

Delivery of Health Professions Education Using an Online Format

Conference Topic: The Information Society: Design of on-line contents

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Introduction

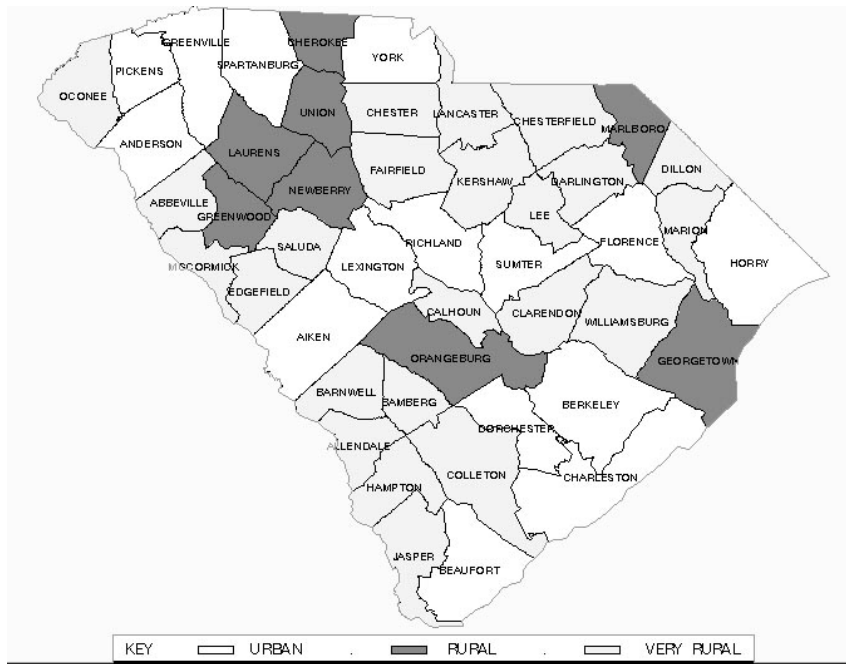
The application of distance learning technology for the delivery of educational content has evolved at different rates in different regions of the United States of America. In South Carolina, institutions of higher education have historically established their own individual distance-learning infrastructure in the absence of a clearly defined statewide distance-learning plan. Only recently have the state's 4-year colleges and universities established consortia to help address the shared instructional development and distance learning technology requirements. The Medical University of South Carolina has become a leader in the use of distance learning technology to meet the educational needs of health care professionals statewide.

South Carolina is situated on the southeast Atlantic seaboard of the United States. It is bordered to the east by the Atlantic Ocean, to the north and northwest by the state of North Carolina, and to south and southwest by state of Georgia. South Carolina was one of the original 13 colonies that won their independence from Great Britain and was the first state to secede from the Union at the beginning of the American Civil War in 1861. In fact, the first shot of the Civil War was fired from Charleston to Fort Sumter in Charleston harbor.

The Medical University of South Carolina (MUSC) is in Charleston. It consists of six colleges: Medicine, Dental Medicine, Pharmacy, Nursing, Graduate Studies, and Health Professions. The Bachelor of Health Sciences (BHS) degree program is in the College of Health Professions.

South Carolina is a relatively small state with a population of 3,858,000. Of the total population, 2,687,000 (70%) reside in metropolitan areas and 1,149,000 (30%) outside of metropolitan areas (U.S. Census, 2000). South Carolina is divided into 46 counties with 15 counties considered to be urban (largest town >25,000), 8 counties considered rural (largest town < 25,000), and 23 counties considered very rural (largest town <10,000) (SC Budget and Control Board, 2001). See Figure 1.

Figure 1: Urban, Rural, and Very Rural Counties of South Carolina, USA.



Source: South Carolina Budget and Control Board

There is a growing need throughout the United States to meet the demands for improved access to health care for citizens who live in rural and inner city/urban areas. One approach is to develop opportunities and resources for the training of health care professionals to provide care in these underserved areas. The BHS program specifically targets health care practitioners and provides the state with practitioners who possess higher-level skills that can be used to address access issues.

In South Carolina, as in most states, the health care workforce is divided into four main groups of practitioners: physicians, nurses, allied health, and health administration. Allied Health consists of many of the technology driven health care specialties including, but not limited to: diagnostic imaging, respiratory care, medical laboratory sciences, dental hygiene, pre-hospital trauma life support (Paramedics/Emergency Medicine Systems) and health information management (SC AHEC, 1998). In South Carolina, most of the formal allied health educational programs, as well as several nursing programs, are offered at the 2-year technical colleges. Upon

completion of the 2-year academic program, students earn an Associate of Science degree in their health care specialty.

BHS Distance Learning Model

The BHS degree program at the Medical University of South Carolina was established to provide the graduates of the 2-year allied health and nursing programs a venue for earning a baccalaureate degree to enhance their professional status and help meet their professional career goals. The program has evolved from one in which the faculty traveled throughout the state to conduct face-to-face classes to a model that relies on web-supported/web-based and weekend courses. This move to a distant learning format has provided the faculty the opportunity to maximize their efficiency and has allowed time for other endeavors, such as pursuing their research agenda.

The Medical University of South Carolina has adopted WebCT as its primary courseware for developing web courses. WebCT was designed at the University of British Columbia and has been widely adopted in the United States, along with other commercial web-course software (Horton, 2000).

Two basic formats are used for web courses at MUSC; they are web-supported and web-based. The web-supported courses are delivered using a mixed format approach. These courses will include several face-to-face meetings during a semester while also using the synchronous and asynchronous communication features of WebCT. The web-based courses may meet once at the beginning of the semester, but thereafter are conducted completely online. Both the web-supported and web-based courses use WebCT options for faculty/student communication, electronic submission of assignments, topic discussions, presentation of course material, links to relevant information, and online testing.

