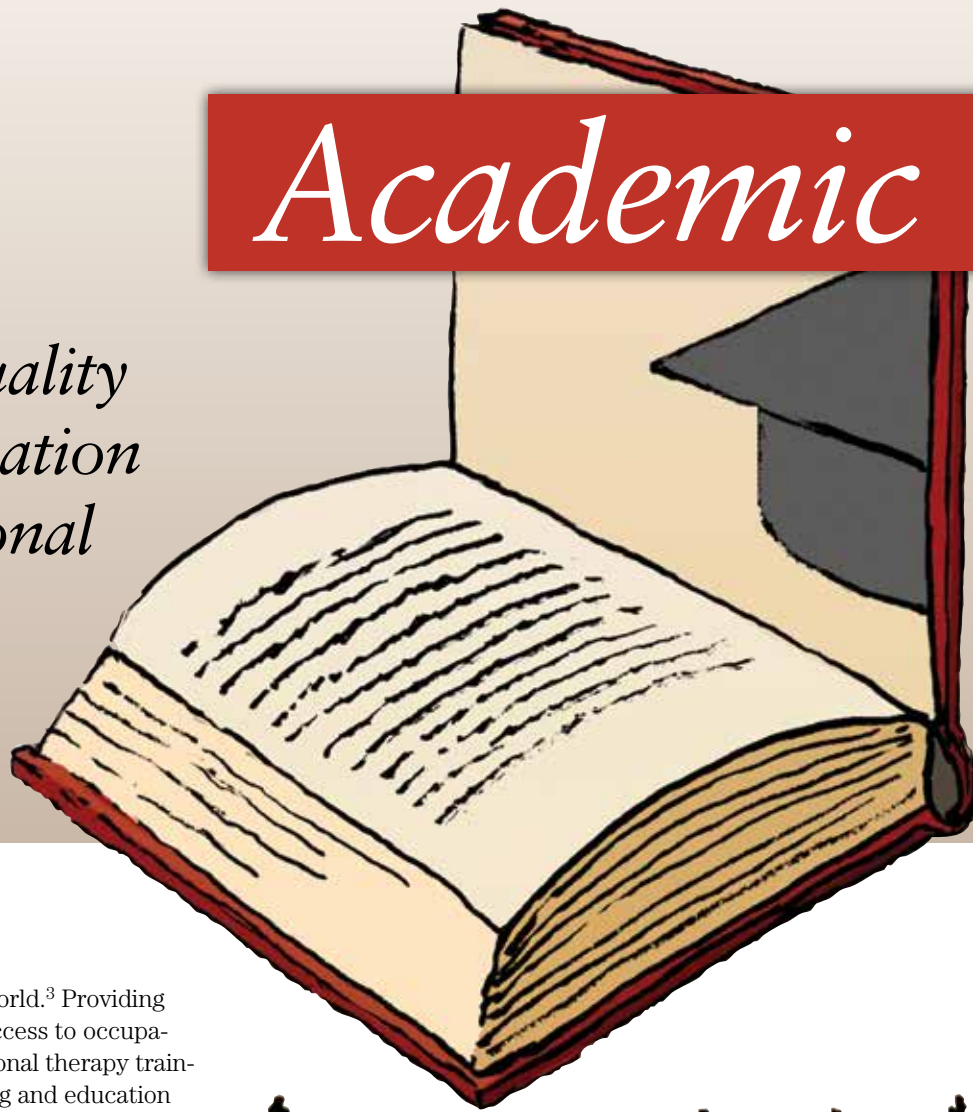# Academic

Ensuring Quality Online Education in Occupational Therapy

As occupational therapy grows and evolves to meet the changing needs of society, so does its professional education. One area of growth and change in occupational therapy education is distance education, and most specifically online education. Distance education is described as an emerging practice niche by the American Occupational Therapy Association.[1] It is defined as any form of education in which instructors and students are separated by physical distance.[2] Online education is a form of distance education that uses online technologies to facilitate and provide the educational experience.

Online education has the ability to reach occupational therapy students and provide a quality educational experience without requiring them to relocate professional and personal lives for on-campus "brick and mortar" programs. In addition, online learning provides students with flexible scheduling and opportunities to connect with professionals in other locations, both in the United States and around the world.[3] Providing access to occupational therapy training and education in this manner has the ability to remove some of the barriers, such as scheduling and location, that limit the flow of occupational therapy practitioners into practice, thus responding to the needs of the profession and society.

