iPods and iTunesU in Online Education

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Abstract
The expansion of online education has led to concurrent growth in emerging technologies being implemented in an attempt to enhance the learning environment for today's students. A qualitative approach was utilized through blog entries and a focus group to explore student use and perceptions of integrated technology in iPods and podcasting through iTunesU. The findings provide insight into the Net generation of students and their interaction with technological tools employed in online or distance education courses.

Introduction
Online, distance, or e-learning education in the United States has grown at unprecedented rates with online enrollment accounting for nearly 20% of total enrollment for institutions of higher education. Over the past five years, the number of students taking at least one online course in the United States has more than doubled (Allen & Seaman, 2007). As enrollments continue to increase and funding for building and infrastructure expansion decrease, most universities see online course delivery as a strategically effective and cost efficient method of accommodating growth. Despite this rapid growth, only 2.2% of students in a nationwide survey preferred online only classes (Kvavik, 2005). Yet, over 70% of students reported preferences for moderate to extensive use of information technology in the classroom. Opponents argue that online education is a poor substitute for face-to-face classroom instruction and that the delivery of course material and student comprehension and retention are marginalized in an online asynchronous format (Bork, 1997; Errington, 2001). In contrast, a growing body of literature advocates that online education, which includes the integration of new technologies combined with flexible learning formats, may more effectively engage today's "Net generation" of students (e.g., Conole, de Laat, Dillon, & Darby, 2008).

Although cost effectiveness may be a sufficient rationale for the integration of online learning, Sharpe, Benfield, Lessner, and DeCicco (2005) argue that a focus on issues such as student access and facility limitations fails to acknowledge the learner's perspective. Today's students are fundamentally different from previous generations in the way they process information and communicate (Oblinger & Oblinger, 2005). Today's students prefer to receive information quickly, are adept at processing information and multi-tasking, use multiple communication channels to access information and communicate with friends and instructors (Oblinger & Oblinger), and use a variety of technological tools to facilitate and support their learning (Conole et al., 2008).

Two such complementary tools receiving growing attention in the delivery of asynchronous online course

content are iPods and podcasts. The similar nomenclature gives the false impression that podcasts are only accessed through iPods. "Podcasting is a method for distributing digital video and audio contents over the Internet" (Lazzari, 2009, p. 28). Users first subscribe to a podcast of interest. Content is then updated automatically and is available for download onto any handheld mp3 player (Campbell, 2005; Lazzari; Lum, 2006). The use of podcasts and iPods or other portable media players is increasingly being integrated into e-learning environments (e.g., Campbell; Hoganson & Lebron, 2007; Lazzari; Lonn & Teasley, 2009; Lum). Questions, however, remain about a potential mismatch between student personal use of technology and student preferences for technologies used in a learning environment (Kennedy et al., 2006). More in-depth and targeted studies are needed to determine how students are using technologies in their education and what they think about these new technologies. The purpose of this study was to examine student use and perceptions of integrated technology for online course delivery, specifically the use of iPod Touches and enhanced podcasts and videos delivered through iTunesU. We sought to examine specifically how students were using these new technologies in an online course environment and whether portable mobile devices such as iPods actually contribute to student learning.

Methods
Potential subjects were randomly selected from an upper division undergraduate Distance Education course at a major public university in the southeastern United States and invited to participate in the study. Invitations to participate in the study were sent to 20 students using the email address each student provided to the university. An initial invitation was sent at the beginning of December with follow-up emails sent on

December 15, 2007 and again on January 3, 2008. By January 7, thirteen of the twenty randomly selected students had agreed to participate in the study for a response rate of 65%. The criteria set for students who agreed to participate included the following: (1) take possession of and be responsible for returning an Apple iPod Touch for the semester; (2) complete weekly blog entries describing their general experience with the course delivery methods as well as their use of the iPod; and (3) attend an orientation at the beginning of the semester and participate in a focus group towards the end of the semester. Due to scheduling conflicts, seven of the thirteen students participating in the study attended the focus group session.

