

iPod Education: Innovations in the Implementation of Mobile Learning

Abstract

Apple's iPod music players have quickly established themselves as the leading portable media devices among today's technological gadgetry; so much so, in fact, that they are deconstructing the border between education and entertainment. While a host of schools, colleges and universities have now developed podcasting initiatives at a faster rate than their previous interest in blogging, Duke University in the United States of America (USA) was one of the first to see the potential of the iPod as a pedagogical tool. In 2004 Duke, in partnership with Apple, launched a project with Macintosh's 20GB iPod, with the specific aim that instructors consider how it could be used in the classroom and lecture hall to promote e-learning initiatives. Following an overview of Duke's initiative, still the largest experiment of its kind yet to publish results, this article will contextualise the use of iPods vis-à-vis mobile learning, emphasising the need to engage in effective planning if innovative e-learning projects are to be successful. Finally, it calls for more research into the relationship between mobile learning and the enhancement of real learning outcomes.

Introduction

"iPod therefore I learn". When I recently said this to my new group of freshmen English majors in Japan, all of whom had been given Apple's entry-level iPod shuffle on entering the university a few weeks before, not surprisingly, 'iPod' was one of the few words in the sentence they seemed to immediately understand. Instead of venturing into a roundabout explanation of Descartes' cogito ergo sum, I decided to tell them that having an iPod meant they could improve their English learning. While this appeared to me to be a bold attempt to try and help education catch up with the already existing technology, which had been given to them without any instructions, I was nevertheless still greeted with the same incredulity and blank faces. Finally, the brightest student in the class turned to me and said: "iPod therefore / listen to music". The stress on the first person pronoun, as well as the word 'music' made the point perfectly.

It is no surprise perhaps that university marketing managers have been using the seemingly ubiquitous iPods to woo wavering freshmen, with all the fervour of a politician confronted with a floating (swinging) voter in the final weeks of an election campaign. Until recently students only needed to deliberate over the latest incentives from major high street banks for an extension to their overdraft. Now, even banks in the United Kingdom (UK) are using iPods to attract students to their undergraduate accounts (Macworld 2006). Moreover, in the increasingly competitive business of global student recruitment, an iconic product that all potential customers recognise and covet seems to be the academic marketing manager's dream-ticket. Is this then the reason behind the iPod's sudden appearance in education institutions? Or have educators been able to develop pedagogically sound ways for iPods to encourage effective learning?

iPod therefore I learn? My original opening statement for this article didn't have a question mark tagged to the end. As my ideas have developed, however, it has emerged as a necessary addition, attaching itself to the end of the sentence like a counterweight, suggesting doubt, requiring more confirmation than the logic of a Socratic syllogism: I

have an iPod; listening to English will improve my language competence; iPods will improve my English.

Just when educational technologists were getting to grips with blogging, along came podcasting. With both terms there has already been a massive escalation in the number of web sites and, latterly, journalistic and academic articles claiming that iPods offer a rich pedagogical vein to be explored by educators of all disciplines, and language educators in particular. In a recent conversation with a freshmen English major student, I asked which activity preoccupied him most when using his iPod. The answer, perhaps predictably, was listening to hits from the American Top Forty. Of course, while listening to music in English is to be encouraged, it is not enough to get this freshman, who was too embarrassed to tell me that his TOEIC (Test of English for International Communication) score was nevertheless less than 400 points, to improve his English listening skills. He used his iPod more than any other student in the English Listening course, but registered an unsatisfactory grade D for his final examination. Immersion in an e-learning technology, however portable it may be, however closely it fits the changing contours of study, leisure and work, does not guarantee success. This is true regardless of how much the product's promotional website emphasises the seeming inevitability of increased learning outcomes every time the mobile device is switched on in the vicinity of a student 'on the move'.

With iPod education, educational technologists are, perhaps, still at a similar stage to that which guided the enthusiasm to get computers into all high schools in the mid 1990s. Just having computers in the classroom, educational policy makers and politicians argued, will increase students' motivation to learn, as well as enhance learning outcomes. The same philosophy emerged with the advent of the Internet. As we all know, however, sitting a student in front of a computer with Internet access to millions of pages of rough input in English will not be as effective as having produced a highly structured series of tasks, clearly articulated and set at the appropriate level of competence, with which the student can interact. Another example of this trend is the recent explosion of excitement and latterly disappointment, surrounding the use of Interactive Whiteboards (IWB) (Nightingale 2006). Choosing yet another example at random: for all the hype surrounding improved student-teacher and student-student communication via online discussion forums, how many remain underutilised and silent, unless students are compelled by their assessment system to use them?

