

Learner-Centered Education Program
Arizona Board of Regents
INSTITUTIONAL SUPPORT FORM

Proposal Title: A Shared Advisor Model for Undergraduate Pharmacy Students Conducting Research

Institution: University of Arizona DEPT/Unit: Pharmacy Practice & Science

Multi-Campus/University Projects
(check other campuses or universities participating)

List other participating agencies:

ASU Main UA

ASU East UA South

ASU West NAU

Briefly describe the program and the development plan.

The purpose of this project is to develop a shared advisor model of coaching undergraduate students doing research projects that is more effective and efficient than the graduate student model so that the research experience can be offered to classes that are 100 to 125% larger than current classes. The strategies include the development of an instructional as opposed to informational website, offering just-in-time workshops, changing the timeline so that students can complete and submit a manuscript, recruiting additional community-based advisors, and offering support to advisors.

Funding Category

Indicate a primary (P) and, if applicable, secondary (S) funding category:

Professional Development S

Program or Course Development/Modification P

LCE Research _____

Improved Assessment of Learning Outcomes _____

Authorizations

Project Director

Signature: _____

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Department Chair / Unit Director/ College Dean/Provost

Name: Brian Erstad, PharmD Title: Acting Department Head

Signature

Official Authorized to Enter into Contractual Obligations

Signature _____

Name: _____ Title: _____

Phone: _____ Fax: _____ Email: _____

A SHARED ADVISOR MODEL FOR UNDERGRADUATE PHARMACY STUDENTS CONDUCTING RESEARCH

II. Proposal Narrative

Part 1: Abstract

Undergraduate pharmacy students 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, which provides substantial student-faculty contact and opportunity for active learning. However the class size is increasing, the class of 2007 is about 60% larger than the class of 2004 and the class size is expected to double in the next several years. Current levels of resources will not be adequate to continue to require a research project with such large classes.

The purpose of this project is to develop a new model of coaching undergraduate students doing research projects so that students can continue to benefit from the research experience while increasing the effectiveness and efficiency of the process.

The proposed model will use two approaches to increase the effectiveness and efficiency of the advising process:

1. Develop a shared advisor model to support students and their advisors during the research process; and,
2. Increase the number of community-based advisors.

The shared advisor model will use two strategies for facilitating the research process and reducing the time burden for project advisors; it will use just-in-time workshops for small groups of students and web-based instruction. The workshops will be offered throughout the project process as students need them. For example, several proposal writing workshops will be offered so that students can attend when it best supports their project activities.

The web-based instruction will focus on providing the information that students need to manage the project process (e.g. guidelines and timeline) however the primary focus of the website will be modules or exercises designed to help them learn and refine their skills related to specific aspects of the research process. Creation of an instructional rather than an informational website is the primary motivation for applying for this grant; outside expertise is needed to develop the instruction.

Increasing the number of community-based project advisors will be addressed by offering them support through the website and consultation with the course coordinator. Additionally, the timeline will be adjusted so that students can submit a manuscript for publication.

The primary outcomes are expected to be an overall experience for students that is at least as good as with the graduate student model (the student focused support may even improve the experience) and the College of Pharmacy can retain the research project as a requirement for undergraduate pharmacy students.

Part 2: Identification of Need

All undergraduate pharmacy students are required to complete a research project as part of their professional curriculum. Currently the project process consists of identifying a faculty advisor who works with the student to identify a topic or research question, develop a plan for answering the question, collect the data, analyze and interpret the data, then write a research report and present their findings as a poster. That is, they follow a graduate student model with all of the responsibility for coaching the student falling on the faculty advisor. While the current graduate student model works fairly well and provides students a learner centered experience in which they have substantial student-faculty contact and opportunity for active learning, the number of pharmacy students is increasing; the class of 2007 is about 60% larger than the class of 2004 and class size is expected to double in the next few years. Current levels of resources will not be adequate to continue to require a research project with such large classes.

The purpose of this project is to develop a new model of coaching undergraduate students doing research projects so that students can continue to benefit from a research experience while increasing the effectiveness and efficiency of the process.

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The proposed model is based on the assumption that a substantial portion of the coaching required by novice students can be provided in small group settings (i.e. workshops) or as web-based instruction so that individual advisors do not have to coach students in very basic skills (e.g. how to write a review of a research report) or repeat instructions that are relevant to all student projects.

The new model must meet the needs of both students and their project advisors. The students who conduct these projects are absolute novices; they don't know what they don't know. If they were cooks they wouldn't know the difference between salt and sugar; if they were watching a football game, they wouldn't know the difference between offense and defense. Hence they do not know the difference between a research proposal and a research report or what interpretation of the data means. Therefore they need support that is very practical and concrete while it assists them in developing the skills and knowledge they need to conduct research. Additionally, they need support that is timely; that is, assistance for the portion of the research process in which they are currently engaged. For example, providing students with information on writing a research report is of little benefit to them if they have not written their proposal or collected and analyzed their data. If such a workshop were offered, it would have little meaning to students and they would forget the information before they needed to write the report. Finally, some parts of the research process are very stressful for students; addressing the issues that cause them stress would substantially improve the quality of the experience.

The new model must meet the needs of the project advisors. Community-based advisors are likely to have research skills that vary widely. Because only a few professional pharmacy programs require students to conduct a research project, community professionals may have no experience in research even though they are working in a situation where research skills could be used to answer questions in their practice. Additionally, community-based practitioners have different timelines than the academic community so the student research process must allow for the difference in timelines. Advisors associated with academic institutions or other governmental institutions (e.g. the VA hospital) may need publications from the research they conduct, thus, they want the student research project to result in a publication.