As more occupational therapy practitioners and students learn online, we must ensure that online instruction is of the highest quality: effective, evidence-based,[4] inclusive,[5] and engaging. This article will describe how quality in online education can be ensured by providing (1) appropriate student support, (2) quality course design and implementation, and (3) an enriching learning community. It will also provide an e-mentoring example from the Department of Occupational Therapy at Boston University College of Health and Rehabilitation Sciences: Sargent College (BU Sargent College) as one way to cultivate an enriching online learning community.

THE GROWTH OF ONLINE EDUCATION

To meet the learning needs of occupational therapy students and professionals, distance education opportunities have been provided in a variety of ways, such as through mail, audio teleconferencing,[6] and other relevant technology for the times. As innovations in Web-based technologies have advanced, opportunities for online instruction and learning have grown as a delivery method for distance education.[2,7] Online technologies increase educational connections; they allow students from across the street or around the globe to engage in the same course and with the same instructors in a dynamic community of learning.
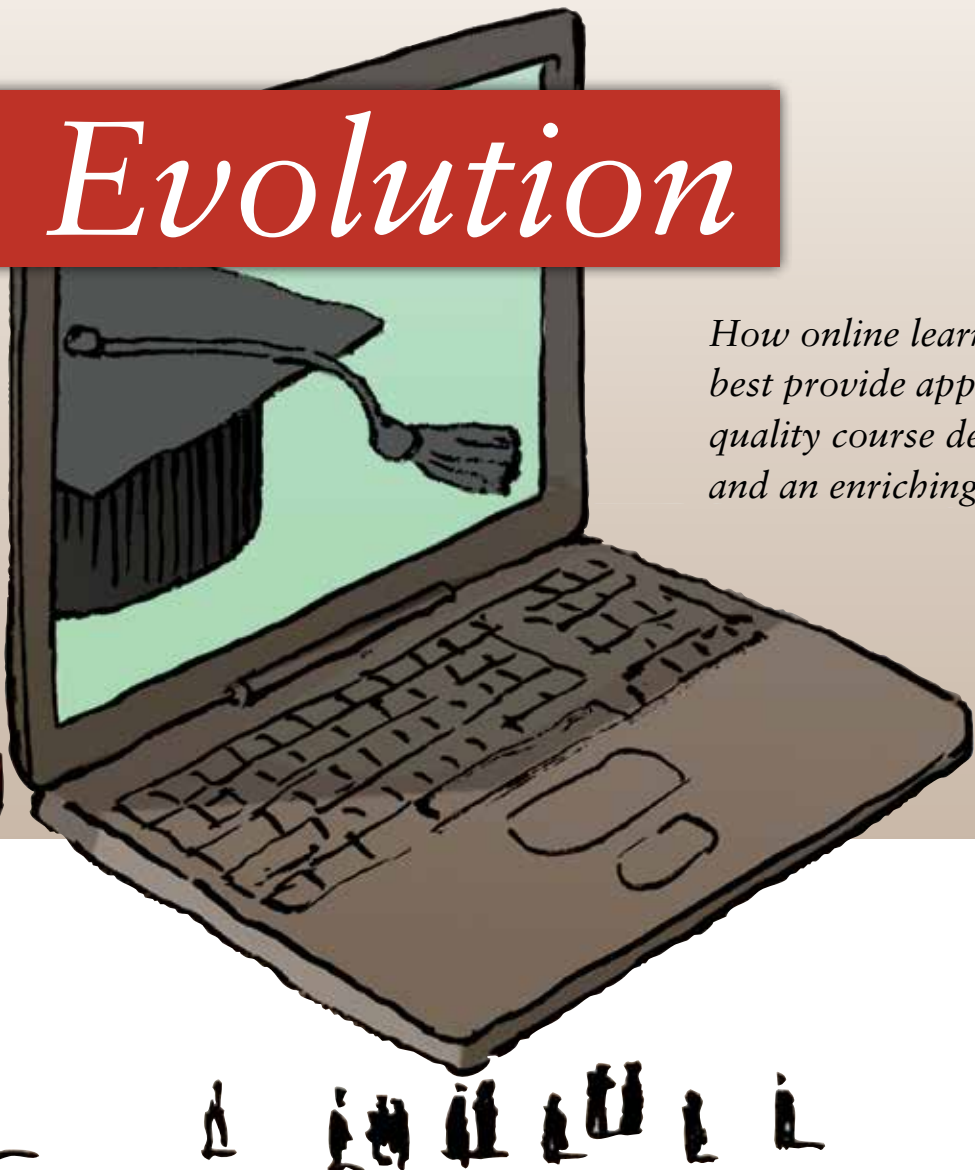
Evolution

How online learning opportunities can best provide appropriate student supports, quality course design and implementation, and an enriching learning community.

