



INNOVATION ABSTRACTS

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Team Teaching: A Learning Experience

It was my first quarter teaching Civil Engineering Technology, and I found myself standing in front of 30 drafting students, or rather 30 students who were taking drafting. I need to make that distinction because 24 of these students were from irrigation technology. These students would learn that as irrigation technicians, they must be able to communicate ideas to the drafter or engineer in the office and to draw neat sketches or pictures of the field situation. Therefore, the students were required to take a drafting class.

That quarter seemed to progress in a downward spiral. The following quarter, I asked the irrigation technology instructor about teaching a sketching class instead of a full drafting class, although I was not sure that sketching warranted a full course schedule. He asked if we could incorporate the sketching into an electrical blueprint reading class he teaches. From that simple proposal, the team-teaching class originated.

Lists

We compiled a list of topics that we felt were important to the well-rounded student in both areas: electrical engineering and sketching. We discussed the topics that we would be able to cover in a ten-week quarter or in 30 lab sessions, eliminating some topics and adding others. We decided not to use a textbook, but rather to compile our own set of notes and assignments for the course.

Responsibilities

Once we had decided on the time table and allotted the class time for each subject to be covered, the next step was to determine the classes each of us would teach. Since we were each using two contract hours of the total four for the class, we needed to split the classes evenly.

Cooperation

Neither of us worked independently of the other. We each depended upon the other for additional information or handouts when necessary. Our main goal was to make the course as applicable as possible to the irrigation technology student. I found that some of the material I had been using in the civil engineering

drafting course worked well when assigned as a sketching, or less rigid, task.

Flexibility

We realized early on that we both had to be flexible and willing to try new methods of teaching and new material. Additionally, we had to be able to change direction at the last minute if an idea was not working. While we met several times a week to discuss the coming lectures, we found that occasionally we would overlap in subject matter. The decision had to be made to either change the next lecture or leave an overlap for positive reinforcement.

Grading

We each graded our own papers independently on a daily basis. The students knew their averages because they kept a notebook of all handouts and assignments. They and we were compiling a book for the course.

At the end of the quarter, we sat down with our individually averaged grades for each student. We had similar averages for all of the students, but two. Assigning final grades was an easy process.

Conclusion

Student evaluations of the course were positive. Several students commented they liked the team-teaching idea and would like to take other classes taught by that method.

Team teaching is more work than teaching alone. While each of us taught one-half of the course, we each put two-thirds time into its development because there was no text and we had to adjust our teaching styles. Even so, this was an exciting and positive experience for us both. We will teach this class again next winter quarter, and I certainly would elect to teach another course with another teacher in this manner, again.

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Winning the Race with Statistics

Students in my Introduction to Statistics course are required to conduct a public opinion survey. Last summer we sought opinions about the proposed Maryland Motorsports Park. The facility was to be built on Blenheim Farm just west of Havre de Grace. Strong opinions for and against the facility appeared often in the local papers. But it was a comment in the *Record* by the mayor of Havre de Grace that gave me the idea for this project. He indicated that if the people of Havre de Grace did not want the race track, there would be no track—that Havre de Grace had some jurisdiction over this issue.

To find out what the citizens wanted was an intriguing challenge, well within the reach of the students in my class. When I presented this challenge to the class as a suggestion for our project, almost half seemed genuinely interested in the idea. In my classes, that constitutes a mandate. In the next few weeks, we planned our strategy as students learned about the statistical tools they would need. To prepare for the project, I moved to a discussion on planning statistical studies. Students were given a full class to work in groups, identifying questions that should be asked and studying controls that were needed. Out of that exercise, we defined our survey population and information goals. Questions addressed the percentage of residents *in favor*, *not in favor*, or *undecided* about the racetrack, and queried further to try and uncover the rationale supporting the opinion—e.g., economic or environmental reasons.

One of the great learning experiences was actually conducting the survey via telephone. Students experienced firsthand the frustration associated with collecting good survey data. Only 60% of those polled would participate. Incomplete responses and recording errors dirtied our data. Students had to account for these problems as they recorded a class master data set in a statistical software package for analysis. By this time, they longed for the clean data in our text. Analyses were conducted by groups of students and consisted of graphical displays, statistical tests, and a summary of what they had learned. Group results were condensed to a single report, titled "Maryland Motorsports Park: A Public Opinion Survey." Assessment of the students' performance was made through a data collection score for individuals, a group analysis grade, and their performance on a portion of their final exam.

The analyses were presented to the Mayor's Task Force on the race track proposal. Five of my students

presented the class results in public forum as seven others looked on. The students did a fabulous job, and the task force was extremely complimentary of the professionalism of our approach and the community value of our results.

Although I don't know that I would recommend an effort of this magnitude each semester, I am glad that we undertook this project. I did some checking on the market value of our work. A firm using one senior statistician and 25 statistical assistants would earn about \$12,000 for the same work. The city of Havre de Grace received a tremendous amount of information at no cost as a goodwill gesture from Harford Community College. Students felt good about having participated in a worthwhile project and are still telling me and others how much they enjoyed the process.

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