CURFocus

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Supporting and Encouraging Behavioral Research Among Distance Education Students

Colleges and universities are reaching new audiences and helping students complete degrees and programs of study through distance education departments and programs. Distance education attracts working professionals, employed students, and single parents (Johnson, *et al.*, 2003), who may otherwise not be able to engage in a traditional academic setting. These individuals can now enroll in single courses or full undergraduate and graduate programs. Distance education departments offer courses and degrees through various modes of delivery, including: independent study, online (via course management applications such as Blackboard), interactive broadcast (via satellite), and Ed-NET courses (via internet/webcam).

While the notion of distance education is not new (Saba, 2005), the number of programs being offered is increasing at a breakneck pace. For the 2000-2001 academic year 59% of institutions of higher education across the nation offered distance education courses (National Center for Educational Studies, 2003). This represented an increase of 34% from 1997-1998. The number of students enrolled in distance education courses has also increased dramatically over the same 3 year period, from 1.7 million in 1997 to 3.1 million in the year 2000. All of these numbers are expected to grow as education delivery technologies evolve and new audiences and populations of degree and education seekers are identified.

The number of programs and the parallel growth in student enrollment suggests that the time is right for an in-depth examination of the quality and content of distance education courses and programs. This paper focuses specifically on the quality and content of a research methods course in the social sciences. We will examine the pedagogical needs of the research methods course, the barriers or challenges in implementing some of these in a distance education context, and some recommendations generated after a pilot research methods course was delivered through WebCT.

Pedagogical Needs

Research methods courses are a fundamental part of most social-science curricula. The importance of research methods courses to the field of psychology is explicitly stated in the American Psychological Association's Task Force on Undergraduate Psychology Major

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Competencies (2002). In the area of "knowledge, skills, and values consistent with the science and application of psychology," the APA taskforce reports that "students will understand and apply basic research methods in psychology, including research design, data analysis, and interpretation." (American Psychological Association, 2002, p. 8). Thus, three major content areas for research methods courses in psychology are specifically identified.

Research methods courses across the social sciences share some common training techniques and content. This is easily evident in the consistency of content across the (very numerous) textbooks in the area. For example, Bailey (2002) noted that a common feature of these courses is a research proposal. Ware and Brewer (1999) advocate for the use of exercises and demonstrations in teaching research methods courses while Vazin and Reile (2006) articulated the value of collaborative learning across the curricula. These last two can pose some serious challenges for both the instructor and the students in a distance education program.

Challenges

In our collective teaching experience there are three important challenges that must be addressed to support and encourage hands-on learning in behavioral research courses among distance-education students: access to scientific literature, access to an easily accessible population of research participants, and access to an encouraging learning community.

Access to the scientific literature

One of the largest barriers facing the distance education student is access to the scientific literature (Kirkwood, 2006). Many distance education students are hundreds of miles from the closest university library, or may even be in prison working on their coursework, where access to appropriate resources is available. This distance and circumstance also make it extremely difficult, and at times impossible, for students to make trips to the university library in order to conduct the necessary research. Local libraries seldom own the kind of resources that will support college-level students in their academic coursework, including the relevant databases to identify articles and the actual journals or books needed for research purposes. Thus, identifying and acquiring scientific literature are both substantial issues for distance education students.

Modern universities do offer "off-campus" access to their online resources, usually through an internet proxy setup, thus allowing off-campus students the opportunity to use the resources available to the on campus student body. Experience has demonstrated that students enrolled in distance education courses are usually not "traditional" students and often lack the computer skills necessary to set up the proxy. Recently, during the course of teaching the Research Methods in Psychology course via satellite, one of the authors (MJD) encountered problems with student proxy setup that the support people had never heard of and were unable to fix.