KAREN JACOBS

NANCY W. DOYLE

ROBYN MARTIN

As described in a literature review by Doyle, online instruction may be used for a variety of purposes, including delivery of continuing education courses, fieldwork support, and degree programs.[8] When students are engaged in fieldwork experiences at a distance from their university program, online technologies can facilitate discussions with their classmates and university instructors.[9,10] Degree programs use a range of online education options: enhancing an on-campus course, providing the opportunity to enroll in an online course within an on-campus degree program, combining online with face-to-face instruction (this is termed *hybrid* or *blended education*), or facilitating an entire degree program online.[8] Entry-level, postprofessional, continuing education, and professional development courses and programs in occupational therapy are using the spectrum of these online strategies.[2] As demand for distance education grows, these strategies allow students and occupational therapy practitioners to access courses in increasingly flexible ways.

Although informal observations indicate that the number of online degree programs and continuing education course offerings is increasing, there is no formal mechanism in place to track these trends in occupational therapy education.[8] However, we can extrapolate its growth from the increase in online higher education more generally. For example, in higher education in the United States in 2011, there was a 9.3% annual growth rate in enrollment in online education versus a 1% annual growth rate in traditional classroom enrollments.[11] Over 10 years (2002 to 2011), the compound annual growth rate for online education enrollment in higher education was 17.3%, compared with 2.6% of traditional classroom enrollments in higher education.[11] In 2011, 32% of students, or 6.7 million of 20.9 million students, who were enrolled in U.S. higher education took at least one course online.[11] Due to this growth of online higher education in the past decade, it is reasonable to assume that there is a similar upward trend in the number of occupational therapy students accessing online learning opportunities.

## EVIDENCE-BASED AND INCLUSIVE ONLINE EDUCATION

The occupational therapy profession has embraced the need to be evidence based and inclusive, as stated in AOTA's Centennial Vision: "We envision that occupational therapy is a powerful, widely recognized, science-driven, and evidence-based profession with a globally connected and diverse workforce meeting society's occupational needs" (p. 614).[12] This drive to be evidence based and inclusive must be applied

to our professional education as well as our clinical work and research efforts.[4,5,13]

This article will describe the evidence used to provide inclusive student supports, quality course design and implementation, and an enriching learning community. By being evidence-based in our approach to professional education, we model this type of practice for students, as well as ensure that all areas of our professional work are evidence based. By providing inclusive educational opportunities, we allow for all kinds of learners and individuals to become occupational therapy professionals, thereby creating a more diverse profession. In other words, we make it possible to develop and nurture the most diverse, powerful workforce possible, and thereby meet the occupational needs of clients nationally and internationally.

