

# The Transformational Process of Mentoring

**Jeffery R. Schultz**  
Assistant Professor of Chemistry  
Rollins College

Multifaceted mentoring activities are integral components in student development. What does it mean to be a good mentor? What does mentoring involve? How effective are you as a mentor? Do research-active faculty have an added responsibility when mentoring research students? How can the mentoring process be enhanced to provide for better student-faculty interactions and make the student research experience more learning-centered? What type of mentoring style do you use and are your students learning as much as they can with this style? These issues will be addressed in a mentoring workshop that is part of the Research Responsibility Symposium planned for the 2002 CUR National Conference at Connecticut College. The process of mentoring can be described and defined in a variety of ways, however good and effective mentoring can be distilled to a transformational process that is personalized, intentional, organized, and assessable.

Mentoring activities should work from the premise that all students are individuals and, as such, the mentoring process needs to be personalized for each student. Some students are very capable in their research abilities and can take a project and go with it, meet every deadline, provide a written summary weekly activities, and make significant progress on the project. Other students need to have more intentional guidance with their projects, clearer and demonstrated methods of how to do the experiments or problem-solve, and these students may not make much progress on the project. As faculty members at primarily undergraduate institutions (PUI), we have just as much responsibility to focus on the teaching-learning process as we do with the process of research and scholarship.

Taking a personalized approach involves being intentional in how mentoring is approached. Not every good teacher or researcher is a good mentor. Being intentional means taking time to work with each student, meet regularly one-on-one to assess progress, be available to demonstrate laboratory techniques and do the experiment, help analyze and interpret data and make reasonable conclusions based on stated results, share and encourage the students with their discoveries, and offer

support when the experiments do not go quite as planned. Being a good sounding board, showing genuine interest in each project and in the students as individual people, helping keep the students focused, and if necessary redirecting them back on course will help build mutual respect that is keystone for any effective collaboration. The process of mentoring is also multifunctional and promotes overall development. Multifunctional objectives and activities lead to functional diversity and adaptation. Good mentors help students with experiments as well as offer career and personal guidance when needed, and are good role models. By being faculty members we are role models whether we want to admit it or not, so we have an innate responsibility to be as effective mentors as possible.

Approaching mentoring as a process of student development that is personalized and intentional requires organization. Just as every good experiment or project involves careful planning, inclusion of controls and variables, timely experimental implementation and assessment, so does the process of mentoring. Taking time to accurately define the problem, and working with the students to ensure that they know what question they are asking helps create that type of positive, interactive, and progressing learning environment that we as teachers and facilitators hope to achieve in the classroom. As the saying goes, prior planning prevents poor performance. Lack of an organized plan for what the students will be doing and how the faculty will guide this project leads to frustration for both students and the faculty mentors. Some planned chaos is good to challenge traditional thinking, but too much chaos leads to ineffective, energy-draining, and non-productive cycling.

## Assessment

Every experiment and study generates results that require analysis and interpretation, in essence assessment. The same type of questions that we ask students as they assess our classes, we can also ask our students about their research experiences and the mentoring process. How

Pacific Lutheran University chemistry major Kristen Russell and Jeff Schultz discuss a general chemistry laboratory procedure.

well did the mentoring process work? What worked well? What are areas that could be improved? Did the student, and did we as mentors, learn something from this experience? Every experience has a take-home message, and as mentors we need to keep an open mind and be flexible enough that we can listen to what the students say, assess the validity of their comments, and be willing to address their concerns and make changes to enhance this experience. After all, engaging in research activities involves as much teaching as do our classroom activities. Just as we need to share findings and results from scholarly work and research activities, we also need to share and assess the experiences of mentoring. For example, consider having monthly mentoring round table discussions with faculty in individual departments, divisions, or even college-wide to discuss what works, problems encountered, and trouble shooting strategies. You may even consider performing a more formal assessment of your effectiveness as a mentor; that is, study mentoring activities that take place during a summer research program, evaluate findings and share results with greater community through an article.

Mentoring is a transformational process for both the student and faculty involved. Effective mentoring is a necessary core to faculty-directed student research collaborative projects. Mentoring activities can also help faculty become better teachers, lead to more productive group meetings with student collaborators, and result in a positive, challenging environment that invites student involvement. Ineffective mentoring can also result in the production of a negative, non-student friendly environment that focuses only on the research project and ignores the student development part of the project.

So what type of mentor are you and will you be? How can you improve your current approach to enhance developmental activities that lead to a positive environment? As you consider these thoughts and travel down the mentoring pathway, remember that the research process and student-faculty collaborations for PUI faculty in teaching-focused institutions is not about the end product, whether that be the student capstone, the publication, or grant; but rather the objective in mentoring is about the journey from start to finish. This journey encourages student growth, faculty development, and challenges to current beliefs that lead to a positive experience for all involved. As a car commercial says, "Enjoy the ride." Keep growing and developing as a mentor — you may be surprised that you learn as much as the students you mentor.



## Reading List

- Halaby, R. (2001) Promoting undergraduate research in science. *The Scientist* 15, 35.
- Hansen, D.E. (2001) Fostering research for undergraduates. *Chemical and Engineering News* 79, 59-60.
- Malachowski, M. (1996) The mentoring role in undergraduate research projects. *Council on Undergraduate Research Quarterly*, 91-93, 105-106.
- Phillips-Jones (1998) The Mentee's guide: how to have a successful relationship with a mentor. *Coalition of Counseling Centers*.
- Phillips-Jones (1998) The Mentor's guide: how to be the kind of mentor you once had-or wish you had. *Coalition of Counseling Centers*.
- Shellito, C., Shea, K., Weissmann, G., Mueller-Solger, A., and Davis, W. (2001) Successful for creating positive student research experiences. *Journal of College Science Teaching* 30, 463-464.
- Zachary (2000) *The Mentor's guide: facilitating effective learning relationships*. Jossey-Bass.

# FOCUS

**research responsibility: a theme for mentoring undergraduates**