The course selected for the study was an asynchronous online class that has been taught for four years using an integrated online learning platform (i.e., Blackboard Vista). Several modifications and enhancements were made to the course in an effort to further and more effectively deliver the material and engage students. In addition to offering course material through the Blackboard (Bb) Vista learning platform (with asynchronous lectures, virtual field trips, videos, and supplemental readings), audio-visual course material (i.e., enhanced podcast lectures & pre-recorded videos) was also delivered through Apple's iTunes software using the iTunesU platform. As mentioned previously, study participants received an iPod Touch but were not given specific requirements regarding use of the iPod for course material. Weekly blog entries were recorded by each student through a dedicated blog site developed and managed on a university server. A focus group was conducted in the second half of the semester and was facilitated and audio taped by one of the researchers with assistance from two research assistants.

Data were analyzed utilizing open and axial coding by each of the researchers, with codes and themes developed based on student responses. Inter-rater reliability is pertinent when interpretation is complex or latent constructs are involved, but since these data did not fit those criteria, factoring inter-rater reliability would have been superficial and inflated due to the pragmatic data. The intent of the blog entries was to provide weekly data while students were immersed in the experience. The focus group session was intentionally scheduled in the second half of the semester for the same immersion consideration and to avoid potential bias had it been scheduled after grades were earned in the class.

Results
Open and axial coding of the blog entries and focus group responses provided insights into several aspects of

students' lives, their perspective on education and online learning, and the use of technology. Emergent themes from blog entries and focus group responses included the positive use of the iPods and iTunesU as well as both the convenience and the challenges (i.e., frustration) over technical issues. We report the data in chronological order to maintain a storyline that adds additional relevance in considering the pedagogical implications at various points in a semester.

Results from the first week's blog entries primarily focused on their excitement with the iPod Touch. The following entry by student A was representative of the convenience theme that arose initially:

> *This week I have used the ipod touch in several ways. Not only for leisure when exercising, but for music videos, and of course class. It's a quick and convenient way to have a class. Just download the video and watch it while on the bus* [1]*, or even walking on the treadmill. I find myself using this ipod touch rather than my ipod. As for class, I did download the instructors video and had no problems. It ran smoothly, just like watching it on my computer.*

Students also began to positively comment on the flexibility provided by the asynchronous format of the course combined with the mobile access provided by the iPod. The following statement from student B provides an example:

> *Being able to watch my lectures on my ipod comes as a big convenience. I haven't had to do any traveling, but being able to take my lectures with me makes doing hw a lot easier (even if i'm just watching it in my bed...as was the case this week). I already plan on watching my lectures during Spring Break travel. Taking a class through iTunes U is also a great tool for those that find paying attention in class difficult, or if the professor moves at a fast pace. If i find myself distracted I can always rewind the lecture…* (inserted) *I used my itouch to complete a group project in another PRT class that required use of music.*

Preliminary data [2] were positive and focused predominantly on the flexibility and convenience of the iPod Touch interfaced with iTunesU. Yet, the data changed around the five-week mark. Blog entries were infrequent after the fifth week, but the dominant theme arising in entries and during the focus group related to use of the iPod was summarized by student F, "I have not used my Ipod for academics in quite a while either. In fact, the last thing I sought out my Ipod for was to get online at home because my wife was using the computer." Most students agreed that while the iPod was attractive to them at first as a tool of convenience through integration with the iTunesU platform, they eventually reverted back to their computers. Follow-up comments in the focus group were centered on the fact that most students already have their computers with them anyway, so they would rather view material through that medium as opposed to the smaller iPod screen. Besides the technological issues, students expressed satisfaction with the enhanced podcast lectures and appreciated the convenience of being able to pause and rewind lectures and access the material at any time of day.