DEFINING QUALITY

A leading organization in online education, the Sloan Consortium, provides a five-pillared framework to define quality in online higher education.
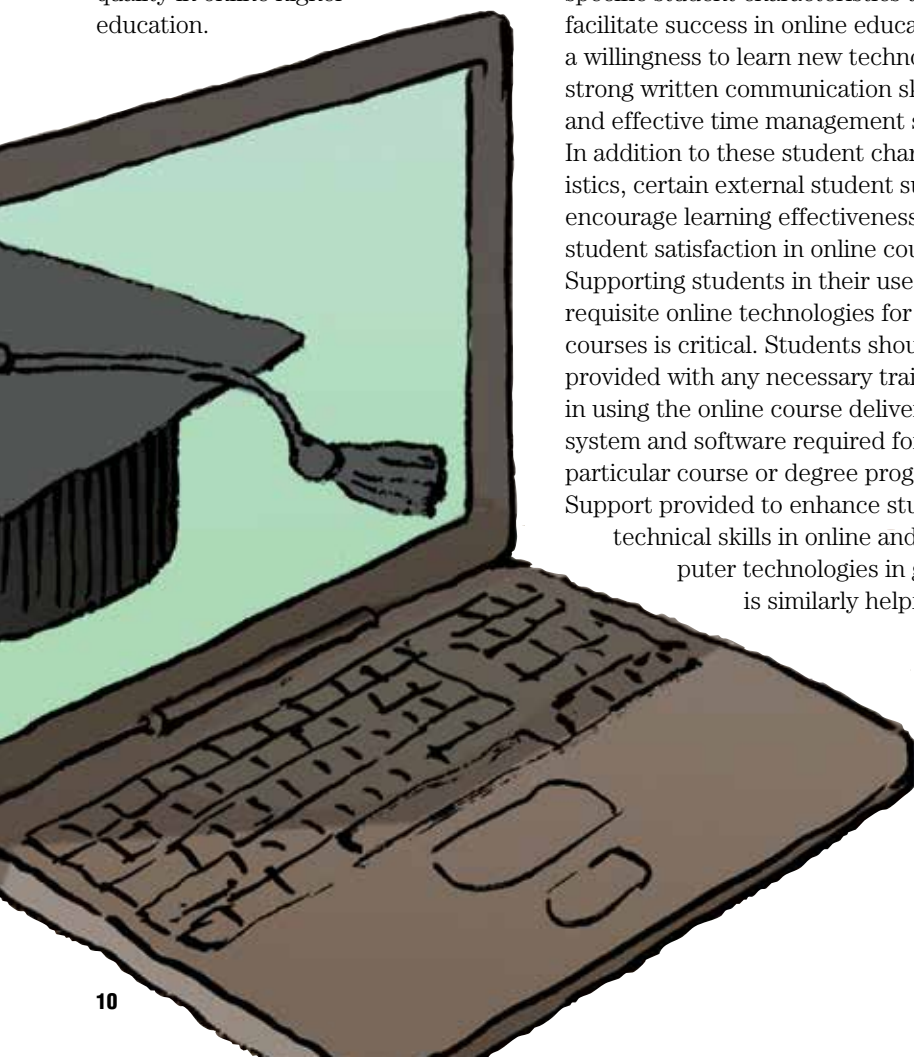
Quality online education is achieved by continuously improving online course services while reducing costs of online instruction (i.e., scale), ensuring that everyone who wants to learn online is able to do so (i.e., access), and facilitating effective learning so that outcomes "meet or exceed institutional, industry, and/or community standards" (i.e., learning effectiveness).[14] This results in students who are satisfied with online learning experiences, interactions with instructors and classmates, learning outcomes, and access to online course-related services (i.e., student satisfaction); as well as faculty who like teaching online and who appreciate, and are happy with, the online teaching experience (i.e., faculty satisfaction).

Students who wish to enroll in online learning opportunities and faculty who provide online education should be attentive to all five areas of quality in their courses and, if applicable, their overall degree programs.

STUDENT SUPPORT

From our experiences, there are three specific student characteristics that facilitate success in online education: a willingness to learn new technology, strong written communication skills, and effective time management skills. In addition to these student characteristics, certain external student supports encourage learning effectiveness and student satisfaction in online courses. Supporting students in their use of the requisite online technologies for their courses is critical. Students should be provided with any necessary training in using the online course delivery system and software required for their particular course or degree program.[15] Support provided to enhance students' technical skills in online and computer technologies in general is similarly helpful.

Research has shown that students' perceptions of the effectiveness of online courses were higher when they possessed higher levels of technical skills.[16]

In addition to providing support for the online courses themselves, it is useful to allow students multiple methods of accessing support services. These services may include course registration assistance, academic support, advising, tutoring, library resources, and the university bookstore. Such resources should have both online[17,18] and "live" (e.g., speaking with support service personnel on the telephone) access.

QUALITY DESIGN AND IMPLEMENTATION

Thoughtful course design and implementation are critical to achieving learning effectiveness and student satisfaction in an online learning environment. Students and instructors should be attentive to crucial technological, pedagogical, and learning opportunities when selecting or designing an online course.

First, it is important that courses and course content are appropriate for the Web-based medium.[7] For example, a lab course that includes making splints may benefit from at least some in-person sessions, whereas a more theoretical course may be able to be delivered completely online. Second, appropriate course delivery systems and technologies must be used.[15] Online learning provides additional educational and professional benefits by enabling occupational therapy students from different locations to collaborate nationally and internationally, either synchronously or asynchronously.[3] Therefore, the technology that is selected for the online course should allow for communication and collaboration among students, as well as between the students and instructor.

