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Quality Improvement in Online Course Development

Igniting the Online Teaching Team

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Online courses and programs in higher education, including nursing education, continue to multiply exponentially in the United States. In order to meet accreditation standards and build internal standards of quality in online course delivery, nursing administrators and faculty must keep abreast of evidence and best practice in online course design. Awareness and adoption of online standards of excellence may be a departure from standard operating procedure with faculty adept at creating face-to-face courses and mavericks self-taught in online course development. The Plan-Do-Study-Act process for improvement is a viable and scalable method to achieve national certification of online course quality, improving ability to compete in a dynamic online education environment. Considerations of infrastructure and multiple stakeholder groups are critical to successful implementation. The case of one nursing program that used faculty development, team building, and continuous quality improvement to successfully reach national online quality benchmarks is presented.

KEY WORDS: Online course alignment, Online faculty development, Online peer review, Online quality improvement, Quality matters

In 2015, the number of students enrolled in distance education courses surpassed 6 million.[1] Further, in nursing education, the majority of nursing programs in the country from baccalaureate through doctoral level offer a percentage of their programs via distance education.[2] Regional accreditors, such as the Higher Learning Commission and the Southern Association of Colleges and Schools Commission on Colleges, publish expectations of quality in online course offerings.[3,4] Therefore, the onus is on the nursing program to develop continuous quality improvement activity around distance education offerings to meet accreditation standards. The Plan-Do-Study-Act (PDSA) quality improvement cycle undertaken at one private, religious, single-purpose nursing college in the Midwest which sought to offer quality online programming in an RN-BSN completion program is presented.

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ASSESSMENT: INFRASTRUCTURE, LEARNING MANAGEMENT SYSTEM, SKILLS, AND READINESS OF FACULTY

Assessing readiness of the institution is paramount when preparing for delivery of online programs. Briefly, support from the highest levels of administration is required with infrastructure as the foundational step. This includes adequate wiring, sufficient and dedicated Internet access with firewalls appropriate for higher education, and hardware robust enough to run multiple Web browsers, and current and engaging software. Available hardware and technologies must also be diverse and ensure the ability to test access, coursework and troubleshoot student and faculty issues. Thus, desktop and various mobile devices should be available for online course development.

Infrastructure also includes support for faculty and students. Institutional investment in positions and resources that offer technical assistance, technology expertise, and customer service is essential to the provision of high-quality online programs. Instructional designer expertise and onsite information technology (IT) support personnel serve as valuable resources for faculty for course design and technology integration. Further, customer support considerations for learners must extend beyond typical business hours, thus ensuring access to resources 24 hours a day, 7 days a week throughout the academic year.

Administrator Support and Faculty Readiness

The impact of human capital in building a high-quality online program cannot be underestimated. This begins with an administrator who will lead online endeavors and has direct responsibility for the development of the program and the faculty who will implement it. The administrator must have enough experience to understand the landscape of online

education, including regulatory standards, current issues, trends, and innovations. News headlines are replete with examples of poor completion rates,[5] nonadherence to national standards,[6] and academic misconduct[7–9] in online education.

When online education was first developed, faculty learned by doing, by trial and error. Over time, faculty and other communities of interest developed organizations dedicated to quality in online education. Some examples in the United States include the Online Learning Consortium,[10] formerly Sloan Consortium, established in 1998, and Quality Matters (QM),[11] established in 2003. The International Council for Open and Distance Education, founded in 1938,[12] published a report on quality in online and open education.[13] Research has been amassed, both nationally and internationally, to develop a body of knowledge related to quality in online education. There is still work to be done, as technology and the way students consume higher education constantly change.

Faculty Development

It is difficult to overestimate the importance of faculty development in online pedagogy; many teach as they have been taught.[14] Both administrators and faculty must ensure competence in this teaching modality to benefit faculty and students.[15] Faculty development and competence in online pedagogical practices are related to retention and satisfaction for both faculty and students. Faculty competence is of particular importance, since faculty performance is related to student satisfaction[16] and the achievement of "indicators of quality such as student success, student improvement over time, and student application of knowledge to the professional role."[17(p1)]

In this institution, very few faculty had ever taught a fully online course, and even fewer had any formal training in online pedagogy, as is typically the case.[14] Thus, a series of four required online learning modules was developed to prepare faculty to teach online: (1) introduction to online teaching and learning, (2) best practices in online teaching, (3) the ins and outs of the learning management system (LMS), and (4) management of online teaching (Table 1). Faculty were placed in the role of online student and were to engage in course content and assignment activities. Course content included current literature, research, Web sites, and videos. The modules were built in an online course shell following the QM Higher Education Rubric Standards,[11] paying particular attention to alignment among module level objectives, course content, assignments, and assessments. Implementation of the modules followed best practice[3,18–20] and was an opportunity to mentor faculty and model faculty engagement and behavior in an online classroom, both important for faculty development.[17] Faculty feedback and requests for additional information were instrumental in subsequent revisions to the online learning modules; they were customized to the prior experiences and skill level of the faculty.