The reality is that technology requires a rationale that predates and guides its use in pedagogical contexts. While successful approaches can and have been developed after the introduction of e-learning technology, it is necessary to have a pedagogical discussion before it is introduced on a campus-wide scale. In the excitement surrounding the introduction of new e-learning innovations, a word of caution is still often required. The task of this article is to define some of the parameters of iPod education by providing an overview of the key terms and issues in the debates. Section 2 focuses on podcasting, describing how the technology works and has been used to date. In Section 3, the wider context of Duke University's iPod project is summarised, and a number of potential features for language learning are identified. The final section provides a brief description of some of the current podcasting innovations in English as a Second Language (ESL) listed in the iPodder.org directory for Education. As Keegan (1995) indicates, language education remains one of the most innovative disciplinary areas for the development of new learning technologies especially in the emerging area of mobile learning.

iPods, podcasting, learning

Since their first appearance in 2001, Apple's range of portable digital media players have become one of the most recognisable icons of the twenty-first century (Moss 2005). While the exact derivation of the name is not quite clear, the 'i' prefix has been used since the arrival of the iMac in 1994, in which the 'i' clearly referred to the Internet, and the ease with which the computer could connect to the new medium of information exchange. Subsequently, the use of the lowercase 'i' has been identified with other meanings, such as 'individual' and 'independence', both characteristics freely associated with the Apple brand in its struggle to win market share against the ubiquitous PC. They are portable, relatively easy to use, and have a clear goal: to facilitate the effective production, transfer and dissemination of digital audio and video and move beyond the limitations of the analogue world. Moreover, this iconic cultural status has given rise to ideas that their designers might never have seriously envisaged, especially in the whole area of e-learning education and innovation (Adenekan 2005, Lederman 2005).

McCarty (2005b) attempts to re-evaluate the significance normally associated with Duke University's iPod experiment, which first gave the devices to students for pedagogical purposes. Osaka Jogakuin College had already distributed 15GB iPods to two hundred and ten incoming freshmen six months before the Duke project in April 2004. Two years previously, however, Georgia College and State University in the USA, again in partnership with Apple's education division, was the first to disseminate fifty iPods to its own students (Sellers 2002).

An Internet search for the word podcasting a couple of years ago would have led to few hits. Now, as we enter July 2006, the word registers in the region of 97,500,000 hits on the Google search engine. iPods now dominate over 80% of the market for MP3 players, and it is estimated that Apple will have sold in the region of forty five million of them by the end of 2006. Jonathan Ive, the American company's Vice President of Industrial Design, recently won the widely recognised President's Medal, from the Royal Society of Engineering, for innovation in engineering. Not only have large worldwide sales and such high profile awards helped Apple re-establish itself as the symbolical mix of cool design and high technology, but they are also increasingly being used to promote e-learning initiatives.

Chinnery (2006) briefly mentions iPods in the context of the new area that he names MALL: Mobile Assisted Language Learning, an outgrowth of the more established Computer Assisted Language Learning (CALL). He also draws attention to many of the case studies in Kukulska-Hulme and Traxler's (2005) study of mobile learning, in which iPods are used to aid language learning, when they function as digital voice recorders or camcorders to produce interviews and make audiovisual tours of towns or museums. One problem he notes, however, is that students were given the iPods at the beginning of their course, a strategy that left them little time to adequately understand how best to utilise them.

Thorough overviews of the meaning of podcasting are increasingly being set in the context of education (Meng 2005). Rather like blog, which combines, web and log, the term, podcasting, is also a hybrid consisting of iPod and broadcasting. The word in fact confirms the success of Apple's marketing strategy, as any MP3 player or computer can be used to receive audio or video. Unlike simply downloading content from the Net, however, resources are put on the Web using a special format, known as a feed. Anyone who wants to receive the podcast must first subscribe to it by using podcatching software such as iPodder or Apple's own iTunes. This software regularly checks the subscribed source and automatically downloads (or 'pushes') new podcasts to a computer. Like

blogging, podcasting has become especially attractive to people interested in starting up their own sites or radio-like broadcasts that operate without censorship or sponsorship. As such the technology opens up a way to disseminate and share audio using basic software that can be used for public access around the world. As well as just audio-only podcasts, there are currently two other forms of podcast available - enhanced podcasts and video podcasts.

Enhanced podcasts

This type of podcast includes chapter marks, images that change when the podcast is played and additional hyperlinks to Internet sites. It is also possible with enhanced podcasts to move easily to different chapters in the file, a feature used extensively in audio books.