Pedagogically, it is important that appropriate theories and strategies are used to create a meaningful learning experience. Online courses must set and meet the same professional expectations and learning opportunities required of students in the traditional classroom. Specifically, we must foster the "deep learning, professionalism,

Table 1. Theories and Frameworks for Developing Online Education

Theory or Framework	Central Tenets
Knowles' Adult Learning Principles (Andragogy)[23]	This framework provides direction in developing internally motivated, experiential, goal-oriented, relevant, practical, and rationale-driven learning opportunities for adults.
Constructivism[24]	This learner-centered theory sees individuals as actively engaged in constructing new knowledge and meaning through combining previous experiences with information from new learning experiences.
Theory of Transactional Distance[25,26]	This theory explores the ongoing interactions among learners, their instructors, and the course content and how different relationships among these elements affect how the distance is bridged in distance education.
Community of Inquiry[27,28]	This theory examines computer-mediated distance education and how a given community of learners can collaborate to engage in deep and critical thinking and learning.

and professional autonomy" (p. 66)[2] that we emphasize in all forms of occupational therapy education.[19,20] It is important that courses not become "knowledge-based and prescriptive" (p. 147)[21] self-directed tours, but instead have guidance from an occupational therapy instructor and strong collaboration among peers, just as in traditional classroom settings. Distance education also benefits from pedagogy that focuses on the needs of adult learners,[15,22] understands the impact of distance between learners and instructor, and allows for using different technologies, when appropriate. Courses can be guided by Knowles' Adult Learning Principles, or Andragogy,[23] to address adult learning needs. Theories such as Constructivism,[24] the Theory of Transactional Distance,[25,26] and the Community of Inquiry[27,28] allow instructors to consider the impact of distance and technology on rigorous, effective, and accessible online learning opportunities (see Table 1 for the cen-

tral tenets for these frameworks and theories).

Critics of online courses sometimes consider them to be easier, or less rigorous, than their on-campus counterparts. As of 2012, more than 70% of academic leaders polled about the quality of online education believed that learning outcomes for online instruction were just as good or better than those of on-campus instruction.[11] One of the keys to successful and quality online course design is to ensure that the learning objectives and desired outcomes are not altered in a way that changes the content of what would be taught in the on-campus classroom to make it suitable for the online medium, but to adjust how that same content can be delivered in the online classroom to achieve the same learning outcomes.

Additional pedagogical strategies for quality course design and implementation include planning, attending to individual learning needs, and providing

timely instructor feedback for student needs and assignments. Courses should be planned proactively by establishing and communicating course expectations and guidelines; providing course and weekly learning objectives; sending weekly e-mail greetings, updates, and reminders; supplying pre-planned content, readings, assignments, and grading rubrics; and including varying opportunities for interaction throughout the course.[15,18]

Attention to individual learner readiness, needs, and characteristics (e.g., cultural and linguistic differences) should be inherent in an instructor's approach and course design. To engage the learner in various ways, Gaytan and McEwen suggested including opportunities such as group projects, portfolios, self-assessments, peer review, and discussions in addition to the more traditional essays, weekly assignments, and quizzes.[29] Quality instruction is still required and expected by an online audience, and the online environment provides a variety of tools for an instructor to use to enrich and enhance instruction that may not be available in the stand-alone classroom. Such learning activities and evaluations have the added benefits of targeting different levels of cognitive processing, different learning styles and preferences, and various types of collaboration within an online course.[15,17,22,29] A study by Doyle and Jacobs indicated that students wish to understand their own needs and desires with regard to online learning and may benefit from tools such as learning profiles and learning style or preference assessments to further explore their learning processes in an online course or program.[30] Lastly, allowing for some degree of self-pacing within a course, where appropriate, may enhance student satisfaction and engagement online.[22] For example, instructors may allow students to set their own due dates for assignments

and readings within each section of a course.

Finally, quality course design and implementation include prompt, relevant, continuous, and personalized instructor feedback on course assignments and progress. This helps students feel connected to their instructors, engaged in the learning process, motivated to continue good work, and satisfied with the learning experience.[15,18,22]

BUILDING A LEARNING COMMUNITY

In addition to appropriate student support services and course design and implementation, building a learning community is a critical component of a quality online educational experience. Research indicates that courses in which a sense of community is built and interactions are encouraged throughout enhance student satisfaction and retention.[18] To develop a true community of learners, it is important that course interactions and relationships occur at both the student–student and student–instructor levels.[15]

The flexibility of online course design allows instructors to build collaborative learning opportunities into the courses themselves, through the use of features such as asynchronous discussions and live, synchronous chats.[15,18,22] Students do not need to be logged into the course at the same time as their classmates to participate in the asynchronous discussions. However, they all must contribute to the discussions within the allotted time frame (e.g., 24 or 48 hours). Synchronous chats allow students to meet with one another or with the instructor in real time using typed text, or Web cameras and video chat technology.

