Integrating Writing Center into Student Projects in STEM Courses

Teaching Communication Skills in STEM Disciplines

Cal Poly Pomona Faculty Workshop Series

Seminar 1: Learning to Write

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Seminar Objectives

- Provide an icebreaker for STEM faculty interested in using the resources of the University Writing Center (WC)
- Describe how to use WC ineffectively
- Describe how to use WC effectively
- Discuss ways to improve collaboration among STEM faculty & WC

Seminar Overview

- Motivation for collaboration with WC
- Overview of WC resources
- Case histories of effective and ineffective collaboration WC
- Discussion of potential future collaboration opportunities

Motivations

- Opening of an essay from a Sr. CE Student
  - "To first be responsible, you must accept the responsibility. Once this is do, I get the job, this is when performance take to the light."

Motivations

- My response to a senior project preliminary design report

Motivations

- Scientists & engineers must write effectively to succeed
- STEM faculty often insecure about critiquing student writing
- STEM faculty usually inexperienced in teaching writing
- WC has expertise in writing instruction
- WC has additional resources

CPP Writing Center Resources

- Director: Dr. John Edlund
- Tutors
  - Undergraduate students trained as tutors
  - Currently have 17 tutors, one in a STEM major
- Hours
  - Mon – Thurs 8:00 am – 6:00 pm
  - Friday 8:00 am – 3:00 pm

Models for Writing Centers

- **Drop-in**: One-on-one tutorial, generally 30 min
- **Writing Assistant**: Tutors assigned to classes taught by faculty. Tutor works closely with faculty to improve student writing. Tutor attend class, know the class material, lead workshop sessions on writing, and meet one-on-one with students.
- **Writing Mentors**: Designed for students who have a number of writing problems and need more than a one time tutorial session. Tutors provide longer tutorials and work throughout the year on improving the writing skills of the student.
- **Writing Associates**: Tutors assigned to work with an upper-division class. Tutor works directly with a professor. Tutor does not attend class, but work closely with the professor in developing out-of-class writing workshops and individual tutorials

Source: Muhlenberg College writing center
http://www.muhlenberg.edu/students/writing/center/

Some Recent Case Histories

- Ineffective: Writing Center as ER

- Better but not great: Tutor for independent research class report

- Best: Dedicates STEM tutor for senior project class

Ineffective Writing Center Use

- One time consultation for essay or paper
  - Statement from EGR 445 take-home exam
    - "You may consult with the University Writing Center to aid you in the written presentation of your essay."

- Results
  - Very little usage of WC
  - Some grammar improvement
  - Few comments on structure, support, or logic
  - No significant growth in writing ability

Better Use of Writing Center

- Student with independent study research report
  - Assigned STEM writing tutor start of quarter
  - Scheduled meetings w/tutor as needed
- Student reported results
  - Met tutor 3-4 times
  - Significant improvement in ability to use tables and figures and form succinct sentences
  - No improvement in grammar

Best: Collaboration with Writing Center

- Senior project team
  - 3 quarter long project with 2 major reports (one Fall 08 and one Spring 09)
  - Reports are team written with one final editor
  - Fall 08 report written w/out use of tutor
  - Faculty met with STEM tutor to discuss goals
  - Team editor met with tutor to rewrite Fall 08 report
  - Team editor currently meeting with tutor to help prepare Spring 09 report

Best: Collaboration with Writing Center

- Student reported results (rewrite of Fall report)
  - Improved use of figures & tables and with organization and flow of report
  - Tutor "did not seem to focus on writing as much as I would have liked"
  - "My overall technical report skills have improved …"
  - "My actual writing skills have not improved . . ."
- Practicing engineer assessment
  - **Proficient:** "Report was easily understandable"

Keys to Successful Collaboration

- Long projects are better than short ones
- Plan ahead
  - Identify a suitable writing assignment
  - Identify a suitable tutor
  - Discuss your goals & concerns with tutor
  - Provide & discuss your critiques of student work to tutor
- Multiple tutoring sessions
  - Have students meet with tutor as soon as possible
  - Follow up with drafts as needed
- Faculty must still critique and grade reports

How Can We Make it Better

- Let students know writing skills are important!
- Visit the WC
- Get more STEM students to visit WC for tutoring
- Plan ahead
  - Identify a potential project for a Fall 09 class now
  - Discuss project with WC this quarter
- Know a good student writer? Refer her to the WC as a potential tutor.