Succession planning for online faculty was carried out through the formalized mentoring program. New faculty completed the structured orientation training program and were

Table 1. Modules and Associated Module-Level Learning Objectives

Module No. and Title	Module-Level Learning Objectives
1. Introduction to Online Teaching and Learning	a. Recognize the history, organizational structure, and distinctiveness of the institution b. Choose teaching and learning resources for use in the online classroom c. Identify quality in online education d. Recognize personal learning style and preferences and how interplay with students' personal learning styles and preferences may impact teaching and learning
2. Best Practices in Online Teaching	a. List necessary institutional support for faculty in the provision of providing quality in online education b. Describe best practice in online education c. Combine the concepts of community, motivation, and inclusion as an instructor in the online learning environment d. Describe personal philosophy of nursing education
3. The Ins and Outs of the Learning Management System	a. Discriminate among different quality indicators in providing online education b. Illustrate how to communicate with students in an online environment, using appropriate Netiquette c. Demonstrate how to manage instructor functions in the LMS, including management of the discussion board (to be continued in Module 4) d. Show how to provide feedback and grade MS Word documents using track changes e. Describe how to obtain technical help f. Identify supports available to students g. Explain how online faculty performance is evaluated
4. Management of Online Teaching	a. Demonstrate various methods of communication with students and staff, including: email, Google Chat, Google Talk, and Google Docs b. Demonstrate how to manage instructor functions in the LMS (continued from Module 3) c. Demonstrate how to use Adobe Acrobat Pro to record audio comments for student feedback d. Discuss the application of a single QM rubric standard in a course

then paired with seasoned online faculty for the first year of online teaching. The process of mentoring builds competencies in online pedagogy for junior faculty.

Learning Management System

It was necessary to replace the previous LMS as it lagged behind competitors in interactive software for online teaching. Further, it was managed locally, requiring extensive skill from IT staff, and involved disruptive downtime. Faculty and students completed a survey to assess satisfaction with the current LMS, including which features and functions were needed and desired for effective online teaching and learning. A small task force or selection committee representing different constituent groups was established to select a new LMS with the survey results in mind. The goal was a modern and robust LMS that was cloud-based with high operability and reliability to minimize local IT management and drain, in addition to offering scalability for growing programs. An open-source option was considered due to its ability to integrate easily with other educational software. Three top vendors were vetted and their software tested as is often recommended[21] based on usability, scalability, features, interaction with learning software, learning curve, mobile and user-friendliness, and support for faculty and students. Ultimately, Canvas by Instructure (Salt Lake City, UT), was selected as it was the best match. Onsite faculty training was conducted with multiple sessions recorded for future reference.

INTRODUCTION TO QUALITY

Support from administration was instrumental in becoming an institutional member in QM (Annapolis, MD), "an international nonprofit organization that provides the quality standards, professional development, course and program review, and certification for quality assurance in online learning."[22(para5)] This provided access to a variety of evidence-based resources for use in building online courses. The QM staff were brought to campus to conduct an all-day Applying the QM Rubric training session. It was an opportunity for faculty to discover the depth and breadth of considerations and actions necessary to offer high-quality online programs. The interactive sessions were engaging and built enthusiasm among the faculty. Further, the assistant dean of distance education, instructional designer, and an online faculty member completed the QM Higher Ed Peer Reviewer course to conduct internal course reviews. Once this was accomplished, the team of QM certified peer reviewers developed an online course template with as many of the QM standards as possible embedded. Highlighted instructions in the pages of the template offered guidance as courses in the 14-course RN-BSN completion program were built by faculty. For examples of items in the course template that reflect QM standards, see Table 2.

Utilization of Online Faculty Committee Meetings for Quality Improvement

Quality improvement was added as a standing item at monthly faculty committee meetings as part of the strategic plan for successful adoption. The team considered the critical questions of what they were trying to accomplish, how they wanted to define when the change constituted an improvement in current processes, and deciding which changes they wanted to make in a strategic and coordinated plan, the plan phase of PDSA.[23] One such example is the development of an antiplagiarism checklist, required for every student paper submission. This checklist was developed to educate students at this level and as a regular and systematic approach to ensuring that their work was original and provide cues when to cite others' work.

