

Online Nursing Education

VIRTUAL CLASSROOMS AND CLINICAL SIMULATIONS HELP MEET STUDENT NEEDS

MARY ELLEN SMITH GLASGOW, PhD, RN, ACNS-BC, ANEF, FAAN; JOAN SUCH LOCKHART, PhD, RN, CORLN, AOCN, ANEF, FAAN; and DAVID A. NOLFI, MLS, AHIP

Over the last two decades, nursing not only has been a leader in online education, but the online environment has become a staple. Online learning has matured from a basic discussion board in 1997 to virtual classrooms and simulations, and it has grown in enrollment and acceptance.¹ It is especially appealing to nursing students who otherwise might be unable to pursue their education because of family and work demands, or because they live too far from a school to attend classes.

Nursing faculty immersed themselves in this new learning culture, navigating the online landscape, learning new technologies and teaching methods and adapting the clinical education arena to work with distance faculty and on-site instructors called preceptors. Nurses worldwide have taken advantage of the flexible scheduling and variety of nursing specializations available via online educational programs.^{2,3}

For example, one leading nursing program offered online is the RN-BSN, a Bachelor of Science in Nursing completion program for registered nurses. According to the American Association of Colleges of Nursing, in 2017 there are 673 RN-BSN programs available in the United States, and 90 percent of them offer an online component. More than half of the programs are offered fully online.⁴

Along with Bachelor of Science in Nursing and Master of Science in Nursing programs available online either partially or fully, 73 percent of the nation's 134 post-master's PhD programs and 96 percent of the 293 post-master's Doctor of Nursing Practice programs also offered online coursework in 2017, according to association figures.⁵

To be sure, online education is becoming a significant instructional delivery method in other higher education disciplines, as well. A 2017 report on enrollment in distance education

revealed that in 2015, 30 percent of all students in higher education took at least one online class, 14 percent were enrolled in exclusively online courses and 15 percent enrolled in a combination of online and in-person courses.⁶

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Duquesne University School of Nursing in Pittsburgh created the nation's first online PhD in nursing in 1997 and has broken new ground with online graduate programs in emerging fields like forensic nursing, as well as a PhD program in Nursing Ethics. The success of its online education has prompted the school to take its RN-BSN, MSN and DNP programs completely online, as well as to offer online MSN degrees and post-master's certificates in forensic nursing, family nurse practitioner and nursing education, faculty roles. In part due to its online innovative teaching



and positive program results, Duquesne has been recognized since 2008 by the National League for Nursing as a center of excellence for enhanced student learning and professional development.

Duquesne has found online academic nursing education to be a way to expand capacity as well as reach in post-RN licensure programs.⁷ Students across the globe can actively engage in a virtual learning environment of classroom, lab and clinical settings — all rich in diverse perspectives and ideas.

The technology that allows students to actively engage with peers and faculty also helps nursing program faculty adjust to changes in science and technology, patient-care needs and student preferences. As a result, online learning helps equip students with career skills, because the rapid growth of technology in clinical care means that the nurse of the future must be a health technology expert who provides safe, high quality, technology-infused patient care and is capable of accessing accurate, current information at the point of care.⁸

A widely cited research paper contends that a strong online community keeps students engaged with content, encourages them to think critically and articulate their ideas, and provides a safe environment in which to do so.⁹ Duquesne faculty agree, reporting that interaction in an online course often creates a much stronger intellectual community than in a traditional classroom setting. Students cannot be passive in an online environment — they are required to engage in online discussion forums, online presentations, wikis, blogs, etc., rather than serve merely as the listener in a traditional classroom with the faculty member as lecturer.

In creating an online learning community for RN-BSN and graduate students, Duquesne faculty demonstrate how critical thinking and intellectual curiosity go hand in hand with ethical practice and a commitment to social justice. The School of Nursing faculty guide students toward meeting societal needs related to their clinical and role specialties. Service to the poor and underserved, and the exercise of leadership in the struggle for social justice and equity in health care have come to characterize the curriculum.

'TINA JONES' AND OTHER TECHNOLOGY

Thanks to technological tools for online education, faculty and students are able to interact in a variety of ways. For example, Duquesne uses a learning course management system that allows faculty to create content; communicate with students; foster discussion; create and submit homework assignments; test, grade and assess.

