An Overview of Online Technologies that Improve Engaged Learning
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High-quality, online instruction is a necessity in today's global economy. Students' and instructors' demanding schedules have led to a need for convenient and flexible education models. As a result, there has been tremendous growth in online education in recent years as universities transition face-to-face classes to online course offerings.

A recent report estimates that online enrollment in higher education in the United States has doubled since 2002 to 3.94 million students in fall 2007.[1] The engagement of participants in online courses is especially important because "without intentional engagement of students, little, if any, learning will take place."[2] Therefore, online instructors continually seek methods to engage students in the learning process, and technology is at the forefront of these methods.

Through the use of online technologies—such as discussion boards, chat sessions and blogs—educators can build an online learning community in which they virtually interact with participants, facilitate engagement and encourage virtual peer interaction.[3]

Many online learning environments seek to replicate traditional classroom instruction by focusing on knowledge acquisition through a single knowledge authority—such as the instructor—and are not particularly supportive of participant engagement.[4] This design flaw in online courses is due, in part, to instructors' limited knowledge about how to create an engaging online course. Technology advances are so rapid that instructors rarely have time to identify, test and integrate these developments into their online courses.

Today's online students, however, are clamoring for more technology—to build relationships, communicate in real-time, collaborate within an online community and engage in the learning process. Furthermore, student engagement coupled with a learner-centered approach—rather than a teacher-centered approach—has proven to decrease attrition and improve learning outcomes.[5]

Here, we explore methods for engaging online students through effective course design and technology integration. Technologies for engaging students in an online environment—such as discussion boards, chat sessions and blogs—as well as common and free web-based and mobile applications—such as Twitter, Skype and YouTube—are discussed to provide educators with a better understanding about available resources. This discussion also describes the roles these tools can play in enhancing learner engagement within online courses.

Traditional technologies

Technologies traditionally used to promote learner-centered engagement and peer interaction include discussion boards, chat sessions and blogs. These technologies can be used in an online course to engage students in a socialization process, such as a virtual icebreaker to stimulate communication.[6]

Discussion boards promote participant engagement by providing a way for participants to increase their knowledge through participant-driven content or a forum for peer review and exchange. Unfortunately, there is little evidence to show that discussion boards deepen analytical and evaluative skills. In fact, students often struggle to move beyond sharing knowledge to recognizing, understanding and beginning their own process of analysis.[7] Furthermore, posting delays in discussion board communication are problematic when students need immediate feedback or when some students lurk, meaning they learn from others without making a significant contribution.[8]

Online chat sessions encourage spontaneous student-to-student and student-to-instructor interaction that may build positive relationships and the foundations for learning communities.[9] In addition, chat sessions are often preferred instead of discussion boards because they overcome the communication delays that frustrate discussion board users. Like discussion boards and chat sessions, blogs also involve students in the learning process by allowing them to post their own content, directly to the web. Course-related blogs provide a forum for students to share their learning, ask questions to peers, discuss a topic and comment on their reactions to the course or assignment. Research has shown that the use of blogs substantially enhances participants' overall learning experience.[10]

Wikis promote student collaboration by providing a space where students can create and edit content online. This is useful for engaging students when group assignments involve defining or researching topics or when an entire class is required to contribute to the final work product.[11] In general, group assignments and projects are an important part of most academic courses because they promote learning communities and help online students overcome physical separation as well as feelings of disconnection, isolation and lack of support.[12]

When effectively designed, these activities encourage students to develop relationships with other students in which they can explore and expand their existing knowledge base together. As with any type of group work, however, instructors need to help teams identify how they will work together and ensure the workload is equitable among all team members.

Peer assessment exercises are central to group activities and individual learning. Engaging students through peer assessments requires them to collaborate on assessment criteria and aids in self assessment and reflection.[13] In fact, linking group activities that necessitate the involvement of group members to the assessment process can improve engagement.[14] The potential downside of peer assessment is the tendency for students to favorably grade their peers, regardless of actual peer performance or peer knowledge, and students' evaluations of one another's work may be biased if they do not have a clear understanding of the assessment criteria.

Web-based applications

In addition to traditional technologies, integrating other—often free—web-based technologies that may be coupled with these tools can take online courses to an even higher level of engagement. Many of these technologies can be used as a complement to exiting online course management systems and may extend learning opportunities through the use of handheld or mobile devices, such as a Blackberry, iPhone or iPad. Twitter and Google offer several free applications that can be used to foster engagement in online learning environments. Twitter can be used to communicate with students via handheld or mobile devices. Many students already use Twitter on a regular basis and are likely to respond to information delivered through this platform. It is important to note, however, that Twitter feeds may not be as effective for communicating with a student population that does not generally have handheld or mobile devices or are not continually connected to the internet.

Using a shared Gmail (e-mail) account is also useful for encouraging student collaboration, because it can also be used to communicate with students via handheld or mobile devices. This technology facilitates instructors in relinquishing the role of being the sole source of information. It instead fosters student engagement through an informal peer mentoring process by answering one another's questions via a shared e-mail account.

It has often been noted that communication within online, text-based systems does not always flow as naturally as in face-to-face settings. To address this issue within online learning environments, several audio and video communication technologies—such as the Wimba Collaboration Suite (www.wimba.com) or VoiceThread (www.voicethread.com)—have been developed to facilitate student engagement in online classes. In addition to communication through application sharing, instant chat, virtual office hours and live discussions, these

technologies can be used to replace text-based feedback on assignments with asynchronous audio feedback. Research suggests students overwhelming prefer audio feedback over the more traditional methods of text-based feedback and that they have few negative perceptions of the technique even though it is asynchronous.[15]

Collaborative tools

In terms of collaboration tools, applications such as Skype, www.PowWowNow.com and Google docs make it easy for students and instructors to set up conference calls, web meetings or share documents for free. To create online content, students and instructors can use authoring tools such as Jing (www.jingproject.com), CamStudio (www.camstudio.org), ScreenToaster (www.screentoaster.com) and PodBean (www.podbean.com). These applications allow users to make screen recordings, create podcasts or vodcasts (video podcasts) and much more. One of the main uses of such content often includes expert interviews, pre-recorded lectures, how-to instructions for assignments, audio feedback on assignments or recorded project presentations.[16]

Finally, instructors can further enhance their online courses by including free, online content that is readily available through applications such as YouTube, TeacherTube (www.teachertube.com), iTunes and iTunesU (also known as iTunes University), a part of iTunes where users can download content specific to a particular university or course. Many universities—including Stanford, Oxford and Berkeley—now have iTunesU sites, and some lectures and entire courses are available to download for free.

These resources and ideas provide guidance for educators about how to integrate these tools within online learning environments. Online education is well established in academia; however, the design of the learning environment and to the degree to which students are engaged is a constant challenge for many educators. To deliver the highest quality online education, students should be appropriately engaged in learning exercises.

Technology that is integrated into the course design effectively fosters student engagement, builds a learner-centered environment and makes course content come alive. Instructors who do this well can expect to achieve enhanced student engagement as well as higher levels of learning and more efficient classroom management.

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