Additional course elements that encourage or require student–student collaboration may include peer mentoring, study groups, peer review of assignments, and projects completed by pairs or small groups of students. Student–instructor interaction can be enhanced by providing opportunities for feedback and input at selected points throughout the course to ensure satisfaction, quality of the learning experience, and learning acquisition.[15,18] Personalized faculty feedback on student work[15,18,22] and
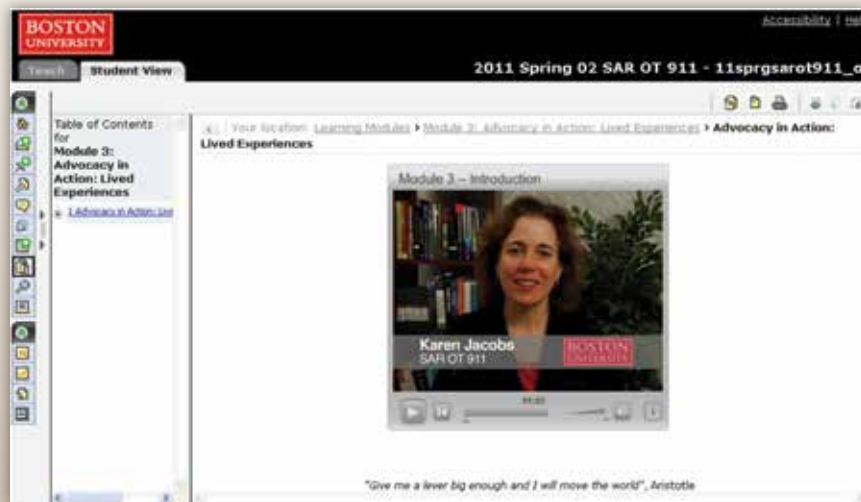
A video introduction by the instructor is part of every online course.

Personalized faculty feedback on student work and faculty–student e-mentoring can help build a learning community and enhance the learning experience.

faculty–student e-mentoring can help build a learning community and enhance the learning experience. These development strategies allow collaboration to become a pervasive element throughout the online course experience, engaging students in the learning process and connecting them to a community of learners.

E-MENTORING EXAMPLE AT BOSTON UNIVERSITY

BU Sargent College has provided postprofessional online education to occupational therapy professionals since 2004. BU Sargent College first offered an online postprofessional master of science degree for occupational therapists, which graduated 118 students in the 6 years that the program was offered. BU Sargent College now also offers the online postprofessional doctorate in occupational therapy program and had graduated 27 students by the time of this writing. This program consists of 10 core courses and a doctoral project that focuses on developing the students' ability to "evaluate theory and evidence in their area of practice, identify gaps or shortcomings in current

intervention methods and programs, and design innovative responses to fill those unmet needs."[31] Each student engages in individualized faculty-to-student and peer-to-peer mentoring in addition to coursework throughout the duration of the program. For the majority of the program, faculty and students are in different geographic locations, and thus must engage in electronic mentoring (e-mentoring), using technology such as electronic communication platforms (Adobe Connect, Wimba) and Web cameras as well as telephone and e-mail communications. This e-mentoring is one way the BU program facilitates the construction of an online learning community.

E-mentoring has been shown to be a promising alternative to in-person mentoring.[32,33] E-mentoring is particularly successful when participants are comfortable navigating the Internet and are motivated to be involved in the mentoring dyad; success is unrelated to prior mentoring experiences.[32] Additionally, DiRenzo et al. reported that the frequency of e-mentoring interactions mediates outcomes of general

An online poster presentation to classmates.

self-efficacy and task efficacy among
the peer mentors.[32]

Peer-to-peer and faculty-to-student
mentoring may serve complementary
roles in an academic program. They
provide scholarly or professional
development opportunities as well
as support.[34] Peer-to-peer mentoring
has been found to be most effective in
providing instrumental (e.g., how to
navigate technical and organizational
aspects of a program) and psycho-
social support as well as increasing

satisfaction with academic programs.[35]
Research indicates that faculty and
students perceive the most important
tasks of faculty mentors to include
facilitating professional development
and identification, academic direc-
tion, skill-building, and creative and
independent thinking of mentees.[34,36]
Tasks like these, which are essential to
the learning experience, need not be
fulfilled strictly by in-person mentoring
arrangements.

Most research to date has looked
at e-mentoring in written format
only, such as with e-mail or message
boards.[32,37] Little is published about
e-mentoring using technology such
as Web cameras and electronic com-
munication platforms. Because these
technologies allow for face-to-face
interactions at a distance, it is possible
that such e-mentoring interactions
might prove even more effective than
written methods. To advance the evi-
dence-based literature on e-mentoring
and its effectiveness in online learning,
we will embark on a research project
with our own OTD graduates who have
engaged in face-to-face e-mentoring.

