

Learner-Centered Education Grants

2004 Final Report

1. Project Name and Project Director's Name. Include mailing address, phone and e-mail address.

Project Name: A Shared Advisor Model for Undergraduate
Pharmacy Students Conducting Research

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2. Brief Description of Project:

Students in the Doctor of Pharmacy professional program are required to complete a research project as part of their professional curriculum. They work individually with their faculty advisor, as in the graduate student model, to write a proposal, collect and analyze data, write a report, and present the findings as a poster. For novice students, mentoring through the process requires substantial faculty time and with increasing class size (over the next several years, the class is expected to double compared to the class size of 2004) current resources are not adequate to continue to offer this type of learning centered education.

The purpose of this project was to develop a shared advisor model that would reduce the individual faculty resources required for students to complete projects and would enable more community practitioners to participate as project advisors.

The primary goals of the project were to:

- Develop a course during which students could write their project proposals;
- Develop a website that would provide students easy access to forms, examples, and other information that they need to complete their projects;
- Increase the number of community practitioners who serve as project advisors.

3. Goals, Outcomes and Assessments

a. Goals and Primary Accomplishments:

- Development of a course for writing the proposal: A two-unit course on proposal writing was offered as an elective in spring semester of 2005. A total of 53 students (80%) of the class took the course. Sessions were provided on literature review, writing purpose statements and hypotheses, using topic sentences, writing the introduction, developing questionnaires and data extraction forms, writing the

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methods and statistical analysis, timelines, budgets, and reference sections. The course was taught using a guided practice model. For each topic, a brief lecture presented the basics of the topic then students practiced writing the about each topic. Drafts were submitted to the instructor.

- Increase the number of community practitioners who serve as project advisors. All project advisors receive a letter thanking them for serving as an advisor. Students are told that if a community practitioner has not served as an advisor before, that I will serve as a co-advisor. The development of the proposal writing course allows community practitioners to serve as advisors but they do not have to be concerned with the exact requirements of the proposal or how to write the proposal—those issues are addressed in the class.
- Develop a web site to support the process. The web site is still in the development phase. Software that allows the development of a home page was implemented in the college in June. Software for the storing the database of project advisors and abstracts of projects is currently under consideration.

b. Outcomes and Assessment for each Goal:

- Outcomes for development of the course in proposal writing: The course met a need as perceived by the students as 80% of the class took the course as an elective. Students indicated that they learned a lot in the class. When asked to rate what they knew about writing a proposal before they took the class, they indicated that they had very little idea of what to do (average score = 24%) and when they completed the class that they had a good idea of what to do (average score = 86%). On the college evaluation form, the overall rating for the course was 4.5 (5 = excellent).
- Increase the number of community practitioners who serve as project advisors: The number of community practitioners serving as advisors has doubled. In the class of 2004, there were 10 community advisors; class of 2005, 16; and class of 2006, 20.
- Outcomes for web site: Identification of software for development of the project home page.

4. Problems or Issues Encountered:

Two major problems were encountered: questions about the utility of a student research project and decreased resource availability from information technology. The college curriculum committee asked for an examination of the utility of student research projects. A committee was formed (on which I served) and two reports prepared. Both reports concluded that students can learn valuable skills from the project process but that increasing class sizes and greatly increased requirements by the Institutional Review Board require that the issue be re-examined in about three years. While the outcome is positive, the project learning experience was retained, a great deal of time was required to respond to these concerns.

The information technology problem was primarily due to loss of personnel (two of five support persons left and were not replaced) in the college technology group. The significant loss of human resources in technology prevented the development of the project web site as originally envisioned as a stand-alone site containing all aspects of the project process that

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was programmed specifically for this use. Given the limited in-house resources, we are having to switch to a web-site that links to other programs within the college, for example, information on project advisors will be stored in the clerkship program and accessed from the project home page, and to identify programs that current support personnel in the college can manage.

5. Conclusions, Recommendations and Future Directions:

The most important outcome has been evidence from both students and faculty that a shared advisor model is more appropriate for student research projects than a graduate student model. Preliminary data indicate that students learn a great deal through this process and that the burden is reduced for individual faculty mentors. Faculty recognized the value of the course by making it a required course this spring. Additionally, community practitioners value the projects (they may see more value to the projects than faculty) and like working with students; recruitment of additional community practitioners has reduced the burden on faculty while increasing university service to the community. The task now is to focus on development of the web site that will provide additional support to students and their project advisors as they work on their projects.

