Blended Courses: The Best of Online and Traditional Formats

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ABSTRACT

With the wide availability of educational technologies and the Internet, clinical laboratory educators are replacing some traditional face-to-face classes with online methods in their courses. This article summarizes current literature and practice for partly online "blended" courses. Blended courses can take advantage of the best of both online and traditional face-to-face instruction. The many advantages for educators and students include flexibility, convenience, and improved participation, however designing blended courses is challenging and time consuming. For optimal learning, educators should design a blended course by matching the appropriate methods with the objectives of the course. The pedagogy of blended learning is discussed and best practices are identified.

INDEX TERMS: blended instruction, educational technology, educational models, professional education, teaching methods

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INTRODUCTION

Online courses and online programs have been available for some time. Now many educators in clinical laboratory science and other fields are using a combination of online and face-to-face methods in the delivery of their courses. This has been called blended or hybrid instruction. Flexibility, marketability, and reduction of seat time on campus are three of the main reasons cited as reasons for using blended methodologies.[1,2,3] While "blended instruction" can apply to the blending of totally online courses with traditional classroom courses within a program, this article will discuss blended instruction within courses; that is, courses that contain both online and classroom instruction. Recent literature has addressed the effectiveness, advantages, challenges, and best practices of blended courses.

BLENDED COURSES

The amount of online instruction within a blended course can vary greatly and people disagree on the definition of "blended". Duhaney defines blended learning as "any combined use of electronic learning tools that supplement but do not replace face-to-face learning."[4] The Sloan Consortium, a consortium of institutions and organizations committed to quality online education, defines a course as blended/hybrid if 30-79% of the content is delivered online.[1] They use the terms "web-enhanced" if 1-29% of content is delivered online and "online" if 80% or more is online. This article will consider courses blended when any of the face-to-face time is replaced by online activity resulting in reduced "seat time" in the course, for example, the course meets face-to-face once a week instead of twice a week.

Allied health programs, medical schools, and nursing programs are using blended courses.[5,6,7,8,9] Lewin et al describe a blended course used to enhance and standardize the clinical curriculum for medical students assigned to clinical rotations in diverse settings.[6] Johnson et al assert that "the application of a blended approach to teaching and learning may offer a solution to the reported problems" of the challenges of teaching evidence based practice to nursing students.[5] The author's medical laboratory science program employs a

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variety of blended formats in courses such as Health Care Management, Clinical Correlations, and even clinical rotations. The Health Care Management course, for example, is one-third online using the Blackboard® course management system. The online sections include leadership, personnel management, education, and current topics. Current topics in health care are researched independently and then presented online by the students. The students are also responsible for leading online discussions about their topics.

EFFECTIVENESS

Many reports have found online instruction as effective as face-to-face instruction.[10,11] Now a Department of Education meta-analysis of research between 1996 and July 2008 has found blended instruction more effective than either purely face to face instruction or wholly online instruction.[12] The report noted that blended instruction often includes additional learning time and instructional elements not received by students in face-to-face classes.

A key factor in the learning effectiveness of a blended course is the extent to which the course accommodates the student's preferences. A student who hates online learning or lacks the discipline for it will not learn well during the online activities of a blended course. A student who hates coming to class at 9 AM may learn better during the online activities. It is incumbent upon the educator to try to design engaging activities online and face-to-face in order to optimize the learning for many different students with many different learning styles and preferences.

In blended courses more than traditional classes there may be multiple instructors each taking a role in the "blend." With more than one instructor, communication and collaboration is important in the design of the course and also throughout the course for optimum course effectiveness.