Another goal desired by online faculty was teaching students to use references in professional writing, determining that the current process had changed when students cited references accurately. They collected data to determine these continuous quality improvement activities, revised the checklist as needed, and ultimately reduced omission of citations and improved accuracy in paraphrasing and use of direct quotes. The checklist, when coupled with use of commercial antiplagiarism software promotes professional writing standards throughout the program, particularly when students are given opportunity to learn from the originality reports.

Another example of PDSA was the implementation of a standardized grading rubric for papers. This resulted from faculty discussion of inconsistencies in standards related to written assignments. Faculty wished to teach students how to write cogently to address whatever criteria were assigned. They decided that the current process was changed when students earned points on the grading rubric for competent writing. Therefore, faculty brought articles, examples, and ideas to develop a standardized, progressive, grading rubric that guided students through required elements that developed skills in all courses in the program. Again, they collected data and grades for papers and compared them to previous data to demonstrate continuous improvement in quality.

Faculty Meetings to Integrate Quality Matters Into Online Courses

Administration and faculty found research articles related to quality in online education[24] to provide background for the discussion. Faculty led the discussion as each of the eight standards of QM was presented with examples from actual courses in which faculty had implemented it well. Question and answer sessions followed with discussion that challenged assumptions and previous practices. Faculty had opportunity to showcase their efforts and to learn from one another's best practices, as well as to sustain enthusiasm and momentum for the

Table 2. Examples of Course Template Items That Reflect QM Standards

QM Standard	Course Template Items: Rationale	How We Did It
1. Course Overview and Introduction	*Start Here* Faculty integrated a "Start Here" page that provided upfront information students need to be successful in the course. The integration of this introductory module provides clear information about online classroom expectations and helps students gain familiarity with resources available in the course and college.	Incorporate an introductory module/road map for every course.
2. Learning Objectives (Competencies)	*Learning Objectives Refined and in Consistent Location* The processes of faculty self-review coupled with internal review provided opportunity to make objectives clearly stated and measurable. As learning objectives are the foundation on which the course is built, the process of objective refinement solidified course structure.	Establish a consistent spot for learning objectives in each module and course.
3. Assessment and Measurement	*Grading Rubrics for All Assignments* Upfront disclosure of all assignment grading structures was the most significant change across courses related to this standard. This standard motivated faculty to develop grading rubrics for each assignment and to include those rubrics in the syllabus and orientation module of the course. Module assignments are linked to learning objectives achieved through successful completion.	Develop grading rubrics linked to learning objectives for every assignment.
4. Instructional Materials	*All Instructional Materials Linked to Learning Objectives* Part of the faculty role is to connect instructional materials to stated learning objectives. Thus, the critical review of how learning resources help learners achieve desired outcomes revealed opportunities to use alternate resources to best meet learning objectives. Required and recommended instructional materials are linked to learning objectives. This enables students to direct their own learning based on self-assessment of meeting learning objectives.	Link all instructional materials to learning objectives.
5. Learning Activities and Learner Interaction	*Strategic Engagement With Content, Peers, and Faculty* The self-review and internal review processes associated with course redesign allowed faculty to consider alternative ways of promoting interaction within the online classroom. Feedback from internal auditors and faculty collaboration strengthened activities in the courses that engaged learners through interaction with *content*, such as use of the SoftChalk; with *peers* using group work/peer reviews; and with *faculty* through Q&A discussion boards, and optional Web conferencing help sessions.	Ensure student engagement with content, peers, and faculty in every module.
6. Course Technology	*Increase Interactivity and Engagement Through Technology* Faculty sought technologies to increase engagement in the delivery of or interaction with content not for the sake of technology use or serving technology. Examples of technology integration to enhance learning include Adobe Spark for lessons and module introductions, SoftChalk for lessons and learner self-assessment of learning, and Shadow Health for engagement in the skills of health assessment in a simulated environment. Consideration of technology enhancements for the online classroom was expanded through the QM initiative.	Harness technology to increase engagement being mindful that technology should support online teaching and learning, not vice versa.
7. Learner Support	*Consistent Mechanisms for Student Support* Course alignment with this general standard allowed program faculty to devise a consistent way to communicate this to learners. Incorporating learner support information into the orientation and/or "Start Here" module of each course established resources for students that would be consistently available across courses and cluster access to support elements in one consistent area.	Use an orientation module and/or "Start Here" module in each course to house links and directions to support.
8. Accessibility and Usability	The QM initiative has raised faculty awareness of accessibility and usability of resources within their courses. As a result, faculty have become mindful of using alt tags for images, seeking video resources with closed captioning or transcript resources, and ensuring that PDF files are universally searchable. These elements not always considered prior to the team's initiative to meet evidence-based standards.	Incorporate accessible materials in all modules.

