

Quality Endeavors

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Penn State Students Improve Quality Through Teamwork

Students in the Architecture Department, the School of Information Sciences and Technology, and the Quality and Manufacturing Management Program have been presented with opportunities to improve classroom facilities, inform the teaching/learning process, and hone the team skills that will be invaluable in their anticipated roles as professionals.

Architecture and Architectural Engineering Students Perform an Audit of University Park Classrooms

By Robert Myrick, Penn State Facilities Resources and Planning Architect

When UCIF (University Committee on Instructional Facilities) wanted to do an audit of general purpose classrooms at University Park, they turned to four architecture students—three undergraduates and one graduate—for help, instead of asking 12 to 14 staff members to spend an entire summer sandwiching the classroom review into their regular work schedule.

To commence the project, architecture students Jeeyoung Chon and Mandar Kulkarni, and architectural engineering students Rebecca Simcisko and Steven Puchek, met with university facilities resources and planning architects Robert Myrick and David Rusnak to review the audit process, walk through some “sample” classrooms, and become acquainted with spread sheets and condition codes.

Once the university architects were convinced the student “surveyors” were well trained and had arrived at a consensus of understanding, they sent them out in teams of two to review and code 329 general purpose classrooms. The attributes of the rooms to be assessed included such things as:

- ADA access to the building and room
- Condition of floors, walls and windows
- Environment, A/C and HVAC specifics
- Lighting and foot candle measurements
- Condition of furniture and media provided

Each morning Myrick and Rusnak met with the students to answer their questions. “In some cases we went back to the classroom with the students to be sure we were all communicating and understanding issues in the same way, so that observations, questions and answers would be consistent,” said Myrick.

“The students worked hard and blitzed through almost all the general purpose classrooms in July. They did their work efficiently and thoroughly. They provided the student view of the classrooms, too, thought to be very critical since they are the ones sitting in the rooms,” Myrick commented.

The results of the survey provided important information for university architects. Only 6 percent of the classrooms were rated “unacceptable,” “needs renovation or replacement,” or “poor.” Thirty-two percent were rated “fair,” 57% “good,” and 5 percent “excellent.”

Student team member Puchek commented, “At times it was humorous to see some of the more deplorable classrooms, and exciting to see some of the newly renovated rooms. We even got to discuss with Bob [Myrick] some of the features of the new rooms that were intended solely for student comfort. The new chairs in the second floor classrooms of Sackett were an “experiment” that we found to be exceptionally well planned.

“The idea to survey the classrooms was a fantastic idea, but to have students as surveyors gives the information that much more credibility, especially when renovation decisions are made. I was glad to have a part, a “say,” in how the University views its facilities, and I knew that surveying would only serve to help students in the long run.”

Quality Teams in the School of Information Sciences and Technology Help Students Become Passionate and Sophisticated Learners

Information provided by Sara M. Powers, Undergraduate Student, IST; Mike Biron, Undergraduate Student, IST; and Larry Spence, IST Director of Learning Initiatives

Students who think about how they learn perform better. Such reflective learners are better able to retain and use knowledge, according to educational researchers. In the competitive fast changing world of information technology, graduates need to be passionate and sophisticated learners.

At Penn State's School of Information Sciences and Technology quality teams help students reflect on how they can learn better. Since its founding five years ago, IST has experimented with using teams of students in courses to enhance the learning process and provide instructors with feedback to help them improve course design.

Last spring the school took over sponsorship of the teams from the Schreyer Institute and expanded the program. This semester more than eighty students (out of an undergraduate population of 717) conduct teams in thirteen courses enrolling more than 500 students. The project is student organized and managed.

Mike Biron, a junior in IST, currently directs the quality team project. He initially served on a team in his first year and then became a team leader. Derek Switzer, a junior in secondary education, is his assistant. In a two-week whirlwind beginning each semester, they schedule and train team managers and members. Team members receive one credit of independent study for their efforts. Team leaders receive nominal salaries.

Biron first explains the program to students in IST courses whose instructors have requested quality teams. Interested students

formally apply. He selects team members on the basis of their schedules, previous quality team experience, semester standing, and extracurricular activities.

A student who has had at least one semester of quality team experience and is not enrolled in the course leads each quality team. Leaders are trained in quality principles, team management, survey design, and diplomacy. Team members get similar training.

