
PEDAGOGICAL MODELS FOR PODCASTS IN HIGHER EDUCATION

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Abstract

This paper reports work-in-progress of a UK national study called IMPALA investigating the impact of podcasting on student learning in higher education. It presents an outline of the project implementation, initial perspectives from the pilot study and evolving models for using podcasts for specific pedagogical purposes. Data from the Semester 1 podcasts are being analysed and results will be reported at the project blog <http://www2.le.ac.uk/projects/impala/>. Implementation of Semester 2 podcasts is underway. Based on the analysis of data on student learning from, and staff experience of developing podcasts during two academic semesters, IMPALA will contribute to improving student learning through making available: transferable models for using podcasts in different contexts, levels and disciplines; resources for practitioners for designing learning activities for podcasts for delivery on personal Mp3 players; subject-specific exemplars and user cases; and guidelines for integrating podcasting into disciplinary specific contexts and within institutions' e-learning strategies.

Introduction and the background

Podcasting is a new technology that is increasingly capturing the attention and imagination of practitioners from all areas of education. Wider penetration of broadband internet access, freely available software on the internet to create digital sound and video files, and increased ownership of MP3 players all work in favour of the popularity of podcasts (EDUCAUSE, 2006). The adoption of Web2.0 applications – applications, tools and services that enable users to capture, generate and share content and form online communities – has also contributed to the popularity of podcasts.

IMPALA arose from our interest in digital audio loaded onto students' own mobile devices, especially MP3 players, which offer platforms for a variety of services with potential impact on learning and teaching in HE. Podcasting and MP3 players are new to education, yet widely used by students for entertainment. 22.5% of UK adults in the 15-24 age group own a digital media player ((Intel-BMRB Survey, March 2005)). In Europe, more than 7% of the population owned and used a dedicated portable music player in 2006, compared with 2% in 2004 (Screen Digest cited in BBC, 2006). The academic community shows a strong interest in podcasts. However, research into students' experience of podcasting is understandably in its very early stages. As EDUCAUSE (2007) highlights, effects of podcasting on student learning in higher education are yet to be examined.

Through a cross disciplinary and cross institutional study of the impact of podcasting on student learning IMPALA will deliver transferable pedagogical models of podcasting, for distance and campus-based learning, mediated by VLEs. IMPALA examines following research questions:

1. How does students' learning supported by podcasting differ from their learning through structured campus or e-learning processes?
2. What kinds of pedagogical applications can be developed for podcasting through MP3 players for students' informal use within formal HE modules that work to enhance their learning?
3. Can students switch from using MP3 players for entertainment to learning?
4. What are the psychological, social and institutional barriers to and advantages of more informal learning using podcasting?

Literature review

The core content medium in podcasting is audio, not new to education. Durbridge (1984) identified audio's educational advantages as its ability to influence cognition through clarity of instructions, and emotional aspects of learning by conveying immediacy and a connection with the teacher (see also Bates, 1981). Tutor-initiated audio embedded into email messages yielded increased student participation in group activities, fostered an online community and increased satisfaction with the learning experience (Woods and Keeler, 2001). Research from Australia (Lee and Chan, 2007; Chan and Lee, 2005) showed that informal, short audio clips may help address undergraduates' anxieties and concerns about the course and assessment. Chinnery (2006) discussed bringing an authentic cultural experience to students learning foreign languages, but such studies are seldom evaluative.

Studies of other mobile technologies (PDAs, Smartphones and Tablet PCs) point to their pedagogical potential: support of learning activities (Sharples, 2001), specific needs and cognitive abilities of diverse learners (Kukulska-Hulme and Traxler, 2005), situated and authentic learning experiences (Sariola and Rionka, 2003) and the personalised learning through mobile devices (Plant, 2001). Evaluation of learners' engagement in large scale mobile learning environments (e.g., 'MOBILearn') has drawn researchers' attention to unique experiences that mobile learning can offer. Taylor et al (2006), and Scanlon, Jones and Waycott (2005) emphasise that the capabilities of mobile devices combined with their advantages to a learner on the move can create opportunities for learning activities impossible in conventional learning environments or through other learning technologies.

The research context and methodology

Impala examines how podcasts can bring together the advantages of *audio* (both tutor- and student-generated) and *mobile* learning to facilitate learning in higher education. The research is being carried out across in five UK universities (Leicester, Nottingham, Kingston, Gloucestershire and Royal Veterinary College) across a range disciplines: Chemistry, Engineering, English Language, Human Geography, Physical Geography, Genetics, Media and Communication, Physics, Sociology and Veterinary Sciences. The project implementation consist of a pilot study, pedagogical design and development of discipline-specific podcast applications in two semesters, researching students' learning experience during two semesters, and dissemination of project outcomes.