There are several strategies for addressing these two challenges. First, students can be made aware of important existing resources, both national and local. Nationally, many textbook publishers provide full-text access to online sources of empirical articles (e.g. Thomson Learning's InfoTrac). These can be bundled with a textbook or access can be purchased separately. The American Psychological Association also provides access to two electronic databases: PsycInfo and PsycArticles. Individuals can subscribe to the PsycInfo database for a 24 hour period for $11.95 (allowing unlimited downloading and printing) or can search and print articles, using PsycArticles, for $11.95 each. At the local level, access to large databases and inter-library loan resources can often be obtained via virtual private networks (VPN) or other technologies (e.g., proxy-servers) that permit entry into access-controlled databases from off-campus locations. This type of access could require support from campus Information Technology departments as it is fairly non-standard technology for students. Finally, open-access databases such as Google Scholar (http://scholar.google.com) are available and many academics are posting their published studies on web-pages such that standard internet search engines can identify portable document format (PDF) or HTML versions of many important articles by using the title of the article or the author's name as search terms. Since programs that read HTML and PDF files are available with most computer packages free of charge, these formats make information highly accessible.

Access to a sample

In the context of a research methods course, another potential challenge for distance education students and educators relates to access to a participant pool. Given the importance of experiential learning in behavioral research, collecting, analyzing and interpreting data are important aspects of the research methods course. Students typically have two primary choices: using extant data or collecting new data. Of the two, original data collection is preferred because it provides an opportunity for broader (e.g., how to obtain a sample, how to maintain participant confidentiality during data collection and storage) and deeper (e.g., mechanics of building an original survey) learning about research methods. Original data collection potentially presents a greater need for monitoring and support from faculty that might be difficult to provide through distance settings in an immediate manner, also the isolated data collection does not allow students to compare experiences and learn vicariously from one another.

This challenge can be addressed in a variety of ways. First, many large universities run a human participant pool out of the introductory psychology courses and access to this pool of participants is certainly an option for distance education students. Survey projects and even simple observational studies can be conducted from a distance or in relatively few required trips to campus. Additionally, depending on the type of research that is conducted, online data-collection tools can also be useful. Online data-collection technologies have improved, become accessible and easy to use. Several are available: OpenPsy (http://www.openpsy.org/), SurveyMonkey (http://www.survey-monkey.com/), Zoomerang (http://www.zoomerange.com/), and Surveyz (http://www.surveyz.com/). These systems allow users to create surveys with a minimum of background in web programming. Equally important, however, is that these systems allow users to administer surveys via email and easily extract a data-set—some online systems even provide a built-in analysis component. The costs associated with these services are minimal and these systems would be par-

ticularly useful to off-campus students who have more difficulty accessing a population to survey. Another option is to conduct data collection in the geographical area that distance education students are located. If they are in a rural area, they likely have access to a rural community so research projects involving the thoughts, opinions, attitudes or behavior of a rural population could be conducted either as original research or as a replication of research conducted by a faculty member in a more urban or metropolitan area. This research is certainly needed across many areas in psychology including mental health, drug use, and social behavior (Stamm, 2003). Alternatively, students can collect archival data, as it is easily available in the media (e.g. magazines, children's books, textbooks, television programs, internet sites, commercials). These targets of inquiry can provide the distance education student the same opportunity to operationalize variables, design a data collection methodology and collect data as a student who is on campus with access to a large, willing population of volunteers.

Access to a learning community

On-campus classrooms provide a practical structure from which to create, maintain, and encourage learning communities. Distance education students do not have the same access to other students or a professor in real-time, or the in-class and incidental learning experiences (e.g., when students bump into each other at the student union and discuss their progress in academic coursework). Research methods are particularly difficult to learn in isolation. Learning to make data-based decisions and evaluate methodologies is often best learned in small group formats.

There are a variety of web-based tools at the disposal of instructors and students alike that can assist in the development of a learning community worthy of a research methods class in the social sciences. WebCT, Blackboard, and open-source Moodle, provide modules that allow for ongoing topic-driven discussion groups and live chat that can be instructor moderated. These web-based electronic classroom technologies also allow group work to occur from multiple sites. That is, three students can be assigned a group-project and be provided independent chat-rooms, discussion boards, and even web-space in order to complete team-based learning assignments.