Video podcasts

With the launch of Apple's fifth generation iPod, video podcasts are the very latest in podcasting technology and provide a full visual and audio experience for the user. Now that Apple has replaced the iPod Photo with its new video model, it is likely that advances in the compression of video and audio files will continue to be a priority.

There is, then, a difference between podcasting and just downloading audio from the Internet. Nevertheless, podcasting is still being used to describe the posting of any link to an Internet page, even though no subscription model is involved.

There are typically three steps involved in making a podcast:

1. digital audio content is created and edited using the MP3 format
2. the MP3 file is published on the Web
3. an RSS feed is published with the podcast as an enclosure.

Similarly, in order to subscribe to a podcast, these steps are involved:

1. subscribe to the desired podcast feed
2. listen to the podcast online or alternatively download and listen to the podcast later
3. move the podcast to an MP3 player such as an iPod.

Podcasting technology relies on an XML-based technology named RSS (Really Simple Syndication). In the UK and USA, popular websites from the BBC and CBC now have an increasing number of RSS feeds on a diverse range of topics related to heavily accessed news or sports stories. RSS feeds enable the inclusion of a diverse range of meta-information related to such aspects as channels, dates, titles and descriptions. In addition, new developments in XML called 'enclosures', similarly allow information about audio files to be included. This type of metadata can be useful for tracking a file's history as well as for making the whole process of searching and indexing significantly more user-friendly.

M is for mobile learning

The development of the iPod has occurred at the same time as the consolidation of laptops, the emergence of Personal Digital Assistants (PDA) and mobile phones. All

three devices have propelled mLearning to the forefront of research in instructional technology. The 'm' in m-learning is primarily associated with mobile: the use of small, handheld devices that can be used anytime, anywhere. The 'm' may also signify a number of other meanings: the increasingly prominent place of marketing in education, management considerations leading pedagogy, or, on the other hand, the need to plan technological innovations through multilateral cooperation.

Duke launched a project with Macintosh's 20GB iPod in 2004, aimed at the promotion of e-learning initiatives using the mobile device. In all, approximately 1,650 freshmen students were given iPods along with a voice recorder, which allowed them to record audio from lectures. The collaboration between Duke and Apple enabled the iTunes framework to be used to host academic content including language learning lessons (especially in Spanish and Turkish), as well as music, lectures and audio books.

The evaluation of the project after one year resulted in a new plan for using the devices in which a more targeted approach was to be foregrounded. The new strategy focused on providing iPods only to students who were enrolled on courses that required the iPod as an integral tool. Second year undergraduates who already had iPods were able to trade-in their 4G iPods for the newer iPod Photo. The new strategy was based on the evaluation procedure that showed that 75 percent of freshmen surveyed used at least one iPod feature for academic study, and of those students, half used the iPod because of their instructor and half used it on their own. Interestingly, the evaluation indicated that the iPods were used in four primary areas: as a course content dissemination tool, as a classroom recording tool, as a field recording tool, and finally as a study support tool.

In all these areas, the Duke evaluation recorded that increased student mobility resulted. Students were able to listen to content outside of their normal study periods, while travelling to and from campus, or moving between activities. It also reported that increased student motivation was noticed by faculty, primarily as a result of higher levels of student independence promoted by the technology.

While many of the suggested advantages will need to be researched, a series of challenges were also identified. Faculty and students indicated that the project initially suffered from an approach that emphasised 'install first, think about the pedagogical consequences later'. On the technical side, the device's short battery life remained an issue, as well as problems related to sharing files between different iPods. Other areas of resistance derived from the need to secure permission for copyrighted audio material, and sometimes as a consequence of the lack of quality content.

Although it seems relevant to pose the question of student recruitment as perhaps the main reason for the project in 2004, the re-evaluation process will perhaps produce a clearer engagement with the real pedagogical potential of the devices.

Clearly, Duke's experience reinforces the need for an approach to the integration of educational technology that synchronizes evaluation and planning, as other mobile learning theorists have begun to suggest (Kukulka-Hulme and Traxler 2005:1).

In their discussion of blended e-learning, Jochems, van Merriënboer and Korper (2004) provide criteria for evaluating the future of such mobile devices as iPods, focusing on the primacy of three main factors:

1. pedagogical
2. technological

3. institutional.

According to this framework, e-learning innovations must demonstrate what they call their 'value-added' dimension. For this to happen effectively, they argue that these three important variables have to achieve a strong interrelationship:

The implementation of an instructional approach will be much more powerful if it is to be anchored in both the organization and the technological instrumentation. For the same reason the introduction of e-learning will have far more impact on education if it is able to support the organizational and instructional concepts that courses are based on. (Jochems, van Merriënboer & Korper 2004:7)

Similarly, another notable advocate of mobile learning, Keegan (2004) raised the importance of five factors:

1. trust in the effectiveness of the technology
2. frequent use
3. easy to use
4. cheap
5. fashionable.

