal learning spaces (e.g., computer labs or library information commons), libraries may have additional spaces for collaborative student work and access to technologies, along with support for information and technology services. The combination of the physical facility—which includes spaces for small-group work, hardware and software, and multimedia production—and staff who can provide workshops and services assists faculty in being able to try new types of teaching techniques and make different types of assignments. One faculty member noted, "I am astonished to see how the space and its services are transforming my teaching and my students as they continue to take greater control of the process and production of knowledge. . . . My students are becoming scholars." The expertise of library and computing staff, who will work with both faculty and students, can free faculty members from needing to be experts on every aspect of technology and from providing direct assistance to their students on the more technical aspects of assignments. For example, David Board, a faculty member in the writing program at University of Minnesota, teaches writing and business students and assigns them multimedia projects. He notes that his institution's Multimedia Hub facility "gives great group and individual training. . . . You do not need to drop course content to teach the technology any more than you need to drop course content to teach word processing." This informal learning space allows an infusion of technology into the curriculum outside of the classroom and without requiring the faculty member to be an expert in instructing students in the use of technology. A key factor, though, is that faculty are aware of the facility and services offered.

For a University of Southern California "Political Media" course, the professor wanted to change her emphasis from an analysis of print and network television news to a study of new forms of political media communication such as blogs and
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The center staff found that faculty needed different types of professional development and support, depending on the faculty member’s level of sophistication with technology.10 IT and library staff can engage in outreach programs to departments and colleges: making visits to departmental meetings, participating in orientations for new faculty and teaching assistants, and producing clear materials (websites, brochures, etc.) that describe their facilities, hardware, software, and services. As information professionals work more closely with faculty, they can start to understand which courses emphasize group projects, which courses require or encourage students to produce multimedia projects, and courses that require oral presentations—all of which have implications for informal learning spaces. Establishing good communication so that faculty will understand what spaces, technologies, and services are available and how these all might best be used can help maximize the optimal utilization of new or renovated informal learning spaces.

Conclusion

If an institution desires more than a facelift or an iconic new building, it should clearly articulate its learning objectives and then place a high priority on including curriculum redesign in the planning process for new learning spaces. Faculty who are genuinely engaged in pedagogy, along with others who are concerned with the teaching and learning aspects of the space, should play a central, not peripheral, role in planning groups. An institution that is serious about making changes in pedagogy, whether or not those changes include technology, should consider the kinds of motivation that faculty might respond to from an internal grant program for curriculum redesign, to an increase in instructional technologists or other staff, to more frequent or timely workshops, to more reliable day-to-day support for classroom technologies. In addition, a unit or group should be tasked with assessing what is or is not working in the new learning spaces after they are occupied—and with making recommendations for changes.

All of this necessitates a serious investment of resources. In these difficult economic times, administrators at many institutions will likely want to see demonstrable returns on these investments. They may want some evidence that the investments, particularly in classroom technology, are being employed in the ways the planners anticipated and that the investments are creating some improvements in teaching and learning. Faculty may welcome some opportunities to rethink their teaching style and the way in which they achieve their learning objectives if the proper supports are put in place. Ideally, with new or renovated learning spaces, formal and informal, all stakeholders can win: faculty can enhance their teaching, students can improve their learning, and administrators can proudly point to the positive results of their investments in physical facilities, new technologies, and support services.

Notes

One of the most meaningful recent shifts in higher education pedagogy is the increased interest in and adoption of active learning. In contrast to lecture-style courses, which leave limited time for student participation and discussion, active learning emphasizes student questions and interaction. This style of learning uses projects and group activities to drive participation and collaboration. Given the unique activities involved, active learning requires a different kind of physical classroom space than a standard classroom. While many types of active learning exist on college campuses, uni Find the meaning of the term pedagogy and the different pedagogical approaches and explanations of different teaching theories. Our guide gives a thorough definition. Read the full article for details. What is pedagogy? As part of our Pedagogy Focus series, we take a deep dive into the definition of pedagogy and what it means for teachers. Tes Editorial.