Advantages

With blended instruction, the course benefits from the best of both online and face-to-face methods. A summary of advantages of blended courses over traditional face-to-face courses are listed in Table 1. The most frequent advantages cited in the literature on blended instruction are flexibility and convenience of both students and educators.[3,8,13] Improved writing by students, participation by all students, and more time on task by students are also frequently mentioned.[13] Students' discussions are more thoughtful, and students are able to express themselves more clearly with time to think about the topic and proofread their submissions.[14]

Table 1. Advantages of Blended Courses

- Flexibility for both faculty and students
- Convenience for both faculty and students
- Participation by all students and more thoughtful participation
- Ability to use electronic tools and the Internet
- Independent learning by students

Of course, many of the advantages are also advantages of wholly online courses; for example, the many resources of the Internet can be employed. Educators can use interactive tools such as social networking, and they can use applications and resources that reside on the World Wide Web. As Ratka says, "Web 2.0 tools may increase learner engagement, improve interactivity, and allow tailoring of education to the learner."[7] Other advantages of blended instruction for educators include the ability to provide learning activities for multiple learning styles,[15] and more thoughtful discussion, and reinforcement of concepts presented face-to-face.[6,16]

Advantages mentioned by students include the ability to pilot one's own learning process, learning how self-motivated or self-disciplined one is, and becoming more organized and self-disciplined. Having copious amounts of information and study materials available, participating in more action-oriented learning, and developing technological sophistication are other advantages cited by students.[13,17,18]

From an institutional perspective, there are several reasons to utilize blended instruction.[15] Blended courses decrease the time on campus for locations with difficult commutes, classroom space limitations, or students in distant clinical rotations. Of course, one of the main reasons that clinical laboratory science courses are blended rather than wholly online is that most

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laboratory sessions are best done face-to-face.[14] On the other hand, in clinical rotation courses, interaction of the campus faculty with both the students and the clinical instructors or coordinators can be facilitated with blended formats. Exams and cognitive content, including links to supplemental resources, can be standardized for students doing rotations at different sites.

Challenges

One of the most frequent complaints about blended instruction is that it takes more time for the educator and for the students than traditional courses. More time spent by students on the course is beneficial if it results in more learning. Students should not spend the extra time just doing busy work. For the educator, it can be time-consuming to thoughtfully integrate both online and traditional methods in the design of the course. It is not enough just to put an in-class activity online without thinking about how the students' interaction with the content varies with the medium. The educator must prepare in-class activities as well as online activities, including daily monitoring and responding to student submissions.[13] Having to mentally switch between on campus and online methods is another challenge for educators.

Other challenges include faculty discomfort with technology/time to learn, insufficient technical support, and inadequate hardware in the office or classroom.[13] Technology is also a concern of students, who mention the inability to access the Web at home, slow screen loading, difficulty attaching files, difficulty navigating through the online course, and difficulty learning the technology or intimidation by technology. Although they were comfortable with the technology, one third of the students in one university's blended learning initiative reported technical problems.[17]

Another area of students' concern is course management.[13] Challenges cited include unclear instructions, trouble finding the learning module that is active, course information posted in too many areas, and complex course calendars. Online discussion is also problematic. Students may find it difficult to follow discussions because the content is too complex, the flow of asynchronous discussion is too slow, and too many discussions are occurring at one time. Groves and O'Donoghue mention the "notorious" difficulty in stimulating good discussion and motivating students to learn.[16] Bogle et al state that online discussions rarely move past exploration and discussions typically decrease as students move through a problem from exploration to resolution.[19]

Educators are not the only ones who think that blended courses are time-consuming. Students perceive that blended courses are more difficult than traditional courses, they have more assignments and larger amounts of material to read, and they feel as if they never get a break from the course as it is always "on."[17,19] Some student concerns are those related to the online format: students not fulfilling their responsibilities (leading or participating in online discussion or group work), reduced camaraderie with peers, reduced face-to-face exposure to teacher, and reduced class-to-teacher interaction.[17,19] Faculty also explain that too little personal interchange during the course blocks the evolution of extemporaneous dialogue.[13] Randolph mentions that the biggest challenge of a blended course is that students do not know that it will have a blended format.[20] Attrition in the first two weeks is common in this case.[17] Some schools have solved this by identifying courses as blended.[21]

Knowing these challenges/concerns of faculty and students, summarized in Table 2, allows an educator to plan as best as possible to avoid these concerns. For example, making the course instructions clear and posting items in a consistent manner will minimize some of the frustration of students.