The pilot study, conducted at the University of Leicester, was within an undergraduate engineering module which integrated podcasting and e-tivities based on Salmon's 5-stage model. The pedagogical design of podcasting for IMPALA was carried out through two workshops (June 2006 and January 2007) attended by IMPALA partner colleagues, who developed a range of approaches to using podcasts for specific pedagogic purposes. About 400 students and 15 academic staff are taking part in the study during the academic year 2006 – 2007.

The impact of the podcasting is being studied through qualitative and quantitative data collection methods. Quantitative data were collected through a beginning-of-semester questionnaire designed to identify students profile, availability of technology to access podcasts, and students' familiarity with new learning technologies (Internet and Web2.0 tools); and through an end-of-semester questionnaire developed to gather data on students' pattern of listening to podcasts, reasons for not listening, pedagogical benefits of listening to podcasts and their recommendations for podcasts. The data are analysed using Excel employing descriptive methods.

Qualitative methods being used include focus groups (2 groups of between 4 – 6 students from each module) during the middle of semester and personal interviews (between 6 – 10 students from each module) with students and the lecturers who developed podcasts. Student interviews, lasted about an hour, were conducted using a semi-structured interview schedule developed to explore how student learning is supported by podcasts and students' preparedness for using personal entertainment devices for learning. Initial findings from the focus groups were discussed with academic colleagues to

explore ways of improving podcast design and use. Staff experience of developing podcasts was gathered informally through email and telephone and later through a formal interview. Information gathered included pedagogical rationale for each podcast, how podcasts were integrated with other learning activities and learning resources, and issues encountered. All formal interviews were recorded on tape and transcribed verbatim for analysis to identify key themes and issues.

Data from questionnaires, interviews and informal records are being triangulated and analysed to answer the research questions above. A summary of pilot study and work-in-progress IMPALA models from Semester 1 podcasts are presented below; results from all pedagogical applications will be available in the IMPALA blog.

A summary of key findings from the pilot study

All 24 students who completed the questionnaire indicated they owned or had access to at least one kind of MP3 player or other suitable playback facility. These are: iPod, other brands of MP3 player, mobile phone, a laptop, a desk top.

Most students (58%) listened to 6 or more of the 9 podcasts; 32% had listened to the podcasts on the first or second day (the content was more relevant if they listened early in the week). Most said they listened while not engaged with any other learning activities; this demonstrated the podcasts' potential to reach students on the move. Most (55%) listened to podcasts off campus, indicating potential for making academic content available for listening beyond the formal institution.

Of the 21 students who indicated that they had listened to podcasts regularly, 20% said they saved to an MP3 player and 28% to their laptop, to listen later. The reasons for not downloading varied: one had a technical difficulty; 4 said that listening once was adequate, and 8 students pointed out they could access the module and podcasts anytime anywhere. Only 3 students said they preferred to use their MP3 players for music only; possibly space was the key issue and/or reluctance to upgrade.

Students reported that podcasts helped their learning by providing a good introduction to the online material; helping to organise weekly learning activities; helping to stay focused on the course; developing positive attitudes towards the lecturer, making formal learning more fun and informal; supporting independent learning; enabling deep engagement with learning material; enabling access while being mobile. The study also emphasised that listening to educational material was different from listening for entertainment; therefore, podcasts must be integrated with other learning activities.

Work-in-progress pedagogical models from IMPALA

To support online learning and to integrate other e-learning activities – a profcast model

The profcast model emerged from the IMPALA pilot study over a semester of 12 study weeks in an undergraduate module in Electrical Engineering, taught online with fortnight face-to-face meetings. Using Blackboard VLE, 30 2nd and 3rd year campus-based students studied the module. The professor began weekly podcasts to supplement his online teaching through updated information and guidance on the weekly activities, and to motivate his students by incorporating relevant news items and a fun item such as a joke. The podcasts complemented e-tivities (structured online group activities) based on Salmon's (2000, 2002) 5-stage model by providing summaries and further guidance to students. Each podcast appeared on the VLE at the beginning of the study week. The podcasts were about 10-minutes long and the format was: an introductory news item; the main content section typically referring and extending this week's work and referring to last week's; and lighter weight but fibre optics related items, e.g., a joke at the end, or rap.

As a strategy for teaching large student cohorts requiring support for practical-based learning

This approach was developed by a colleague teaching a Geography Information System (GIS) module within a first year undergraduate course in Geography. The course has been traditionally taught using conventional methods: lectures, laboratory practical, seminars and assessments. The challenges were teaching increasing numbers of students (more than 200 in 2006/2007) and providing guidance on the use of laboratory techniques and software that needs constant updating. When the teaching responsibility was undertaken by a colleague with experience in distance learning, he redesigned the module to incorporate two kinds of podcasts: one, providing summaries of lectures and additional learning resources and the other, to support practical, software and project based learning, replacing 'paper-based hand-outs with hundreds of screen-shots and graphical illustrations'. Students use these video and audio-based podcasts for revising and in preparation for practical work.