For more information and the complete list of QM standards, visit https://www.qualitymatters.org/sites/default/files/PDFs/StandardsfromtheQMHigherEducationRubric.pdf.

initiative. This type of professional development and assistance, underscored and supported by administration, is an important factor in advancing teaching and learning, and can improve quality both online and onsite.[25] Recognizing faculty as a valuable stakeholder group was pivotal to support for the additional time and effort to develop a quality online program. Moreover, as faculty competence increased in high-quality online course development and implementation, they mentored one another and became a cohesive group that felt safe enough to risk, experiment, and grow.

IMPLEMENTATION

It was evident that a stepwise approach to connect faculty with relevant content related to online education quality was critical. Thus, a planning meeting was held to establish priorities and divide the content into manageable pieces. The following list of topics was also cross-referenced with annual goals and the systematic plan of evaluation: (1) support, assess, and offer feedback to revise Online Faculty Orientation course; (2) support, assess, and offer feedback to revise Online Faculty Mentoring program; (3) participate in implementation of QM Rubric for online courses; (4) uphold standards of state authorization by maintaining alignment of online program design, implementation, and resources with those identified within the Council of Regional Accrediting Commissions guidelines (National Council for State Authorization Reciprocity Agreement); (5) develop innovative strategies to engage online learners; (6) support faculty in resolution of online student issues; (7) maintain alignment with national benchmarks and compliance with accrediting bodies related on online education and (8) implement the assessment outcome plan as related to the Online Council.

Enacting Team Vision for External Peer Review of Online Courses

Moving the team's vision to reality required the cultivation of team effectiveness with goals and strategies to catalyze success. A foundation of respect, trust, and development including evidence-based course design is also necessary to facilitate problem solving, openness to feedback, and team engagement.[26,27] Early strategies involved team discussions about a proposed process of course reviews informed by current literature. The emphasis was on dispelling team fears surrounding colleague and administrative review of their courses, offering assurance that the focus was on continuous quality improvement.

Facilitating Collaborative Design

Collaborative course design to promote quality in online learning is advocated in the literature.[28–30] Design quality using collaborative models is achieved through shared skills and expertise.[28] Moreover, collaborative design approaches informed by evidence-based design standards and continuous review facilitate sustainable quality.[31,32]

Using the QM Higher Education design standards facilitated the team's approach to course review and revision.[33] Collaboration was fostered by early conversations that clarified team member expectations and established the foundation of a shared vision. These conversations also served to cultivate trust among the team as respect, openness to ideas, and a unity in underlying teaching philosophies were established.[34]

Promoting Alignment of Course Components

Initial steps for course design aligned with evidence-based design standards began by ensuring that all courses demonstrated alignment in their various components. First, alignment of course objectives with module objectives, learning resources, learning activities, and course assessments was reviewed by a team peer reviewer in collaboration with each relevant course faculty member. A matrix was established to demonstrate where alignment was achieved and identify areas for improvement.

Second, another team faculty member collaborated with all course faculty to review the alignment of course components with professional accreditation standards. This stepwise collaborative internal review established shared responsibility to strengthen alignment across course components foundational to quality course design.[34] Moreover, the collaborative review ensured that course activities and assessments demonstrated achievement of learner outcomes that align with required professional accreditor standards.

Tools to Encourage Course Revision

Although alignment informs overall course development and design, alignment alone does not promote online course design quality. That requires creativity, innovation, and a rethinking of pedagogical strategies that best fit the online classroom.[32] To support this endeavor, faculty share online teaching strategies at monthly meetings and discuss the associated strengths and challenges. Additional discussions about pedagogical/andragogical practices are informed by a review of literature. Further support of team development relating to course design and implementation strategies is achieved through a team resource site/course shell housed in the LMS that hosts tools, templates, and supporting literature, all aligned with evidence-based design standards. Course design templates target QM Higher Education course design elements that faculty have identified as challenging; they assist faculty in integrating elements that meet all required aspects of identified design standards.

CREATING OPPORTUNITY FOR EARLY SUCCESS

Support processes, resources, and peer review were designed to build trust and empowerment among the team.[34] Early

adopters of technology and supporters of the initiative to achieve course QM certification were recruited as champions in the early phases of course redesign. Peer assistance and the use of design tools and templates facilitated course redesign; this also promoted team buy-in for the strategic initiative.