Table 2. Challenges of Blended Courses

- Technology issues for both faculty and students
- Feeling as if there is no break from the course for both faculty and students
- Time and work to prepare and deliver the course
- Difficulty designing and blending the course content
- Difficulty managing the course, especially online discussions

BEST PRACTICES

Tremendous variation occurs in the design and execution of blended courses. As Welker and Berardino

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say, "If you've seen one blended course, you've seen one blended course."[13] Nevertheless, the literature identifies some best practices. While some of the recommendations also apply to wholly online courses, blended courses provide some additional challenges and thus additional best practices.[22,23,24] In fact, both Reynard and Bogle suggest that faculty should have experience teaching both face-to-face and wholly online courses before tackling a blended course.[2,19] Table 3 summarizes best practices for blended instruction.

Table 3. Best Practices in Blended Courses

Technology
Educator and student access
Educator and student competency
Available support
Blending the course
Intentional blending of online and face-to-face classes
Variety of activities
Online community-building
Collaborative learning projects
Student-led research and reflection
Course management
Course begins in the classroom
Expectations set early, including educator availability online
Continual monitoring of online activity
Immediate feedback and grading

Sufficient support by the institution is critical for success with blended courses.[19] Technologies (both faculty and classroom hardware and software) need to be current with little or no "down" time. Technical support needs to be available to educators and students. Students without access to a home computer or Internet can use university or hospital computers, however these students have difficulty getting online materials and joining discussions in a timely manner. Educators need to consider their students' Internet access and watch the size of the files that they post. This is especially true when posting media files such as a PowerPoint files with hematology images or a video of molecular techniques.

Program-wide benchmarks or standards for the design of blended courses lead to less confusion for students, especially those who are taking more than one blended or online course.[19] For example, educators may be asked to standardize mechanisms of secure and documented student communication. At some institutions, instructional designers provide such standardization.

Having the appropriate technology and support, the educator needs to identify and develop the course content appropriate for online instruction.[2,17,20] Then both traditional face-to-face meetings and online segments must be integrated with each other. Reynard says, "The goal in the design of the instruction is to make the experience as 'seamless' as possible for students, providing intentionality for each environment and the technology used. This intentionality must emerge from the learning objectives of the course, as well as the engagement of the student throughout and the effective use of technology to heighten interaction and to support the production of learning….In hybrid courses, face to face class meetings should be a method of scaffolding learning rather than the central instructional arena as in conventional courses."[2] As the Penn State Blended Learning Initiative describes it, "Classroom time can be used to engage students in advanced interactive experiences. Meanwhile, the online portion of the course can provide students with multimedia-rich content at any time of day."[17]

Starting and ending the blended course in the classroom is a good practice. At the beginning, the educator can explain how the course will work, set expectations, and demonstrate the technology.[2,17] At the outset, a plan for the teacher's online availability is critical. Without such guidelines both the educator and the students feel as if the course is always "on." Although immediate feedback is important in online settings, responses within 24 or 48 hours are still reasonable. After all, the educator has other classes to teach and a life outside of teaching. Meeting face-to-face at the end of the course is helpful to bring closure and have students evaluate the course.

Relevant and immediate interventions need to occur continually but especially when students are stuck or frustrated in the online segments. Most educators provide feedback using their own judgment, developed through experience and instinct. Hummel suggests that a feedback model be developed for blended courses.[25] He goes on to say that "students should not only be told whether they have given the right answer (feedback), but also be stimulated for providing a correct answer

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(positive reinforcement), or prompted when they need more information when thinking about correct answers (cueing)."[25] Grades for assignments should be posted promptly.

In the blended course, the face-to-face classes are a time to scaffold the online learning and cover objectives that are not addressed as well online. Online and in-class learning should be integrated. Educators need to design the whole course beforehand so that the course moves toward your objectives and does not confuse the students by hopping around content-wise. On the other hand, it may be more appropriate to let the course evolve during graduate or continuing education.[4] In these cases, the educator can adjust the assignments or discussion depending how the course is going. The course can also be adjusted for the needs of the students. The educator needs to be comfortable and flexible with both the content and the technology. The author learned that it is better to alternate online sessions with face-to-face sessions as opposed to scheduling several online sessions in a row. As some students are not accustomed to the discipline needed for online learning, the author found that scaffolding and review of online content is necessary in face-to-face class sessions.