Communication

Asynchronous interaction is conducted using the WebCT Discussion (Bulletin Board) and Course Email features. Using the Discussion option, students can submit questions and

comment on issues related to the course. Faculty can respond to the student questions and/or comments and engage in an ongoing electronic conversation (Schweizer, 1999). Topic Areas can be identified and either made open to all students or restricted to selected students. The WebCT Discussion option is a very effective tool for promoting faculty to student communication in the absence of live, face-to-face, meetings (Horton, 2000). Students who prefer confidential communication with the faculty can use the Course E-mail. Only students who populate the student database have access to the Course E-Mail. Messages are sent between individual students and faculty and so are confidential. E-mail cannot be sent outside the course structure.

Synchronous interaction is conducted using the online chat feature of WebCT. Chats are structured and include topic specific discussions (Schweizer, 1999). There are four chat rooms available that provide a written transcript of the chat proceedings. This allows the faculty to break students up into groups who then move to an assigned chat room. Faculty can move between chat rooms to monitor the interaction and provide feedback.

Assignments

All written assignments are submitted electronically using the WebCT assignment drop box. This feature allows faculty to build individual drop boxes for each assignment. Students upload their assignments into the drop box. Once assignments are submitted, faculty can download and open it, evaluate it, and assign a grade. Students then have access to their assignment grades and faculty comments when they log in to the course.

Online Exams

All exams are constructed using the WebCT quiz editor and offered online. Exams can be set up to open and close at a given time and day, send a confirmation e-mail to the faculty that the student has submitted the exam, and allow the faculty to decide how and when the exam results will be made available to the students. Exam questions include multiple choice, matching, calculated, short answer, and paragraph. While the online construction of questions using the WebCT quiz editor is somewhat cumbersome and time consuming, there are commercial

software available that allow for offline construction and uploading of questions and question sets. Due to the lack of security inherent in online testing, the BHS program has chosen to hold students accountable through an honor pledge, which has worked well to insure that in most cases students are not cheating during an exam (Horton, 2000). See Table 1.

Table 1: Bachelor of Health Sciences Student Honor Pledge

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1. I will not divulge my username or password to anyone.
 2. I, and only I, will post answers to course assignments using my username and password.
 3. I, and only I, will take the on-line exams using my username and password.
 4. I will not print all, or part, of any online exam.
 5. I will not divulge the content of the on-line exams to any other student, whether enrolled in the course or not.
 6. I understand that work submitted to meet the requirements of one course cannot be submitted to meet the requirements of a second course without the permission of both instructors.
 7. I understand that all written assignments will be my original work and that I will properly cite all resources used.
 8. I understand that violation of this honor pledge will constitute an honors violation and that I will be subject to the appropriate sanctions as described in the MUSC Honor Code.
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Advantages and Disadvantages

Through several years of experience, and mostly trial and error, the BHS faculty have identified several advantages and disadvantages associated with the use of distance learning technology for delivering a health professions education curriculum in South Carolina. These are listed in Table 2.

Conclusion

The BHS program of the Medical University of South Carolina has successfully evolved from a traditional format to a distance-learning model. This change has resulted in a positive impact on the availability of the program to allied health and nursing practitioners throughout the state of South Carolina. Despite initial resistance to change, the faculty have developed new skills and knowledge and have become proficient in the development and application of sound principles of instructional technology into web-supported and web-based courses (Shoemaker, 1998).

Future initiatives include a statewide curriculum assessment to insure that the BHS curriculum is keeping pace with the needs of the changing health care environment and a move to convert all BHS courses to a web-based format. When that is accomplished, the Bachelor of Health Sciences degree program will become an educational option for residents of South Carolina but also for any health professional in the world.

Table 2: Advantages and Disadvantages Associated with Distance Learning Experienced by the BHS Program

Advantages

1. Improved access for allied health and nursing practitioners to higher education opportunities.
2. Quicker distribution of course material and minimal paper distribution.
3. Reduced faculty and student travel.
4. Improved communication between faculty and students.
5. Reduced operational costs.
6. Timely exam and assignment feedback for students.
7. Opportunity for faculty to develop new skills.
8. Satisfied students.

Disadvantages

1. The requirement that the offering institution make a substantial investment in distance learning technology and "smart" classrooms.
 2. Availability of adequate and reliable reception sites for compressed video and/or satellite.
 3. Inconsistent reliability of distance learning technology leading to interruption in service.
 4. Inadequate or absent faculty development.
 5. Inconsistent student access to computers/modems.
 6. Wide range of student computer skills.
 7. Student resistance to change.
 8. Faculty bombarded by on-line messages and student's expectation of immediate faculty response.
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References

Horton, S. (2000). Web teaching guide: A practical approach to creating course websites. New Haven, CT: Yale University Press.

South Carolina Area Health Education Consortium. (1998). Health care, where the jobs are: Your guide to health careers in South Carolina. Charleston, SC.

South Carolina Budget and Control Board. (2001). Office of Research and Statistics. <http://www.orss.state.sc.us/>.

Schweizer, H. (1999). Designing and teaching an on-line course: Spinning your web classroom. Boston, MA: Allyn and Bacon.

Shoemaker, C.J. (1998). Leadership in continuing and distance education in higher education. Boston, MA: Allyn and Bacon

U.S. Census Bureau (2000). United States Department of Commerce. <http://www.census.gov/>.