The remaining question yet to be addressed and not arising as a topic in the blog entries was student preference of the two delivery methods for enhanced podcast lectures and videos – either conventionally through the established learning platform of Bb Vista or through iTunesU. This question was addressed in the focus group. The sentiment was mixed with some students preferring the perceived ease of all material in one location within Bb Vista, while others expressed a preference for the convenience of being able to access course material through a software program in iTunes that they use frequently. The general discourse over preferred course delivery methods was influenced by two dominant aspects: (1) general frustration with technical issues encountered by some students (i.e., download errors, audio problems, Internet connection issues); and (2) the existence of both platforms and the feeling that they needed to check both or miss a critical aspect. Student consensus was reached when the prospect of more effective integration between the two platforms was proposed.

In summary, results were indicative of conflicting use patterns and perceptions of integrated technology for online course delivery. In the following section, the main findings are examined to determine whether conclusions can be drawn based on the current and prior research.

Conclusion
Our findings contribute to the continued dialogue related to technology use, e-learning, and the Net generation of college students and highlight the importance of critically examining technology use in online education.

Although students initially were drawn to the novelty and convenience of the iPod Touch, their use of the tool as a supplement to learning was not sustained throughout the semester. Most students in our study admitted that their eventual use of the device, if used at all, was for leisure pursuits such as music or surfing the Internet. These findings are supportive of prior research by Lonn and Teasley (2009) that indicated iPod use on college campuses is predominantly non-academic in nature. Although our results do not support the vision expressed by Campbell (2005) of a revolution of sorts with college students around the world walking to and from class listening to educational podcasts on iPods or mp3 players, the findings do support empirical evidence reported by Lonn and Teasley and Lum (2006) that podcasts can be an effective technological tool in traditional and e-learning educational environments.

Oblinger and Oblinger (2005) noted that today's students are adept at processing information and multi-tasking and use multiple communication channels to access information, and Conole et al. (2008) echoed this sentiment. Yet, Kvavik (2005) cautioned that college faculty should not mistakenly believe that student personal use of technology always extends to learning environments and instructional technologies. Windham (2005), a student and member of the Net generation, echoed this cautionary message, "They [college faculty] will either try too hard to transform education into the virtual language I understand or too little to accommodate for the differences between us" (p. 5.2). Our findings were reflective of both the individualized and varied nature of student learning and interaction with technology. Some students encountered and easily overcame technological issues, while others grew easily frustrated. Likewise, some students embraced the iTunesU platform for delivery of audio-visual material, while others who were less familiar with iTunes preferred the more traditional learning platform of Bb Vista. Despite the individual differences, consensus was reached in the focus group that more effective integration of both platforms would be a welcome enhancement to the course.

The limitations of a qualitative approach are naturally related to objectivity and generalization. We recognize the potential bias inherent within this study design, but the tendency would have been towards an overstatement of the impact of the technological tools that were implemented. We do not believe that to be the case here, but we do caution against generalization. Our findings provide insight for college faculty and instructional designers to consider when implementing these technological tools in e-learning but should not be interpreted as a definitive statement on these integrated technology tools. Recent research has pointed to similarities between online and classroom-based students in relation to level of knowledge and motivation (Harris & Gibson, 2007), yet we contend that future analysis should be more focused on determining if perspectives and use of various course delivery components and technological tools vary by learning styles, major, prior experience, or related demographics.

As online education continues to proliferate on university campuses across the globe, many will become captivated with the potential integration of new and exciting technologies for both course content development and delivery. While it appears that today's generation of students may be receptive to new technologies and certainly have greater expectations for the use of technology in all aspects of their lives, including their education, instructors should carefully evaluate the true utility of any technological advancement before integrating into their courses.

Endnotes

[1] Identifying information such as the name of the campuses' bus service were omitted and replaced with more anonymous language. Otherwise, student blog entries or focus group quotes were included verbatim.

[2] Preliminary data after a month of blog entries were reported and discussed in a short paper and presentation to the International Association for Development of the Information Society (IADIS) International Conference on e-learning in Amsterdam.

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