Among the most frequently used resources are discussion boards, collaborative projects, wikis,

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blogs and real-time video conferencing. Course outcome data indicates that online students also value synchronous course elements such as live classes where they can interact with online peers in the virtual classroom environment.¹⁰

Duquesne's specific virtual simulations, tools and online experiences include:

The Shadow Health Digital Clinical Experience. Shadow Health is a health care simulation company that uses a digital patient to create a dynamic, immersive online experience. Students practice physical assessment, differential diagnosis and medical management on "Tina Jones," the virtual patient. Along with weekly assessments, students also perform an episodic exam and document their findings. Faculty read their work and provide feedback to prepare students for "residency week," when they must demonstrate the ability to perform history and physical examinations, show clinical skills and document findings that accurately describe a patient's health problem.

Population Health Virtual Simulation. "Dusonburgh" is an online community simulation created to teach undergraduate and graduate nursing students principles of community-centered, population-based health and primary care. It provides faculty with the assurance that all students receive the same clinical scenarios, have opportunities to practice skills and experi-

ence consistent evaluation of learning outcomes.

Exam Integrity. Used in online testing for the family nurse practitioner program, cameras and desktop monitoring show faculty that the student is taking the exam in a secure environment. In this way, faculty can accurately evaluate the student's knowledge and more effectively identify any learning needs.

Today, faculty teaching in Duquesne's MSN nursing education track continue to prepare current and future nurse educators versed in competencies outlined by the National League for Nursing:¹¹

- Facilitate learning
- Facilitate learner development and socialization

- Use assessment and evaluation strategies
- Participate in curriculum design and evaluation of program outcomes
- Function as a change agent and leader
- Pursue continuous quality improvements in the nurse educator role
- Engage in scholarship
- Function within the educational environment

FACULTY VACANCIES AND NURSE EDUCATORS

According to a survey conducted by the American Association of Colleges of Nursing, more than 800 U.S. schools of nursing reported having more than 1,500 faculty vacancies for the 2016-2017 academic year.¹² Leaders in higher education have

THE LIBRARIAN'S ROLE IN ONLINE NURSING EDUCATION

Nursing students need substantial access to information resources that include books, journal articles, research databases and videos as well as library services such as classes, research support and interlibrary loan. Online nursing programs present unique challenges to libraries because libraries were traditionally oriented to serve on-campus students and faculty. When Duquesne introduced the first online PhD in Nursing in 1997, libraries were in the early stages of offering online access to information resources and services. Twenty years later, libraries offer similar collections and services to online and on-campus learners. Specific library services to online nursing students include:

Collections. Libraries have been rapidly adding electronic collections for the last 20 years. Online access to PubMed, CINAHL, and other research databases has been widely available since the 1990s, and subscriptions to electronic nursing and medical journals have become virtually universal. Librarians make journal articles available in databases by using technologies such as "link resolvers"¹¹ and negotiating with publish-

ers to allow students to use resources regardless of location.

Publishers have been slower to adopt business models that enable libraries to provide widespread access to books, and some publishers refuse to sell electronic textbooks to libraries. Nonetheless, libraries increasingly are acquiring large numbers of electronic books. The Duquesne University Gumberg Library's internal statistics show that electronic book titles grew to more than 306,000 in 2016, which represents a nearly 400 percent increase in five years.²

Additionally, libraries are beginning to participate in creative business models such as "Demand Driven Access"³ that offer access to whole publisher catalogs of electronic books, but require libraries to pay fees only when individual books are used. Ultimately, Demand Driven Access programs will enable libraries to offer significantly larger numbers of electronic books than print books.

Nursing students also need access to videos, and libraries are subscribing to streaming video collections that enable faculty to place videos directly into learning management systems. Because of

the high costs, libraries and vendors are exploring Demand Driven Access programs for streaming videos, which could result in increased access for online nursing students.

Specialized Tools. Beyond traditional library resources, nursing students increasingly use specialized point of care tools for their mobile devices, such as UpToDate or DynaMed. These expensive tools often include unique licensing requirements, and libraries need to negotiate terms that allow students to use them in hospitals, clinics and other places where nursing education takes place.