Case Study Example

In the spring of 2006, a pilot test was undertaken with four distance education students who were members of Psi Chi, the National Honor Society in Psychology. Distance students who were enrolled in an upper division course that required a research apprenticeship could find a research project independently or could sign up for the Psi Chi-sponsored WebCT course (Psi Chi Forum). The Psi Chi Forum had a semester-long outline (see Table 1) which required weekly participation in WebCT live chats, weekly assignments, and access to both a professor (MDR) and a Teaching Assistant (TA). The chats and access to the professor and TA facilitated the development and maintenance of a learning community.

The focus of the discussions and the assignments was on steady progress in developing, implementing, and presenting a research project. In order to focus on learning the process of research, rather than the mechanics of answering a compelling scientific question, a list of ideas was posted that students could select from or could use as a spring board to generate their own ideas. For example: conduct a behavioral observation of patrons at a local coffee shop and code for hair color, skin color, and smoking/non-smoking among other variables. Another example involved observing the students' pet's proximity to the pet owner when there were visitors present versus not present. These simple suggestions allowed students to focus on the process of scientific research and to illustrate that scientific questions arise from every day observations of human or animal behavior. They also circumvented the potential problem of lacking access to data. In this context, data were everywhere.

Students were required to examine the scientific literature and use it to provide a rationale for their hypotheses and research methods. All students could locate references but some were limited in their ability to obtain or download articles. The TA assisted students by either providing copies of PDF files that were easily accessible at our institution or by supporting the students in the process of learning how to make Interlibrary Loan requests. Further, when the course outline required statistical analyses to be performed, the TA held virtual office hours where she could provide individualized attention and assistance to students who were struggling with their data entry, analysis, and interpretation. All students completed an independent research project.

All students generated independent research ideas. Care was taken to instruct students in the ethical conduct of research by requiring that students complete the Institutional Review Board (IRB) certification course and leading a discussion on line about the content of this course. The IRB certification course is completed on line and comple-

tions are documented on the IRB website, so the professor and TA could verify that the students had completed the training successfully. However, because of time constraints, students were mentored to select a project that did not require IRB approval (e.g., one student chose to conduct observations of high school students using cellular phones to speak with a person or to chat; these public observations can be conducted without IRB approval) or that already had approval (e.g., one student chose to use a professor's data on campus to examine college couples' traditional gender role adherence and its relationship with that couples' conflict; the project was already approved and the question was one of the many identified in the original IRB proposal).

There were no assessment data gathered for this course. However, each student, unsolicited, shared his or her perspectives. Particularly noteworthy comments were made about (a) the utility of the TA and her ability to truly support students in their learning both through her knowledge of research methods and also her technical skills with the WebCT platform, the library, and SPSS, and (b) the uniquely meaningful experience provided in this class through the use of chats and hands-on projects. One student chose to use data from the school district where he worked, and received support through the Psi Chi Forum community to prepare it for presentation at a university conference showcasing undergraduate student research. The student traveled from his remote location to present his poster on campus. This was such an important event for the student that he brought his family along with him. The professor and the TA were at the conference and the student's sense of efficacy and excitement about research were plainly evident.

Conclusion and Recommendations

Encouraging distance education students to develop research questions into a fully functional research project is challenging but doable. There are tools available that can assist distance students and educators in meeting the level of engagement and inquiry of a traditional on-campus course in terms of skill building and learning outcomes. Indeed, the experience of building a distance education course can become an opportunity for the instructor to improve the on-campus course by offering more and more creative alternatives for the research process to on-campus students.

As the nature of higher education changes, it is important to adapt our research-based courses to meet the needs of distance education students while also accomplishing the necessary leaning objectives and educational goals. At the present time, empirical studies into the effectiveness and impact of distance education are few and primarily formative evaluations. It is currently impossible to establish meaningful randomized control studies. That is, we are fundamentally unsure of the nature and impact that distance education strategies have on education generally and on research methods courses specifically. Regardless, that is the direction that distance, online and other forms of non-traditional instruction will be going and it is incumbent upon us to both seek ways to incorporate research-methodology into these courses and into the distance education curricula generally.