Building trust with all stakeholders has to be achieved by e-learning innovation, if it is not to damage the association with quality standards it so keenly seeks. Jochems, van Merriënboer and Korper (2004) underline the importance of a 'design perspective' for e-learning projects such as Duke's, in which the successful integration of all aspects can be combined:

Integrated e-learning ... typically tries to combine elements from face-to-face teaching; distance education and training on the job. Thus it is a media mix, that is to say, a mix of methods, each having certain characteristics in terms of cost, availability, effectiveness, efficiency, appeal and so forth on the one hand, but a coherent one in the sense that the specific combination of methods is the result of a systematic design procedure on the other. (2004:5)

Podcasting projects in ESL

There are numerous examples of podcasting currently being used in education. The iPodder.org site lists eleven under the heading of English as a Second Language (ESL) in the Education Folder, though many of them have yet to be fully developed. According to Stanley (2005) they can be divided into three types:

1. authentic podcasts that are not aimed at ESL students and can often be a rich source of listening
2. podcasts produced by teachers, often for their own classes, and usually aimed at helping students learn by producing listening content that is not available elsewhere; and
3. student podcasts produced by students, but often with teacher help, which tell about their lives and interests.

All of the iPodder podcasts for ESL use a blog site such as BlogMatrix or eBlogger to host their content. A brief review of the sites listed under English as a Second Language at the iPodder site follows.

The Daily Idiom (<http://www.englishcaster.com/blogs>)

Though listed in iPodder as The Daily Idiom, this site has changed its name to English Idioms and Slang. The online archives suggest that idioms are posted on a regular basis, sometimes two per day, sometimes with an intervening period of four to five days. For example, the 13 November entry is: Get the ball rolling. On 11 October, the idiom is: Burned out. The idea is not new, as there are a number of comprehensive online listings for idioms, including an authoritative site at Dave's ESL Café. A script for the audio is available on the homepage, and there are usually at least two review questions that attempt to put the idiom in context. Idioms can be listened to in streaming audio, one by one, by clicking a link, actually named podcast. Alternatively, users can subscribe by clicking on the RSS feed link. Monthly archives are also available, beginning in December 2004, and the author sells a collection of 101 idioms online, many of which have never been used on the site.

Barcelona Young Learners Podcasts (<http://bylpodcasts.blogspot.com/>)

This site uses a blog format to offer downloadable and podcast audio resources suitable for young learners. Topics include, to date, witches, ghost stories, and accidents. A very brief text accompanies each podcast and comments are invited in the form of a message board forum. Very few responses have been posted as yet, however, and limited archives from May 2005 are linked to the site.

Madrid Young Learners Podcast (<http://mylcpodcasts.blogspot.com/>)

This site uses the same blog/discussion board format as the Barcelona group, with the same target audience evident in the topics posted. These include: song lyrics, Elvis Presley, finding your ancestors, walking in the Himalayas, running a marathon and poetry.

The Bob and Rob Show (<http://englishcaster.com/bobrob>)

This radio show style podcast is created by an American and British pair. Their first podcast on 29 May, 2005 dealt with the issue of greetings and meeting someone for the first time. Since then they have moved to a new site (address above) and developed a range of resources related to grammar and structure (make and do, present perfect simple versus continuous), as well as thematic concerns of a topical nature, such as the meaning of Thanksgiving.

Pod EFL (<http://blog-efl.blogspot.com/>)

This is a comprehensive site that addresses a range of teacher related information about the use and development of e-learning resources for English language teaching. Podcasts are available as well as comprehensive information, short discussions and links to educational technology issues such as web logs and the development of online student communities.

Phonetic Podcast (<http://phoneticpodcast.com/>)

This site is produced by a non-native speaker of English who is interested in developing students' pronunciation skills. Each of the Phonetic Podcasts, which uses native speakers, is five minutes and fifteen seconds in length. Topics discussed include: phonetics, pronunciation of English language, stress, accents, various dialects of English

language from the point of view of pronunciation, learning how to speak English like a native speaker, and learning how to speak various dialects of English language.

Japancasting (<http://stevemc.blogmatrix.com/>)

This site is run by Steve McCarty, Professor of English at Osaka Jogakuin, where iPods have been circulated to students since 2004. Hosted by WebMatrix, Japancasting is aimed at students who want to study Japanese or English. Educationally oriented broadcasts on such themes as Japanese culture, history and society are interspersed with interviews from students and professors at McCarty's university. Links are also provided to additional resources, audio scripts and photos related to the podcast resources.