Instruction and Research Support. Librarians teach many of the steps in the research process, including how to use collection resources effectively. In order to meet the needs of online students, libraries create online guides, tutorials and videos as well as in-person orientation sessions when students are on campus. Because many students who are new to online education also are new to library technology, librarians offer additional support in many ways, including online chat, text messaging, teleconferencing, telephone and email.



been urged to implement innovative strategies to prepare nurse educators¹³ and to include nursing education courses in graduate programs to prepare future faculty.¹⁴

It's a challenging process to help graduate students transition from the familiar role of "expert" nurse clinician to new role as "novice" nurse educator.¹⁵ Duquesne's online MSN nursing education track helps MSN graduates and doctoral students attain educator competencies through individual coursework, a post-MSN Nursing Education certificate (5 courses), or a formalized Nursing Education concentration (3 courses). The curriculum is based on national standards and guided by program outcomes that prepare competent nurse educators.

Upon admission, students are oriented to university and school of nursing essentials such as mission, curriculum, academic policies and expectations for graduate students. New students receive special attention to help them adapt to graduate nursing education and online learning. They are introduced to multiple online support services, including a dedicated academic adviser, faculty mentor and resources central to graduate learning. Among the collaborative support services are a private student intranet site that houses resources, educational technology support and training; an online writing center; online course registration; and various library resources with the services of a dedicated health science librarian.

Although Gumberg Library does not ask students to identify themselves, Duquesne librarians frequently note that online nursing students are among the most frequent users of these services. Gumberg Library also participates in a consortium that enables students to get help 24 hours a day, seven days a week. For more in-depth questions, students directly contact the nursing librarian, who regularly interacts with them via teleconference, email and phone to answer detailed questions and provide individualized instruction.

Library Services. Libraries offer many additional services to online students such as supplemental course readings and interlibrary loan. In the context of online education, these services present specific challenges. For example, providing access to journal articles and book chapters through a learning management system requires obtaining copyright permissions, paying royalties and linking to online collections. To allow faculty to focus on teaching, Gumberg Library offers electronic reserve services to facilitate access of required and recommended course readings for online students.

Many libraries routinely offer inter-library loan services to online students, providing PDF copies of journal articles via systems like ILLiad. However, providing access to print books can be a challenge. Gumberg Library's approach has been to ship needed books to students free of charge, but the students pay to ship them back.

Providing library services to online nursing students requires open communication between the school and library. Duquesne is fortunate to have a close relationship between the school of nursing and Gumberg Library. The nursing faculty, administrators and staff and the nursing librarian communicate regularly, ensuring that the library is able to offer the collections and services students need. Additionally, the librarian provides the school of nursing with information about new resources and services that are relevant to nursing students and faculty.

From the perspective of the library, working with online nursing students has been a challenge and a joy. Online nursing students are among the library's best and

most passionate "customers," and thanks to the efforts of personnel in the school of nursing and Gumberg Library, online nursing students have consistently been among the library's most satisfied and well-served clients.⁴

— DAVID A. NOLFI

NOTES

1. Joan M. Reitz, *Online Dictionary for Library and Information Science*, s.v. "link resolver," www.abc-clio.com/ODLIS/odlis_o.aspx.
2. "Gumberg Library Fact Sheet," unpublished report prepared by Gumberg Library at Duquesne University, Pittsburgh, July 2016.
3. Erin S. Fisher, Lisa Kurt and Sarah Gardner, "Exploring Patron-Driven Access Models for E-journals and E-books," *The Serials Librarian*, 62, no. 1-4, (2012): 164-68. www.tandfonline.com/doi/full/10.1080/0361526X.2012.652913.
4. David Nolfi, et al., "Using LibQUAL to Compare Health Sciences Students' Library Needs with Students in Other Disciplines," poster session presented at meeting of the Medical Library Association, Boston, May 2013.

The online learning environment supports faculty in modeling best practices while actively engaging students as learners. Students gain firsthand experience as online teachers through course assignments; they often lead course lessons and group discussions and use new teaching-learning technologies. Paid graduate assistantships with experienced faculty allow students to practice their educator skills; other assistantships focus on developing their research skills.

Course content in the MSN nursing education track is grounded in educational research based on evidence-based teaching-learning principles and delivered using instructional strategies with attention to reflective practice. Reflective practice is generally the ability to reflect on one's actions in order to engage in a process of continuous learning.

Students also learn how to use technology effectively with learners in the classroom (either face-to-face or online), skills lab and clinical-practice settings. Course assignments not only challenge students, but allow them to demonstrate their nurse educator competencies.

