COMMENTARY

The Digital Bridge
A Boomer's View of Course Management Software in the Gen Y Classroom

Michael W. Shreeve, DC, Palmer College of Chiropractic Florida

Today's Generation Y student population entered adulthood in a world immersed with digital technology. This commentary discusses the migration of educators, primarily from the Baby Boomer generation, in the use of digital technology as part of an educational process designed to engage current student cohorts. (J Chiropr Educ 2009;23(2):174–177)

Key Indexing Terms: generation gap; graduate education; instructional technology

INTRODUCTION

Course management systems today sprang from the pie-in-the-sky thoughts of entrepreneurs who promised the moon with concepts such as "if you build it, they will come," faculty will embrace it, cost savings will be realized, trees will be spared—and the list goes on. Universities continue to explore and research methods of expanding the traditional, lecture-based classroom by incorporating online learning and course management software (CMS) systems as part of the instructional methodology to achieve a variety of institutional objectives. These objectives include increasing student recruitment and satisfaction, achieving cost savings, and meeting the distinctive learning needs posed by the current generation of students commonly referred to as Gen Y, or the Net generation.[1] Members of the Net generation (1980–1994) have become digital natives as they have grown in a world immersed with digital technology incorporating personal computers, the Internet, instant messaging, file downloading, and gaming. University faculty and senior administrators, predominately from the Baby Boomer generation (1946–1964), are being challenged with

using information technology to meet the preferred learning, communication, and educational delivery methods of these digital natives. Members of the Boomer community typically have entered adulthood without the use of digital technology for communicating, information gathering, researching, or learning and are digital immigrants in the use of information technology.

At a chiropractic college campus established as a digital campus enabled with wireless technology and using a CMS system, 68% of the student population is represented by characteristics of the Gen Y population and over 50% of the academic faculty is represented by the Boomer generation. This Boomer generation of faculty often enters the academic community after a period of time as a clinical provider in private practice and is tasked with learning not only about the instructional process and educational pedagogy, but is also challenged with learning and incorporating technology in the classroom.

The purpose of this article is to discuss the use of a CMS system to augment traditional didactic instruction in the chiropractic classroom. It is presented in the context of meeting the learning needs of the Gen Y student population and exploring the benefits, challenges, and potential of digital technology in the quest to improve educational pedagogy. Reflection on the use of CMS technology in the chiropractic classroom leads me to two questions. What

does a Gen Y student expect of advanced digital technology in the educational experience? Is CMS a good vehicle for authentic case investigation to produce a better quality critical thinker?

DISCUSSION

Implementing a CMS system in education can function very much like taking a patient history. If one component is missing, it is not possible to have a clear understanding of the problem. If a clear understanding of the problem cannot be ascertained, then potential benefits cannot be realized. Hardware and software alone do not make a CMS. It requires teamwork, training for faculty and students, time, and the willingness to adapt to a change in educational pedagogy.[2,3] The learning preferences and communication styles and characteristics of the Net generation must be considered when designing courses and integrating CMS technology. A well-planned integration of a CMS system into the educational process has the potential to benefit both the educational institution and its students.

Gen Y Expectations

What does a Gen Y student expect of advanced digital technology in his or her educational experience? Members of Gen Y, as described by Cluett and Skene in *Teaching and Learning Forum*, are those individuals who grew up with the Internet and rely on instant messaging and downloading. They require choices in everything they do, including education. They are accustomed to responses to questions around the clock, every day of the week. They have a belief system that technology can, and probably will, solve most problems. Members of the Net generation seem to prefer almost any method other than simply being "taught."[4]

Students, even those of the Gen Y era, require concrete forms of motivation to use and accept new instructional pedagogies brought about by technology.[3] Students are highly motivated to participate in CMS course components that are directly correlated to a course grade. My experience in using a CMS system as part of the instructional method for six distinct courses over several quarters indicated that student use of Web-based formative learning games was highest in courses when there was a point incentive associated with the final course grade for using these learning tools. Students in these classes

also verbally expressed that the formative learning games were helpful in their comprehension of course material. In contrast, for courses that included Web-based formative learning games without an incentive toward a final course grade, student use of the technological learning tool was minimal.

Another form of student motivation to use CMS course tools is confirmation of their mastery of learned concepts. The immediate feedback that can be provided from online assessments or quizzes gives students a regular check of their progress. These evaluations must also provide corrective feedback to maximize their benefit.[5] In order for students to have successful learning experiences they need to understand what they know and what they have yet to learn. When students can immediately see that they are performing well on learning outcomes, then we may assume that the combination of the instructional process and the student engagement has produced this positive outcome. When students have a positive feedback, the tendency is for them to reach out for another positive event and continue to use Web-based instructional tools.