Quality teams meet once a week to critique the learning process in their course. During the week they interview colleagues, apply fast feedback instruments like one-minute papers, and solicit suggestions. Once they pinpoint an issue they prepare survey instruments to establish if there is a significant problem. During the semester they share findings with their classmates.

Team managers meet with student teams and with instructors. They share suggestions and ideas for improvement with professors. Often instructors respond with changes in grading methods, the size of learning groups, assignments, schedules, and supporting activities. Nearly every professor reports upgrades resulting from working with quality teams.

"Quality teams make it easier for me," says Steve Sawyer, one of the original faculty members of the school. "I've used one in almost all my undergraduate classes and rely on them to identify problems before they get in the way of learning. The give-and-take among the quality teams, students and me around the data they collect makes us all think about barriers to

learning. For example, a quality team said that students couldn't read the comments I made on their papers. Students worked with me (some even into the summer following the class) to come up with a something better. Now, I use a pen-based computer and make comments digitally."

After a semester in a quality team, students wrote these comments: "I enjoyed the idea that we, students, were able to openly discuss and even change a class to make it better for other students in the future . . ."

"It was a rewarding feeling to know that we were able to influence the structure of the class."

"When students enroll in quality teams, initially they feel that their job is to complain about the professor," Biron says. "However, after training and by the end of the semester, aside from making significant improvements in the course, many discover more about how they learn than they ever thought was possible."

Larry Spence, IST Director of Learning Initiatives, serves as the project's advisor. "This is a great learning experience for these students," he concludes. "They manage teams, evaluate the learning process, and communicate with professors to foster changes. They're professionals."

Penn State's Quality and Manufacturing Management (QMM) Masters Program Prepares Students for Industry by Organizing Quality Teams

By Frank L. Chelko, Instructor of Operations and Supply Chain Management, Smeal College of Business

In the very first days of professional employment, new graduates today find themselves automatically assigned to teams organized for purposes that may include improving quality, implementing new systems, or participating in new product introduction. The feedback from perspective employers is that while students are knowledgeable within their respective fields of study, they are often unprepared for their new roles as team members.

The Penn State Quality and Manufacturing Management (QMM) program co-sponsored and co-directed by the Smeal College of Business and the College of Engineering addresses this issue directly. Established in 1996, the program's focus is to provide graduate instruction in the modern principles, strategies, and practices of operations management and leadership with a team emphasis.

Throughout the two semesters of coursework, student teams frequently perform assignments that simulate most business environments where they would experience team memberships in support of company tasks or goals. Case studies, new product development, business plans and other related presentations are a few of the tasks that QMM teams tackle.

Students employ quality improvement tools to do their teamwork, such as benchmarking, flowcharting, root cause analysis, Pareto charts, cause and effect diagrams, affinity diagrams and control charts.

It is noteworthy that QMM team members remain in the same team for all coursework throughout a semester (a team consists of 4 to 6 students). In fall semester, members of teams are selected by the program's co-directors, Clayton Ruud, professor of industrial engineering, and Gerald Susman, professor of management. Team selections

are made using criteria that result in a random mix of student backgrounds, work experiences, cultures, etc. Organizing in this way enables students to further simulate real-world business environments where often team members are drafted into duty joining others from diverse backgrounds, education and experiences.

In spring semester, the QMM students elect new team leaders. The leaders form new teams by choosing students in rotation until all students are selected. In both semesters, students are required to participate in off-site team building exercises facilitated by faculty members.

The overall experience as recounted by QMM students at the end of their program is characterized as valuable, occasionally intense, and enlightening.

The Office of Planning and Institutional Assessment announces . . .

. . . two new additions to the Quality Spotlights Web page that we have developed to highlight team improvements and innovations. These two teams have taken advantage of the Web to document, decentralize, and verify processes in their units.

Please visit <http://qualityspotlight.psu.edu/pti.html> to learn how the **Pennsylvania Transportation Institute** developed an on-line operations manual to provide administrative support for research.

Please visit <http://qualityspotlight.psu.edu/aers.html> to learn how **Agricultural Economics and Rural Sociology** improved their financial processes and created an on-line directory of budget and project information for the department.

For information about additional teams featured in Quality Spotlights, please visit the Quality Spotlight index page <http://qualityspotlight.psu.edu/>