Comprehensible Input - The Podcast (<http://ci.iplusone.org/podcast>)

A site based on a web log of the same name that aims to provide information on subjects related to information and communications technology (ICT) for teachers and educators. Overviews of the latest developments in e-learning across the educational spectrum are provided by podcasts.

Flo-Joe Radio (<http://www.splendid-learning.co.uk/podcast/index.html>)

This site provides an online service for ESL teachers and students preparing for Cambridge First Certificate in English (FCE), Certificate in Advanced English (CAE) and Certificate of Proficiency in English (CPE).

The Linguist Community Blog (<http://www.thelinguist.blogs.com/>)

This blog supports a commercially available site from a company of the same name (<http://thelinguist.com/>), which offers comments and discussion about the company's methods for studying and learning foreign languages.

ESL Listening For Japan (<http://www.eigolisting.com/>)

This site includes many free downloads of English phrases and expressions, as well as links to other sites which offer streaming or downloadable English listening.

As this brief overview indicates, while iPodder is seen to be one of the major directories for currently available podcasts, the range of those currently listed is of varying quality and usefulness to the ESL educator or student. Given that podcasting in education has developed quickly, often at the expense of a more considered approach to pedagogical issues, much of the available literature on the topic remains journalistic in style and depth.

One of the exceptions to this is a short study by Jobbings (2005) in which he usefully discusses the study skills that iPods may develop in the context of the UK's objectives for the use of ICT in the National Curriculum. Jobbings provides one of the first systematic attempts to delineate the potential of iPod Education into three areas: ICT knowledge, skills and understanding; developing ideas and making things happen; and exchanging and sharing information, as shown in Figure 1 to follow.

PODCAST ACTIVITY

Design and plan a podcast
Consider focus, content and format of audio materials
Identify and acquire the sources of audio material to include within a podcast

Prepare scripts and plan recordings of audio material (talk, music, SFX)

RECORD THE PODCAST

Record and edit audio material (talk, music, SFX)

PRODUCE AND PUBLISH A PODCAST

Design programme, considering style, content and forms of audio

Record, edit and master audio material in different forms to produce suitable content

Publish and listen to the podcast as part of an RSS feed on a website

ICT KNOWLEDGE, SKILLS AND UNDERSTANDING

Finding things out:

- a) to consider systematically the information required and to discuss its use
- b) how to obtain information suited to the purpose by choosing appropriate sources, using and adapting search techniques and questioning the value of the results
- c) how to collect/enter/analyse/judge quantitative and qualitative information and check its accuracy

DEVELOPING IDEAS AND MAKING THINGS HAPPEN

- a) To develop and investigate information, solve problems, produce new information for specific purposes

EXCHANGING AND SHARING INFORMATION

- a) how to make sense of information to reorganise and present it in a range of forms that fit the purpose
- b) efficiently use a range of ICT tools to draft, combine and refine information, creating good presentations suited to the needs of others and to the content
- c) the way to use email and other ICT to exchange information effectively

Table 1: Podcasting and the UK National Curriculum at Key Stage 3 (for 11-13 year olds) (Jobbings 2005:3)

Such a systematic approach to the skills inherent in the use of this ICT provides a suitable framework for further research on the topic, and a way for those engaged in existing projects to begin to assess the learning skills and objectives involved.

Conclusion

While the introduction of iPod Education has continued the wave of interest created by blogging, research must be done on the actual consequences of using it in structured pedagogical contexts. Nevertheless, it is already evident from this precursory overview that podcasting does have a number of advantages, and opens up a world of digital audio and video to be explored by m-learning technologists in the future. While student-friendly banks and educational institutions have both contributed to the image of iPods as the latest gimmick to attract new recruits, as is so often the case, educational technologists in ESL have found a number of pedagogically valid ways to incorporate them into their learning environments. As iPod Education exemplifies, educational technology can be productive for administrators, attractive to students and give rise to sound pedagogical practice, when their various interests are brought together.

Above all, however, iPod Education is an exemplary case study that demonstrates how educational institutions themselves still require educating about producing effective instructional technology initiatives. It proves yet again that it is necessary to involve everyone in discussions about sound pedagogical objectives for e-learning prior to implementation. For my students in Japan, who are still getting to grips with the implications of the new mobile technology in an environment that involved little pre-planning, the stress on the connector – iPod therefore I learn – is still being modified by the culturally appropriate perhaps.

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