Oral communication: A Course of Action for an Engineering Department

Craig James Gunn
Michigan State University

Abstract

As students and faculty become more and more attuned to the real world and the requirement that graduating engineers be multi-faceted, the importance of skill in oral presentation will grow exponentially in departments of engineering. There are many things that can be done within any engineering department to foster presentation skill. Simple practical methods ingrained in courses, extra-curricular activities, and simple contacts can improve the quality of our students. The steady progression of oral communication skill within a curriculum will help to make a graduating engineer a complete individual.

Introduction

As recent comments from an evaluator for ABET show, presentation skills are vital for engineering, All departments need to show their concern for this area of expertise. Specific identification of location in the curriculum where students will become acquainted with the needs to communicate orally must be easily recognizable. It is no longer enough to speak about the needs or to expect that others at some unknown locations will pass on the tools. For those departments that do not allow students to enter the programs until their junior year it is critical that a mechanism be in place within the department to ensure that engineering graduates possess all those traits that the world expects of them.

Methods

Since it is clearly impossible to impart these necessary tools and their practice in single efforts or courses, departments must prepare students through a development of assignments and activities. Responsibility must be placed on courses that are required by the department to provide the location for oral presentation skills. If eight courses are required of all mechanical engineering graduates, this is a logical place to plan a course of action that will ensure competency and practice. In the Department of Mechanical Engineering at Michigan State University plans are being implemented to ensure that students will be competitive in the working world. Activities are being orchestrated to give students not only the chance to write but to practice their speaking skills. Beginning with a junior year fluids' laboratory students will be given the chance to perform informal self and fellow-student introductions. At this early stage in the taking of engineering course, the coupling of engineering skill acquisition and the means to convey the information is evident. The importance of being able to stand up and speak becomes an integral part of a student's life. Since laboratory courses require group work, the process of presenting information to one's own small group will also be part of the presentation schema. Brief presentations of materials collected in the laboratories will also be included in the work of the students. In their first classes they are shown both the need to communicate and the relaxed manner within which it can be done. Videotaping of presentations also begins at this stage. Students can then review their own performances within the comfort of their own private

environments, Much of what is done in class can be of benefit to the acquisition of presentation skills. Instructors talk about the need to simply answer questions in front of others. Whether the answers are completely right or not, the student gets the chance to be in a presenting mode for a short duration. Any written assignments that are given can also be used as examples of places where oral communication takes place. Students are reminded of the need to talk to fellow students about happenings in the lab along with the presenting of information to teaching assistants in order to get feedback for future activities. As students enter the heat transfer courses they can be directed toward more expansive question answering activities before the class. Instructors are encouraged to have students present oral evaluations of readings and laboratory experiences. These short 2-3 minute reviews cause little anxiety and enable a large number of students to achieve the experience of presenting information. Because controls and vibrations laboratories focus on formal laboratory reports and extensive feedback, it is a suitable place to introduce longer more formal presentations. Since students have already collected material for their formal reports, they have sufficient material to present; and because all the students are working on the same labs (although not doing reports for all of them), the audience can make intelligent suggestions and comments on the performance of the speakers. Adaptations of these activities involve the division of the various sections of the formal report amongst various speakers and having an entire lab presented by a diverse group of individuals.
The three required design courses provide a substantial platform upon which to continue the above oral presentation introductions. Since design courses require research and conversation, questioning and argumentation, and feedback and reassessment; the emphasis on the need to present orally is something that students can be easily shown. Here is one of the most important aspects of communication. Students are seldom told why the work that they do on paper or orally is of any importance. Students need to be presented with concrete examples of why the work that they verbalize is valuable for both themselves and others. The above activities of introductions, short answering of questions, expanded answering, reviewing of readings and activities, and the presentation of material that is collected in laboratories prepare the student in a comfortable manner for the larger task of presenting much more extensive work.

This larger work comes in the form of the Senior Design Project which incorporates casual presentations to the faculty advisors and more formal meetings with corporation sponsors, activities that culminate in a formal presentation at the Senior Design Day Conference attended by undergraduates, graduate students, faculty, and corporate representatives.

Conclusions

Departments of engineering in every major need to address the oral communication skills that are becoming more and more important to the graduating engineer. No longer can an engineer simply know technical material. These engineers must be able to write, think, listen and especially verbalize the knowledge that they possess. Much effort has gone into preparing students in the area of written communication. The time has come to devote equal time to coordinating courses within each department so that elements of oral communication from short introductions to full length presentations.

CRAIG JAMES GUNN
Craig James Gunn is the Director of Communication for the Department of Mechanical Engineering at Michigan State University. He was educated at Michigan State University and he returned to the university in **1986** after teaching in the public school system for thirteen years.