The shared advisor model will use two strategies for facilitating the research process and reducing the time burden for project advisors; it will use workshops for small groups of students and web-based instruction. The workshops will be just-in-time workshops; that is they will be offered throughout the project process as students need them. For example, a workshop for writing the proposal will be offered in the fall semester and again spring semester so that students can attend when it best supports their project activities.

The web site for the projects will contain the information students need for the research process as well as modules or exercises to help them learn and refine their skills related to specific aspects of the process. For example, the guidelines for the projects will be on the website as well the timeline (due dates) for various project components. There also will be modules or exercises related to specific project components, for example, an exercise on how to write a review of an article or develop a data extraction form. Additionally, example proposals, research reports, and posters will be posted. However, for the web-based instruction to be effective, it can't be just posted information with the expectation that the student will figure out how the information is related to their project; the website must be truly instructional. (To make the website truly instructional is the primary reason I am applying for this grant. I can get information posted but I do not have the background to create an instructional website.)

Increasing the number of community-based project advisors primarily will involve identifying potential advisors and offering them support if they want to become project advisors. To facilitate this process, we will try to identify the benefits and issues involved with being a project advisor by conducting interviews of current community-based project advisors. (Actually this is being offered as a topic for a research project for a current student.) To respond to the publication issue, a publication track will be offered so that students can begin the research process a semester earlier then use the final semester to submit the manuscript for publication.

Part 3: Technical Needs

Most of the hardware and software needed for this project are provided by the College of Pharmacy as an institutional contribution to the project. For example, the web site would be hosted on the College's web server, data would be stored and retrieved from the College's Oracle database, and web programming in HTML, Perl, or PHP is supported by the College's Information Technology Group. A small amount of funding is requested for animation software that will be helpful in conveying information to the student throughout this learner centered educational experience.

Part 4: Work Plan

Objective 1: Develop instructional materials for the website by 1 July 2004. (Responding to this objective involves the course coordinator for student projects and the graduate student assistant.)

Activities: Identify instructional materials needed for the website.
Identify appropriate web-based methods for providing the materials.
Design the materials.

Objective 2: Design a publication track by March 2004. (The course coordinator would respond to this objective.)

Activities: Identify an appropriate timeline for students in the publication track.
Structure activities to correspond to the timeline.
Inform students and potential advisors of the publication track option.

Objective 3: Install the materials on the website by 1 October 2004. (Responding to this objective involves the Director of Information Technology and the graduate student assistant.)

Activities: Program the materials.
Conduct a formative evaluation of the website.

Objective 4: Develop the small group workshops by 1 October 2004. (The course coordinator and graduate student assistant will respond to this objective.)

Activities: Identify the workshops required.
Develop the content of the workshops which may include having students complete exercises that are on the website.

Objective 5: Recruit community-based project advisors by 1 January 2005. (The course coordinator will respond to this objective.)

Activities: Conduct study on the benefits and issues of community-based practitioners serving as project advisors.
Identify and recruit community-based advisors.

Part 5: Key Personnel

Marion K. Slack, Ph.D. Course Coordinator for student projects. She will be responsible for overseeing the project and completing tasks as indicated above. This project will require two to three hours of work per week during development from January to October. Contact information: Phone—520/626-1099; email: slack@pharmacy.arizona.edu.

Tim Wunz, Ph.D. Director of Information Technology. He will be responsible for overseeing the programming aspects of the project to get the materials on the website. The project will require occasional consultation during the early part of the instructional development phase then supervision of the programming for the website. Contact information: Phone—520/626-4960; email: wunz@pharmacy.arizona.edu.

Graduate Student Assistant (TBA) A graduate student from the College of Education will be hired to provide instructional design expertise for web-based materials into the project. The graduate assistant will provide a link between the course coordinator and the College of Education so that we can access their expertise in instructional design. Support for a half time

graduate student is requested and the position divided between a student from education and from computer science as needed to design the instruction and program the website. Because publication is an essential part of graduate education, the graduate student will be expected to complete a manuscript related to the project.

Part 6: Expected Results and Outcomes

Student Outcomes: That by using the new shared advisor model, the overall experience for students conducting research projects should be at least as good as with the graduate student model. (Assessment: End of course questionnaire that asks student to assess the amount learned about the research process and their overall experience, as well as comments on the experience. Compare the classes of 2004 and 2005 to the classes of 2007 and 2008.) Note that the graduate assistant likely will learn a lot about developing instruction and about conducting research as they work on the project.

Project Advisor Outcomes: That the new shared advisor model will enable more community practitioners to serve as project advisors. (Assessment: Number of community-based advisors in 2003 and 2004 compared to number of community-based advisors in 2006 and 2007.)

College Outcomes: The primary outcome of interest in the project is whether or not the College can continue to include a research project as part of the undergraduate Doctor of Pharmacy curriculum. (Assessment: Whether or not the project requirement is continued after the class of 2008.) Also, a shared advisor model that allows participation by additional community-based practitioners should increase the outreach of the College (and the University) to the community by creating links between community practitioners and the College. It should provide community practitioners with a method of accessing the research expertise of a college within a Research I University. Finally the project will create a nucleus of experience with the development of web-based instruction that can be used by other college faculty to modify their courses.

University Outcomes: The outcomes for the University are related to the University goals of providing learner centered education effectively and efficiently and creating a model of student research that reduces the demand on the individual advisor hence enabling other programs with limited resources to offer the research opportunity to undergraduate students.

Plans for disseminating the results: The results will be disseminated through a poster presentation and an application for an Innovations in Teaching Award through the American Association of Colleges of Pharmacy. A manuscript will be prepared and submitted as well.