Peer and faculty mentors in our
program who have used this face-to-
face e-mentoring technology infor-
mally self-report high satisfaction with
this approach. Students indicate that
e-mentoring facilitates and sustains
motivation, connection to the univer-
sity, and commitment to one's academic
and professional work, as well as builds
a strong sense of community and
support. Some mentoring relationships
have extended beyond the program's
duration, resulting in long-term
professional relationships involving
clinical, research, and academic work.
For example, 2010 OTD graduate Julie
Nastasi shared, "When I entered the
doctoral program I was assigned a
faculty and peer mentor whom I met
with on a weekly basis. My peer men-
tor and I planned and organized our
semesters, reviewed each other's work,
and provided support for each other
throughout our doctoral degrees. Since
graduating from the doctoral program,
my peer mentor and I have continued
to support each other by review-
ing chapters for books that we have
written, or articles for journals. The
relationship we developed has helped
each of us grow as professionals."

CONCLUSION

Online education in occupational ther-
apy has the capacity to bring effective
and engaging coursework to students
in continuing education, fieldwork, and
professional degree courses and pro-
grams. By providing appropriate student
services, course design and implemen-
tation, and opportunities to engage in a
community of learners, a quality educa-

> *By providing appropriate student services, course design and implementation, and opportunities to engage in a community of learners, a quality educational experience can be achieved.*

tional experience can be achieved. When these elements are evidence based and inclusive, we contribute to building a knowledgeable, diverse profession prepared to meet the occupational challenges and goals of our clients, our societies, and our world. ■