To bring topical issues and informal content into the formal curriculum

This approach was developed for both an undergraduate and postgraduate modules. In the undergraduate module, the colleagues teach a cohort of more than 100 students from a variety of disciplines who take a core module on the Environment and Sustainability. Students' prior knowledge and awareness of environment and sustainability issues are varied. The module also needed to take a problem- and inquiry-based teaching approach. Colleagues developed podcasts to meet these teaching challenges. Fortnightly podcasts were developed to: develop learning skills, elaborate on content covered in lectures, and review of useful resources. The podcasts were used to introduce students to current debates on the environment, sustainability and development, from global, national, regional and local perspectives. The content for the podcasts were derived from interviews with practitioners and experts in the field, and from representatives from the local resident and business community.

In the postgraduate module, two colleagues used interview techniques to discuss topical issues (e.g., globalisation, information society) and made these podcasts available for students prior to their seminars as a way of preparing students for their learning activities.

To develop reflective and active learning skills

Developing students' active and collaborative learning skills was the task of IMPALA colleagues at a Centre for Excellence in Teaching and Learning focusing on active learning. Student-generated podcasts were the approach chosen to develop these learning skills during the first semester. Using story-telling as a learning tool (McDrury and Alterio, 2002) students developed 'digital stories' during the first week of their study at the university. During the induction week students in small groups undertook a day's fieldwork in a location relevant to their studies and collected audio and visual evidence of their learning which they put together as a group to reflect their learning.

To develop students' study skills during the first year at the university

These podcasts were developed as part of the teaching and learning strategy within a first year semester 1 module called Introduction to Intercultural Communication, a core module for students enrolled on an undergraduate programme in Linguistics and Communication. Sixty students take this module, all combining English Language with other subjects from humanities, arts and social sciences. The challenges for the colleagues were: creating a cohort identity and teaching collaborative skills, developing learning and study skills for assessments by portfolio. The lecturer developed podcasts to address these issues. The podcasts, each 10 minutes long, were made available on a fortnightly basis to: enhance students understanding of the core concepts and issues, to build a sense of cohort identity, to encourage peer support for learning, to develop writing, speaking and presentation skills. Each aspect was covered by 2-3 minutes sound clips explaining key concepts covered in lectures and seminars, discussions between students and staff on assessment tasks, mentors' providing study tips. To develop student collaboration, content for podcasts was generated from interviews with current and previous students, and student mentors (senior students) who help with level one students at the faculty academic skills development centre (a drop-in advice centre).

To enhance student learning in location-based studies

Geography and Environmental Science subjects feature heavily within the IMPALA project, due to colleagues interest in exploring the potentials of podcasts to address pedagogical challenges offered in these subjects. Learning in Geography and Environmental Sciences involves studying the physical, natural, human and cultural aspects of the world. Significant parts of student learning therefore involve activities carried out in the field. Colleagues have developed the following approaches to using podcasts to support student learning in the field:

- Student-created podcasts to record, evaluate and share learning experience.
- Audio and visual guides for field-work ('iWalks'), e.g., taking students on prescribed routes and providing audio commentary of the phenomenon they observe and instructions for activities to be carried out.
- Audio-visual instructions for using particular instruments and procedures in the field.

As extensions to lectures: summaries, additional learning resources, further reading and research

IMPALA colleagues use podcasts as a means of providing additional support for learning through lectures. These include: providing a summary at the end of each lecture with a review of the key concepts and themes presented in the lecture, and a brief introduction to the following weeks' lecture. These summaries also include advice on further reading and research. For semester 2, colleagues are planning to get students involved in creating lecture summaries as podcasts.

In addition, other approaches trialled include to using podcasts to support practical and workshops in science subjects such as Chemistry and to build confidence in Mathematics for undergraduates with limited mathematical knowledge.

Concluding remarks

This paper provides an overview of a multi-disciplinary and cross-institutional research project that examines the impact of podcasting on student learning in Higher Education. Evidence from the pilot study shows that podcasts were helpful for students who were carrying out much of their studies online. Podcasts supported organisational aspects of learning, brought an informality and fun to formal learning, developed students e-learning and independent study skills, enabled a deep engagement with learning material, and helped them to learn while being mobile. Listening to educational material as a podcast is different from listening for entertainment; therefore, podcasts must be integrated with other learning activities, such as online discussions. Currently, IMPALA partners are experimenting with a range of pedagogical models to address specific challenges in teaching and learning, exploring podcasts as a learning technology. Evidence so far suggests that podcasts can be a valuable tool in the practitioner's e- and distance learning toolbox. Visit the project blog at <http://www2.le.ac.uk/projects/impala/> for more on data analysis.

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