A stepwise approach to course review was critical to early success. Essential peer review encompassed the first 2 months of course redesign work, as the alignment of course objectives with module objectives, learning resources and activities, and assessment of learning provide the foundation on which the course is designed and developed.[33] Then, peer reviewers and course faculty collaborated with the QM coordinator (QMC) to revise identified course components to achieve alignment. Following this step, champions were identified and worked with the QMC and peer reviewers for further course redesign in alignment with the QM Higher Education standards.

Course revision was informed by two types of course review: (1) self-review utilizing the QM Self-assessment Tool and (2) internal peer review. As a final check before official certification review, the institution's QMC reviewed courses for alignment with the QM Rubric standards.[35] Feedback from the QMC review led to final course revisions, establishing likelihood that the course would meet the QM Rubric standards upon official external review. Official certification successes were celebrated across the organization to acknowledge the work of faculty, cultivate engagement among team members, and build enthusiasm in the college community and other stakeholder groups.

The goal for the team was to achieve official QM certification for at least one course in the program by the end of the 2016–2017 academic year. The first course was reviewed and certified in April 2017. From the internal and external review process, the team developed design templates and tools that assisted other faculty in subsequent redesign. Faculty whose courses were certified then assisted their peers in the redesign process. The team has established an effective strategy involving collaboration and internal review to ensure courses are efficiently redesigned and ready for official QM review.

KEEPING THE ONLINE QUALITY IMPROVEMENT VISION ALIVE

A shared vision among the team remains alive when it is woven into the day-to-day functioning of an organization.[34] Concepts and benefit of evidence-based course design on program quality and student success became part of regular team communications. For example, inclusion of a librarian to lead journal club discussions targeting articles with evidence-based design elements, QM certification, and course readiness progress became standing agenda items at monthly meetings. Educational strategies, including articles, videos, technology tools, and templates, were distributed and made available in an online faculty resource site, a course shell in the LMS. Regular communications about QM professional development opportunities were distributed via email. Additionally, the review of course evaluation data and resulting course revisions were communicated to champion alignment with relevant QM standards. Establishing a lens of continuous quality improvement using evidence-based course design standards inspired a team culture that focuses on quality standards and the shared vision.

OUTCOMES AND NEXT STEPS

To date, 12 of 14 courses in the Online RN-BSN Completion Program have been submitted to QM for external peer review. Of the 12 courses submitted, 100% have achieved QM certification. The team's goal is to have the entire program QM certified by the end of summer 2019, demonstrating a commitment to national standards of quality and excellence in online education. The ultimate goal is to continue to build a learning culture in which continuous quality improvement remains part of the fabric of the team.

Following the initiative of aligning courses to evidence-based standards, and as part of the PDSA process, study of student course evaluations (93.4% response rate, 357/382) revealed positive outcomes related to course redesign. Responses were optional; thus, not all items were addressed on every course evaluation. The majority of responses agreed or strongly agreed that course expectations were clearly identified (95.2%, n = 320), evaluation methods within the course were consistent with the objectives of the course (97.3%, n = 327), learning activities facilitated learning that aligned with course objectives (98%, n = 350), and courses were well organized and provided instructions that made it easy to navigate (95.1%, n = 292). Overall, 95% (n = 319) of learners agreed or strongly agreed that they would recommend the online courses to others.

The impact of the team's quality initiative extended beyond course certifications. The initiative has driven a higher commitment to standards of quality for online teaching. For example, all faculty who wish to teach through online or blended platforms are required to complete the orientation to online teaching course provided by the institution. Additionally, there is institutional support for new faculty to attend the Applying the QM Rubric course offered by QM. Further, faculty scholarship activity around quality initiatives in online nursing education is increasing.

The structure and process for quality design and implementation have proven to be scalable and now extend beyond the RN-BSN program. Evidence-based course development and quality improvement processes are now being utilized with courses in other programs of the organization that offer online and hybrid courses. Although the process of change

has been incremental, the stability that the evidence-based standards provide to the quality of the online implementation across programs has been critical.

As online course and program proliferation continues, nursing administrators and faculty must remain vigilant regarding continuous quality improvement activity to achieve high-quality online education. The PDSA process presented here is one viable method of achieving this aim.

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- There is only one correct answer for each question. A passing score for this test is 13 correct answers. If you pass, you can print your certificate of earned contact hours and the answer key. If you fail, you have the option of taking the test again at no additional cost.
- For questions, contact Lippincott Professional Development: 1-800-787-8985.

Registration Deadline: June 4, 2021

Disclosure Statement:

The authors and planners have disclosed that they have no financial relationships related to this article.

Provider Accreditation:

Lippincott Professional Development will award 1.5 contact hours for this continuing nursing education activity.

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Payment:

- The registration fee for this test is $17.95