Common demotivators for students to use a CMS system include failure of faculty members to post all course material, particularly those that indicate changes in schedule, instructor practices that discourage faculty–student contact, and inadequate institutional support for student system access or technological problems.[6] Diminished faculty utilization of a CMS system may result in diminished student utilization and perception of its usefulness in their educational process.

Implementation of CMS technology poses challenges for the institution in the areas of faculty training, technology infrastructure, and sufficient technical support to meet the 24-hour, 7-day-a-week Gen Y expectations of technology. Lack of faculty training and Web page design expertise can result in minor difficulties, such as incorrect links to course materials, and lead to student confusion and frustration with the technology.[7] Frequent slow response times, lack of connectivity, and various other technical difficulties are barriers to utilization by both students and faculty members.[6,7] It is difficult to gain acceptance and utilization once confidence in the system has been compromised.

Perceived ease of use and perceived usefulness appears to greatly affect the use of CMS.[8] "For most teachers and students, the main obstacles to information technology implementation are lack of motivation and lack of professional incentives.

To overcome these barriers, institutional support is needed for both students and teachers."[9] These two barriers, combined with less than adequate institutional support for students or faculty, can result in an underutilized system.

The use of a CMS system along with classroom instruction can benefit both the faculty and students. It provides structure and organization that can enhance learning outcomes.[10,11] By integrating CMS through the use of a welcome message and a calendar of course events (eg, assessments, guest speakers, etc.), open communication can exist between the instructor and the students. CMS systems enable instructors to easily evaluate course design and effectiveness through various tracking reports.[11] Tracking reports provide information about areas of the course most frequently accessed by students and provide information about how students perform on practice exercises. Instructors can then modify course tools or implement new instructional strategies to meet student learning needs. Another significant benefit is less note-taking for the student, which can allow greater interaction in the classroom.[6] More material can be covered using less face-to-face time with no apparent loss of course performance by the students.[12] The full potential of CMS systems in education will not be realized until faculty can agree to use this tool to improve educational quality.[13] Faculty training and the initiative to learn and embrace new technology and changes to pedagogy resulting from technology are an important component, along with technical infrastructure and support, in successful integration of a CMS system.

CMS and Critical Thinking

Is CMS a good vehicle for authentic case investigation to produce a better quality critical thinker? Students learn differently today than previous generations. The ability of Net generation members to intuitively use technological tools and easily multitask does not always equate with academic success. Through the multitudes of available technologies, students are faced with a vast amount of information in their learning process. Developing critical thinking skills is essential for students to evaluate and assimilate this information in their education.[4]

Enhancing student knowledge in a scientific-based community must incorporate practice-based, authentic case studies.[14] Authentic case studies are those that relate to actual patient cases, particularly as the students perceive them being relevant to their education. Rather than recite a list of learned facts, education offers an understanding of the facts and the ability to clinically reason through problems. Using a CMS system effectively can help engage students to collaborate and integrate the lecture with small group authentic case investigation driving students to develop and exercise critical thinking skills.[15] Threading authentic cases into a course provides value and facilitates the development of the critical thinking skills that our Gen Y graduates need.[4,16] By reaching the student population of digital natives through familiar technology and tools, we may be able to open these doors and develop critical thinkers.[14,16,17]

Members of Gen Y value technology, but not at the expense of the education that they can achieve through face-to-face interaction from the passion, skill, and expertise of experienced educators.[4] Recent research indicates that student attendance is diminished when faculty members post all course material without providing added educational value through classroom discussion.[18] We need to incorporate both lecture and small group study to provide more learners with greater opportunity. As Jamison states, "... by using a combination of different teaching/learning formats it is possible to provide active learning opportunities in which exposure to factual information takes place in a variety of clinically relevant scenarios."[19]

Often research on the use of information technology in education focuses on comparing completely Web-based instruction, or computer-assisted instruction (CAI), with traditional face-to-face didactic instruction. Some of this research, as discussed by Rose, has had mixed results.[7] Some of these studies report positive results in the areas of student confidence, satisfaction, and performance, while others show no statistically significant difference in student performance outcomes. There is limited current research that measures results achieved using a hybrid educational model of traditional instruction enhanced with Web-based course components. One of the few research studies on a hybrid model conducted by Alshare and Miller[20] was designed to measure their hypothesis: "There is a significant difference in students' performance between Web-based and a combined format, partially Web-based and partially traditional (face-to-face)." The outcomes of this small study appear to support the concept that CMS can improve learning and therefore grade performance.