The activities in a blended course should develop a sense of community among students and collaborative knowledge building. For the student, collaborative assignments create immediacy to the learning and continual connection with peers. Social presence, the degree to which learners feel socially and emotionally connected with others online, is developed by affective expression, open communication, and group cohesion which are all affected by educator behaviors and course design.[26] On the other hand, teaching presence is the degree to which learners realize personally meaningful and educationally worthwhile learning outcomes. Both sense of community and interaction with the educator lead to perceived learning and satisfaction.[2]

The online activities should provide opportunities for self-reflection and self-discovery. Self discovery should be encouraged by open-ended questions and additional resources and hyperlinks. Self-directed learning helps students learn how to learn for themselves and motivates adult learners. For example, final projects might show self-direction in individual research papers or self-researched bibliographies,[2] and self-reflection in blogs or journals. The author's program requires students in clinical rotation courses to submit daily journals and weekly reflections. Students choose from a broad range of reflection topics, such as "What is or should be the laboratorian's responsibility, involvement, and leadership for their professional community?" and "What have you learned about open-minded and ethical decision-making and action in health care?" These journals and reflections force students to articulate their reflections, and they also provide valuable feedback about the rotations to the clinical hospital coordinators, the campus faculty, and the program director.

Reynard believes that synchronous chat is one of the most dynamic interactions with students.[2] She has students do readings or research before the chat session and then has small groups discuss what they have read. Other educators use synchronous online office hours. They tell the students that they will be available online at a certain time each week to answer questions or lead review sessions. Internet-based instant messaging applications using text, voice, or video such as Skype or iChat can be used as well as Blackboard.[27]

In both the face-to-face classes and the online segments of a blended course students should be active. Because learners need to be engaged, the online segments should not consist solely of lectures, even if they are narrated or video recorded. The more varied the inputs, the more likely that students will engage with content more effectively. The blended format lends itself to providing stimuli that will help students with a variety of learning styles.[8,15] Visual learners are more successful with hyperlinks to text and personal blogs. Auditory learners appreciate multimedia resources such as video or narrated PowerPoint presentations. Some students will learn more from synchronous online discussions and chats than others who will benefit from the time to reflect that asynchronous discussions provide. So it is beneficial to have multiple types of assignments and delivery modes in blended courses.[27] Too many different formats and too many choices by the students can lead to confusion, however.

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ASSESSMENT

Assessment and grading of students can be problematic in blended courses. Students should understand what is graded and how the course grade will be calculated. If participation is graded, which is recommended,[27] students should know the criteria. How is face-to-face participation or attendance graded? How often do they need to post online comments? How is the quality of their participation graded? Giving students a model response and/or a rubric is beneficial. Ungraded classroom assessment techniques (CATs) are good to use to see how the students are doing throughout the course.[28]

Educators should evaluate the course itself throughout the course and afterwards.[29] Suggestions by students are helpful, especially those regarding course management. Students have very strong emotions regarding the online format and this may be reflected in their suggestions. Very large classes can impair learning, so the educator needs to determine whether the methods used were appropriate for the size of the class. As every course is different, ongoing analysis and reflection will inspire meaningful changes to enhance student learning.[19]

CONCLUSION

Blended instruction can be an excellent way to teach a clinical laboratory science course. Blended courses work out especially well for courses with face-to-face laboratory sessions or clinical rotations. The educator can exploit the advantages of both traditional face-to-face instruction and online instruction to facilitate student learning. With careful planning and ongoing modifications to the course, the educator can optimize student learning by maximizing the advantages, minimizing the challenges, and adopting best practices.

Blended courses in their most effective form take a great deal of thought and work by the educator in the design and implementation of the course. The reader is encouraged to visit the Sloan Consortium web site and web sites of member institutions.[29, 30]

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