A computer-based mannequin in simulations gives them experiential training in skills, knowledge and decision-making, which builds confidence in a safe environment transferable to real patient situations.¹⁶ The simulation scenarios, controlled by the faculty member, are designed to replicate patient conditions with pulses, heart and lung sounds, vital signs, seizures, and echocardiogram (EKG) rhythms. It is the ultimate "dress rehearsal" for real clinical practice and patient care. Education track students are eligible to seek national certification as a Certified Nurse Educator through the National League for Nursing.¹⁷

Duquesne University School of Nursing has been an early innovator, creating online graduate education programs with constant attention to advances in technology and national standards. Online education allows graduates to remain in their home communities and share their newly developed educator expertise with their students — extending their learning and building nurse capacity by educating future nurses.

CONCLUSION

Higher education institutions are responsible for preparing qualified graduates based on program outcomes. A carefully crafted program evaluation plan based on national accreditation standards is a critical component for all graduate programs,

but especially for schools that implement innovations like an online graduate program.

At Duquesne University School of Nursing, nurse faculty use feedback obtained from all program stakeholders (students, faculty, alumni, employers, clinical partners, consumers, etc.) in ongoing quality program improvement efforts.

National board results provide another point of evaluation. Duquesne's Family Nurse Practitioner certification pass rate for first-time test takers in 2016 was 94 percent, compared to the national average of 82 percent. The successes of Duquesne's graduates are an essential component in the school of nursing's success as a premier online graduate program.

MARY ELLEN SMITH GLASGOW is dean and professor and **JOAN SUCH LOCKHART** is clinical professor, both at Duquesne University School of Nursing in Pittsburgh.

DAVID A. NOLFI is health sciences librarian and library assessment coordinator at Duquesne University in Pittsburgh.

NOTES

1. Keri L. Gerkin, Teri H. Taylor and Francene M. Weatherby, "The Perception of Learning and Satisfaction of Nurses in the Online Environment," *Journal for Nurses in Staff Development* 25, no. 1 (2009): E8-13.
2. Elizabeth A. Gazza, "The Experience of Teaching Online in Nursing Education," *Journal of Nursing Education* 56, no. 6 (2017): 343-49.
3. Bedelia H. Russell, "The Who, What, and How of Evaluation within Online Nursing Education: State of the Science," *Journal of Nursing Education* 54, no. 1 (2015): 13-21.
4. American Association of Colleges of Nursing, "Nursing Faculty Shortage Fact Sheet," (April 26, 2017). www.aacn.nche.edu/media-relations/FacultyShortageFS.pdf.
5. American Association of Colleges of Nursing, "Table 4b, Types of Nursing Programs and Level of Distance Education Offered," *2016-2017: Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*: 16.
6. Elaine Allen and Jeff Seaman, *Digital Learning Compass: Distance Education Enrollment Report 2017*: 1-36. <https://onlinelearningssurvey.com/reports/digitallearningcompassenrollment2017.pdf>.
7. Russell, "Who, What, and How of Evaluation."
8. Institute of Medicine, *The Future of Nursing: Leading Change, Advancing Health* (Washington, D.C.: National



- Academies Press, 2011).
9. G. Ring and G. Mathieux, "The Key Components of Quality Learning," paper presented at the ASTD Technology Conference, Las Vegas, February 2002.
10. Michael Scheuermann, *Faculty Focus, Special Report: Online Student Engagement Tools and Strategies* (Madison, Wis.: Magna Publications, 2012).
11. National League for Nursing, "Nurse Educator Core Competency," National League for Nursing website. www.nln.org/professional-development-programs/competencies-for-nursing-education/nurse-educator-core-competency.
12. Yan Li, Kyle A. Kennedy and Di Fang, *Special Survey on Vacant Faculty Positions for Academic Year 2016-2017*. www.aacn.nche.edu/leading-initiatives/research-data/vacancy16.pdf.
13. American Association of Colleges of Nursing, "Nursing Faculty Shortage Fact Sheet."
14. Patricia Benner et al., *Educating Nurses: A Call for Radical Transformation* (San Francisco: Jossey-Bass, 2009).
15. Nancy J. Clark, Luzmaria Alcalá-Van Houten and Mechelle Perea-Ryan, "Transitioning from Clinical Practice to Academia: University Expectations on the Tenure Track," *Nurse Educator* 35, no. 3 (May-June 2010): 105-9.
21. Arlene Solnick and Steve Weiss, "High Fidelity Simulation in Nursing Education: A Review of the Literature," *Clinical Simulation in Nursing* 3, no. 1 (January-February 2007): E41-45.
23. National League for Nursing, "Certification for Nurse Educators." www.nln.org/professional-development-programs/Certification-for-Nurse-Educators.

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