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References

1. Yamkovenko, S. (2013). *Distance learning.* Retrieved from http://www.aota.org/Education-Careers/Educators/Emerging/Distance.aspx
2. Hollis, V., & Madill, H. (2006). Online learning: The potential for occupational therapy education. *Occupational Therapy International*, *13*, 61–78. http://dx.doi.org/10.1002/oti.209
3. Doyle, N., & Jacobs, K. (2012). Learning locally and globally: An overview of distance education in occupational therapy. *Israeli Journal of Occupational Therapy*, *21*, E59–E69.
4. Bondoc, S. (2005, December). Occupational therapy and evidence-based education. *Education Special Interest Section Quarterly*, *15*(4), 1–4.
5. Hansen, R. H., & Hinojosa, J. (2009). Occupational therapy's commitment to nondiscrimination and inclusion. *American Journal of Occupational Therapy*, *63*, 819–820. http://dx.doi.org/10.5014/ajot.63.6.819
6. Mitcham, M. D., & O'Shea, B. J. (1994). Using audioteleconferencing to link occupational therapy graduate students in the United States and Canada. *American Journal of Occupational Therapy*, *48*, 619–625. http://dx.doi.org/10.5014/ajot.48.7.619
7. Trujillo, L. G. (2007). Distance education pedagogy and instructional design and development for occupational therapy educational programs. *Occupational Therapy in Health Care*, *21*, 159–174. http://dx.doi.org/10.1080/J003v21n01_12
8. Doyle, N. W. (2010). *Accommodating graduate student learning styles in post-professional online occupational therapy courses* (Unpublished doctoral dissertation). Boston University, Boston, MA.
9. McLeod, S., & Barbara, A. (2005). Online technology in rural health: Supporting students to overcome the tyranny of distance. *Australian Journal of Rural Health*, *13*, 276–281. http://dx.doi.org/10.1111/j.1440-1584.2005.00717.x
10. Thomas, A., & Storr, C. (2005). WebCT in occupational therapy clinical education: Implementing and evaluating a tool for peer learning and interaction. *Occupational Therapy International*, *12*, 162–179. http://dx.doi.org/10.1002/oti.3
11. Allen, I. E., & Seaman, J. (2012). *Changing course: Ten years of tracking online education in the United States, 2012.* Needham, MA: Sloan Consortium.
12. American Occupational Therapy Association. (2007). AOTA's Centennial Vision and executive summary. *American Journal of Occupational Therapy*, *61*, 613–614. http://dx.doi.org/10.5014/ajot.61.6.613
13. World Federation of Occupational Therapists. (2008). *Position statement: Inclusive occupational therapy education.* Retrieved from http://www.wfot.org/ResourceCentre.aspx
14. Sloan Consortium (2011). *The 5 pillars.* Retrieved from: http://sloanconsortium.org/5pillars
15. Fish, W. W., & Wickersham, L. E. (2009). Best practices for online instructors: Reminders. *The Quarterly Review of Distance Education*, *10*, 279–284.
16. Seok, S., DaCosta, B., Kinsell, C., & Tung, C. K. (2010). Comparison of instructors' and students' perceptions of the effectiveness of online courses. *Quarterly Review of Distance Education*, *11*(1), 25–36.
17. Gaytan, J. (2009). Analyzing online education through the lens of institutional theory and practice: The need for research-based and -validated frameworks for planning, designing, delivering, and assessing online instruction. *The Delta Pi Epsilon Journal*, *51*(2), 62–75.
18. Lewis, C. C., & Abdul-Hamid, H. (2006). Implementing effective online teaching practices: Voices of exemplary faculty. *Innovative Higher Education*, *31*(2), 83–98.
19. Richardson, P. (2004). Student development in an online post-professional master's program. *Occupational Therapy in Health Care*, *18*, 107–116.
20. Richardson, P. K., MacRae, A., Schwartz, K., Bankston, L., & Kosten, C. (2008). Student outcomes in a postprofessional online master's degree program. *American Journal of Occupational Therapy*, *62*, 600–610. http://dx.doi.org/10.5014/ajot.62.5.600
21. Steward, B. (2001). Technological dreams: The implications of new technologies for occupational therapy education and evidence-based practice. *Occupational Therapy International*, *8*, 145–150. http://dx.doi.org/10.1002/oti.142
22. Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., & Liu, X. (2006). Teaching courses online: A review of the research. *Review of Educational Research*, *76*(1), 93–135.
23. Knowles, M. S. (1968). Andragogy, not pedagogy. *Adult Leadership*, *16*, 350–352, 386.
24. Trumbull, E., & Pacheco, M. (2005). *The teacher's guide to diversity: Building a knowledge base. Volume I: Human development, culture, and cognition.* Retrieved from http://www.alliance.brown.edu/pubs/teach_guide_diversity/tgd_humdevcult.pdf
25. Moore, M. G. (1997). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22–38). New York: Routledge.
26. Moore, M. G. (2007). The theory of transactional distance. In M. G. Moore (Ed.), *Handbook of distance education* (2nd ed., pp. 89–105). Mahwah, NJ: Lawrence Erlbaum Associates.
27. Garrison, D. R., & Akyol, Z. (2009). Role of instructional technology in the transformation of higher education. *Journal of Computing in Higher Education*, *21*, 19–30. http://dx.doi.org/10.1007/s12528-009-9014-7
28. Garrison, D. R., & Archer, W. (2007). A theory of community of inquiry. In M. G. Moore (Ed.), *Handbook of distance education* (2nd ed., pp. 77–88). Mahwah, NJ: Lawrence Erlbaum Associates.
29. Gaytan, J., & McEwen, B. C. (2007). Effective online instructional and assessment strategies. *American Journal of Distance Education*, *21*(3), 117–132.
30. Doyle, N. W., & Jacobs, K. (2013). Accommodating student learning styles and preferences in an online occupational therapy course. *Work: A Journal of Prevention, Assessment & Rehabilitation*, *44*, 247–253.
31. Boston University. (2013). *Distance education: Online post-professional doctor of occupational therapy.* Retrieved from http://www.bu.edu/sargent/academics/programs/occupational-therapy/distance-education-online-post-professional-doctor-of-occupational-therapy
32. DiRenzo, M., Linnehan, F., Shao, P., & Rosenberg, W. (2010). A moderated mediation model of e-mentoring. *Journal of Vocational Behavior*, *76*, 292–305.
33. Schichtel, M. (2009). A conceptual description of potential scenarios of e-mentoring in GP specialist training. *Education for Primary Care*, *20*, 360–364.
34. Webb, A. K., Wangmo, T., Ewen, H. H., Teaster, P. B., & Hatch, L. R. (2009). Peer and faculty mentoring for students pursuing a PhD in gerontology. *Educational Gerontology*, *35*, 1089–1106.
35. Grant-Vallone, E. J., & Ensher, E. A. (2000). Effects of peer mentoring on types of mentor support, program satisfaction and graduate student stress: A dyadic perspective. *Journal of College Student Development*, *41*, 637–642.
36. Milner, T., & Bossers, A. (2004). Evaluation of the mentor-mentee relationship in an occupational therapy mentorship programme. *Occupational Therapy International*, *11*, 96–111.
37. Smith-Jentsch, K. A., Scielzo, S. A., Yarbrough, C. S., & Rosopa, P. J. (2008). A comparison of face-to-face and electronic peer-mentoring: Interactions with mentor gender. *Journal of Vocational Behavior*, *72*, 193–206.