References

American Psychological Association Task Force on Undergraduate Psychology Major Competencies. (2002). Undergraduate Psychology Major Learning Goals and Outcomes: A Report. Available at: http://www.apa.org/ed/pcue/reports.html. Accessed November 15, 2006.

Bailey SA. Teaching statistics and research methods. In Davis SF, Buskist W, eds. *The Teaching of Psychology: Essays in Honor of Wilbert J. McKeachie and Charles L. Brewer,* Mahwah, NJ: Lawrence Erlbaum Associates; 2002:369-377.

Johnson SD, Benson AD, Duncan J, Shinkareva ON, Taylor GD, Treat T. *Distance Learning in Postsecondary Career and Technical Education.* St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota; 2003.

Kirkwood A. Going outside the box: Skills development, cultural change and the use of on-line resources. *Computers and Education.* 2006;47:316-331.

National Center for Education Statistics *Distance Education at Degree-Granting Postsecondary Institutions: 2000-2001.* 2003.

Saba F. Critical issues in distance education: A report from the United States. *Distance Ed.* 2005;26:255-272.

Stamm BH,ed. *Rural Behavioral Health Care.* Washington, D.C.: American Psychological Association; 2003.

Vazin T, Reile P. Collaborative learning: maximizing students' potential for success. In: Buskist W, Davis SF, eds. *Handbook of the Teaching of Psychology,* Malden, MA: Blackwell Publishing; 2006:65-77.

Ware ME, Brewer CL, eds. *Handbook for Teaching Statistics and Research Methods* (2nd Ed.). Mahwah, NJ: Lawrence Erlbaum Associates; 1999.

Table 1. Psi Chi Apprenticeship Forum Weekly Sessions Outline

Week	Topic	Assignment(s)
1	Writing a question that makes sense...how could it possibly be so hard?	Be prepared to discuss research areas of interest. I don't care how simple (e.g., nose picking behavior in children). In fact, the simpler, the better. Write a cogent question. Simple, elegant, and *answerable* Find two articles that say something about the question you are asking. They need to be data-driven. Write a short summary of the findings of each.
2	Choosing a way to answer the question	Come up with at least 3 ways to answer your question. Review your methods book.
3	To Do ... yes, make a list, check it twice!	Pick one way to answer your question and make a list of what you'd need to do to answer it.
4	IRB, "In Research we Believe?" ... not quite	Be prepared to discuss research ethics Go on line and complete IRB certification course.
5	I have a question and a plan, now what?	Figure out what resources you need in order to answer your question (e.g., if you need money, find grants that you'd qualify for).
6	Collect data ... any data	Go out and collect data. You'll need to have at least 30 data points per "cell." For example, if you go out and want to investigate the number of times parents and non-parents yawn in your abnormal psychology class, you'll need at least 30 parents and 30 non-parents.
7	Enter data	Enter data into SPSS and *clean* it.
8	Analyze data	Run the data! And write up your findings (bulleted).
9	Why do we care about this data?	Discussion of findings (can be bulleted). Tell the reader why he/she cares. For example, in the above research, if parents yawn more than non-parents you might say that this would suggest parents are sleeping less (call for more research) and this places them at greater risk for injury (e.g., falling asleep while driving).
10	Publishing and Presenting	Look into those journals/conferences appropriate for your research: find out when they are, how to submit, guidelines for preparing. Turn in a Power Point with a presentation draft (about 8 slides) that includes an intro (assignment from week 1), methods (week 2-3, 6), findings (week 6-8), and interpretation (week 9).
11	How is research relevant in my life?	Be prepared to discuss how research is relevant in your life and how it will continue being so after you graduate.
12	Review and Wrap-up	Be prepared to discuss: Was this all just an exercise in futility? What did you learn? What can we learn from your experience?

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