6. Has this project led to sustainable change in your department/college? Describe:

The overarching purpose of this project has been to develop a model of learner centered education focused on student research projects that is sustainable within the college. The course in proposal writing is progress toward that outcome. Continued adaptation of the web site so that site maintenance is sustainable should allow accomplishment of that goal. Additionally, we will continue to recruit community practitioners to serve as project advisors.

7. Impact:

a. Have other faculty been affected by this project? Yes No. If so, describe:

The primary way other faculty have been affected is through the decreased time that they are required to spend to mentor a student through the project process. Hopefully, the increased support for students also will allow new faculty and community practitioners to improve their research skills.

b. Number of courses affected/involved.

Two courses have been affected. A new required course (2 hours of credit) was created and the previous two hour course for the senior project has been modified.

c. Number of students affected.

The total number of students affected this year was 69; however, each subsequent class will be affected. The next class will be 75 and over the next several years, the class size will continue to increase.

8. Significant Outcome:

What was the most significant outcome based on learner-centered principles that occurred through your project?

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To date, the most significant outcome is that the individual interaction between a faculty mentor and a student can be facilitated by including a course which supports the student research process. We hope to continue to improve the process through development of a supporting web site.

This approach to facilitating learner centered education would also seem applicable to the research process used for obtaining a master's degree. Most students entering master's level programs have very limited experience with research and limited time to complete the degree. Offering a course in writing the proposal and writing a publishable paper would seem to facilitate students' completion as well as facilitate publication.

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Appendix A: Additional Information about the Proposal Writing Class

Teaching a proposal writing class that was primarily intended to reduce the burden for faculty mentors as well as reduce stress for students required a new approach to developing a class. Most classes I have been associated with operate independently with little consideration or inclusion of faculty teaching other classes. Several lessons learned and changes that will be made to next year's class include:

- 1) Needing more information and structure to facilitate time management as well as interaction with project advisors. Last spring students were provided with a course timeline and expected to share that with their advisors. There appeared to be limited sharing as issues arose concerning when students should submit the final version of their proposal and it seemed like students were hesitant to let their advisors know what the class deadlines were. For the next class, project advisors will be asked to sign off on the schedule and students will be instructed on what they need to discuss with their project advisors.
- 2) More information and exercises on teamwork will be included. Students can work in groups of two or three but comments back from students this year indicated that students lack skills in facilitating and participating in group projects.
- 3) The section of the course having to do with submission to the Institutional Review Board (IRB) needs to be significantly modified. This past spring, I had a speaker come from the IRB and I also had the college representative speak about the process. The presentations lacked concrete information on what to do so that many IRB applications were not completed correctly. Next spring, the students will work on filling out their application in class so that they can ask questions while they are doing it.

Evaluation of the course:

Several methods are being used to evaluate the course.

Students complete a feedback form indicating how much they have learned in the course, what they like about the course, and suggestions for improvement. Using a rating scale they indicate from 0 (I have no idea of what to do) to 5 (I have a very good idea of what to do) what they knew at the beginning of the course and what they knew at the end. Overall, students indicated that they had very little idea of what to do (mean rating = 1.2; standard deviation = 0.27) at the beginning and a good idea of what to do at the end (mean rating = 4.3; standard deviation = 0.34). Comments on the class included: "Thank you so much for this class. It was a big help." "Good class" "Excellent course! Walking us through the proposal writing process was such a stress-relief." "This class was extremely helpful. If I didn't have this class, I'm not sure I would have finished my proposal."

Quality of proposals is being compared with the proposals from the class that completed their projects without the course. The class of 2005 wrote their proposals in the traditional manner working primarily with their project advisor. A sample of their proposals is being rated for quality and compared to the proposals that were submitted as part of the proposal writing course. The proposals are being rated on general format and specific aspects within the proposal including the problem statement, literature review, purpose statement, methods, references, and overall quality. Because each proposal has to be read thoroughly, this assessment is not yet complete.

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Appendix B: Plans for Developing the Web-Site

Develop the home page using the software for the main college web site. (The college just began using this software July 1.) The administrative support person working with me can provide the information for the home page and she can learn to make minor changes and maintain the home page. Other sections of the site can be accessed through links on the home page.

Enter project advisor information into the software being considered for management of clerkship experiences. Most project advisors are also clerkship preceptors so little modification is required to add project information to this program. This information can be accessed from a link on the home page. The college is in the process of negotiating for this software now.

Consider whether students can enter their project abstracts from their final project report into the clerkship software. The software includes an abstract submission program but whether it will work for student research projects is not clear.

Identify software that will enable students to submit their project proposals and project final reports on line. The administrative support person should be able to access and generate reports from the database. Additional software is needed to track students through the process which includes recording and calculating grades, recording dates that project requirements have been met, and a means for making notes on individual students as they progress through the process.