CONCLUSION

Our job as educators is to understand how Gen Y students learn best and adapt to these changes. We need to fit the tools to what students want today in an educational opportunity.[17] With a large part of university faculty being comprised of digital immigrants from the Boomer generation, it can be a challenge to understand how digital natives of the Net generation learn and successfully use today's technological tools as part of our educational pedagogy.

CONFLICT OF INTEREST

There are no conflicts of interest or funding sources associated with this commentary.

Address correspondence to: Michael W. Shreeve, DC, LCP, Associate Professor-Academic Affairs, Palmer College of Chiropractic Florida, 4777 City Center Parkway, Port Orange, FL 32129; michael.shreeve@palmer.edu.

REFERENCES

1. Tapscott D. Growing up digital: the rise of the Net generation. Columbus, OH: McGraw-Hill; 1998.
2. Kwun O, Alshare K, Grandon E. Instructor and student perceptions of the online teaching/learning environment: a cross-cultural study. Acad Educ Leadersh J 2005;9(3):105–30.
3. Wills S, McNaught C, ed. Interactive multimedia in university education: designing for change in teaching and learning. Amsterdam: Elsevier; 1994, pp. 155–64.
4. Cluett L, Skene J. A new(er) dimension to online learning communities: using web tools to engage students. In: Student engagement: Proceedings of the 16th Annual Teaching and Learning Forum; Jan 30–31, 2007. Perth: The University of Western Australia. Available at: http://lsn.curtin.edu.au/tlf/tlf2007/refereed/cluett.html. Accessed Feb 21, 2008.
5. Guskey TR. The rest of the story—the power of formative classroom assessment depends on how you use the results. Educ Leadersh 2007/2008;Dec/Jan:28–35.
6. Cohn ER, Stoehr GP. Multidisciplinary application of CourseInfo course management software to motivate students in traditional course settings. Interact Multimed Electron J Comput Enhanced Learn [serial on the Internet] 2000;April 2(1). Wake Forest University. Available at: http://imej.wfu.edu/articles/2000/1/index.asp. Accessed March 20, 2008.
7. Rose KA. Development of an on-line advanced clinical topics course. J Chiropr Educ 2002;16(2):122–7.
8. Alshare K, Grandon E, Miller D. Internet usage in the academic environment: the technology acceptance model perspective. Acad Educ Leadersh J 2005;9(2):81–97.
9. Taradi S, Taradi M. Expanding the traditional physiology class with asynchronous online discussions and collaborative projects. Adv Physiol Educ 2004;28(4):78.
10. Katz RN. Balancing technology & tradition—the example of course management systems. EDUCAUSE Rev 2003;38(4):48–58.
11. Stone V, Bongiorno R, Hinegardner P, Williams M. Delivery of Web-based instruction using Blackboard: a collaborative project. J Med Libr Assoc 2004;92:375–7.
12. Bassano JM. The development of an on-line self-guided diagnostic imaging tutorial and its impact on course performance. J Chiropr Educ 2005;19:81–4.
13. Zemsky R, Massy W. Thwarted innovation–what happened to e-learning and why. West Chester, PA: The Learning Alliance for Higher Education; June 2004. The Weatherstation Project, sponsored by the University of Pennsylvania.
14. DeBourgh G. Simple elegance: course management systems as pedagogical infrastructure to enhance science learning. Technol Source [serial on the Internet] May/June 2002. Available at: http://ts.mivu.org/default.asp?show=article&id=925. Accessed March 21, 2008.
15. Brahler CJ, Quitadamo IJ, Johnson EC. Student critical thinking is enhanced by developing exercise prescriptions using online learning modules. Advan Physiol Educ. 2002;26(3):210–21.
16. Herrington J. Authentic e-learning in higher education: design principles for authentic learning environments and tasks. In: Reeves TC, Yamashita S (eds.), Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education; 2006:3164–73. Chesapeake, VA: AACE.
17. Foreman J. Next-generation educational technology versus the lecture. EDUCAUSE Rev 2003;July/Aug: 13–22.
18. Massingham P, Herrington T. Does attendance matter? An examination of student attitudes, participation, performance, and attendance. J Univ Teaching Learning Pract 2006;3(2):82–103.
19. Jamison JR. Teaching diagnostic decision making: student evaluation of a diagnosis unit. J Manipulative Physiol Ther 2006;29(4):315.e1-315.e9.
20. Alshare K, Miller D. Combining traditional and web-based learning environments: an effective instructional approach. J Trans CIS/MIS 2005;5(1):13–23.