PODCASTING TO PROVIDE TEACHING AND LEARNING SUPPORT FOR AN UNDERGRADUATE MODULE ON ENGLISH LANGUAGE AND COMMUNICATION

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ABSTRACT

This paper reports findings from research into the benefits of integrating podcasts into a first year undergraduate module on English Language and Communication at Kingston University. As part of a Faculty teaching and learning support scheme for first year undergraduates, six podcasts were developed to improve students' learning and study skills and to provide advice on portfolio development and presentation skills. Student learning experience through podcasts was evaluated through two focus groups, personal interviews (six students) and an end of semester evaluation questionnaire (n=35). The paper describes the teaching and learning context and how the podcasts were integrated as part of the blended learning delivery. It discusses to what extent podcasts were able to achieve of the intended outcomes and the processes involved in achieving those outcomes. The findings led to development of a model for integrating podcasts in on-campus blended learning, and which can have potential applications in distance learning contexts. The model is based on three main features of podcasts identified as facilitating student learning: learner choice and flexibility offered by podcasts; tacit knowledge and experience of peers conveyed in discussions; and a sense of informality brought into formal learning.The research reported in the paper was carried out as part of a UK national research project entitled *Informal Mobile Podcasting and Learning Adaptation* (IMPALA) with funding from the UK Higher Education Academy.

Keywords: Podcasting; audio; blended learning; distance learning; English language teaching.

POPULARITY OF PODCASTING

Podcasting is a recent phenomenon that is capturing the attention of academics from all sectors of education. Three trends are working in favour of increasing the popularity of podcasting.

First, it is being used increasingly as a supplementary or alternative means of delivering content by the media, entertainment and journalism industries. Many broadcasters and news publishers now offer podcasts.

The BBC in the UK, for example, makes selected radio programmes (dramas, music and sports programmes) available as podcasts (BBC, n.d.). About 4 million downloads have been recorded since the BBC began its podcast trials in August 2006 (Highfield, 2007). CNN's podcasts range from business to sports, technology, health, entertainment, comedy, travel and education (CNN, n.d.). Podcasts available on the Guardian Unlimited newspaper website include reviews of political issues, sporting events, science, theatre and films (Guardian Unlimited, n.d.).

The Timesonline newspaper also offers programmes on sport, music, arts, comedy as podcasts (The Timesonline, n.d.)

A second supportive trend for podcasting is the increase in MP3 player ownership and the use of MP3 players to listen to digital sound. A British Market Research Bureau survey (BMRB, March 2007) revealed that 32 per cent of UK adults owned an MP3 player; the figure was even higher - 69 per cent - amongst the 16 − 24 age group. Nineteen per cent of the UK internet users (i.e., 73% of the adult population) downloaded a podcast during Sept 2006 − Feb 2007. About 4 million UK adults in 2007 use their phones as MP3 players. One in ten US adults own an iPod or an MP3 player; 67% of Pennsylvania State University (PSU) students own an MP3 player (PSU, 2007). In Europe, more than seven per cent of the population owned and used a dedicated portable music player in 2006, compared with two per cent in 2004 (Screen Digest cited in BBC, 2006).

A third supportive trend for podcasting is the increasing availability of free software and tools to create podcasts and distribute them on the internet, and to download and playback on MP3 players.

However, as EDUCAUSE (2007) highlights, using Web 2.0 tools such as podcasting for creating content for entertainment and informal peer-to-peer exchange is not the same as using these tools for academic learning. If podcasting is to be successfully used and scaled up in educational contexts, we need empirically based guidelines and models built on 'best practice' and sound principles. Although the academic community is showing strong interest, research into students' experience of podcasting is in its very early stages. The present paper reports a recent study of using podcasts within an undergraduate module at a UK university and derives a model for understanding how podcasts help students' learning. The research was carried as part of a national project entitled 'Informal Mobile Podcasting and Learning Adaptation' (IMPALA) with funding from the UK Higher Education Academy. IMPALA research project at the University of Leicester (www.impala.ac.uk) is investigating how podcasting can support student learning, and developing transferable models and guidelines for integrating podcasting into specific higher education contexts. The rest of this paper describes and evaluates the use of podcasting in developing first year undergraduates' study skills at Kingston University, a partner in IMPALA.

Following a brief review of the literature on podcasting in education, it outlines the teaching and learning context and the use of podcasts within a study skills module. It discusses the quantitative and qualitative research methods that were employed and provides two strands of the data analyses: students' access to technologies and the use of podcasts, and how podcasts helped students' learning.

The discussion and conclusions section develops a model for understanding how podcasts contribute to students' learning and offers guidelines for improving their use of podcasts.

PODCASTING AND AUDIO IN EDUCATION

The core content medium of podcasting is audio, which is not new to education. Audio has been used in distance and face-to-face learning for many years, and its benefits have been well reported. Based on studies at the UK Open University, Durbridge (1984) identified audio's key educational advantages. She found that students like audio learning because they like:

> ➢ responding to sound, e.g., understanding spoken language, analysing music, hearing the professor's voice
> ➢ listening in on conversations, perhaps about some part of their courses
> ➢ being 'talked through' tasks in the lab or workshop, even on the computer
> ➢ hearing facts, discussions and opinions from experts in their field
> ➢ being encouraged by the voice of somebody they know and respect.

More recently, tutor-initiated audio messages delivered via email have contributed to increasing student participation in group activities, added to a sense of community and improved the satisfaction with students' overall learning experience (Woods and Keeler, 2001). In a similar vein, (Schlosser and Burmeister, 2006) assert that audio can provide 'learning material that builds a connection between instructor and students, and among students'. Audio can also 'be a powerful stimulus to the imagination' (Scottish Council for Educational Technology, 1994 cited in Lee et al., 2007). Audiotapes 'can be used more effectively than print to talk learners through a passage and to document discussions, case studies and language pronunciation at work' (Scottish Council for Educational Technology, 1994). Crockett and Pettersons (1990) claim that audiotapes as part of study material can increase the retention rates for distance learners.

Despite these benefits, as Lee et al (2007) point out, audio 'has been neglected and underused in recent times'. Today, audio 'is experiencing a renaissance' because of the spread of portable audio players, broadband internet and software tools (Schlosser & Burmeister, 2006).

Academics from many areas of education are showing interest in podcasting for education and the first results of research in this field point towards the benefits to learners. Chan and Lee (2005) and Lee et al. (2007) studied use of podcasts in undergraduate courses and showed that informal short audio clips help to address students' anxieties and concerns about the course content and to increase the sense of belonging to a learning community for distance education students. Chinnery (2006) reported the use of podcasts to bring an authentic cultural experience to students' learning of foreign languages.

Within a module in Electrical Engineering (Optical Fibre Communication Systems) at the University of Leicester, podcasts provide students with guidance on the weekly activities and motivates them by including news and fun items (Fothergill, 2007). In Geography, podcasts provide students with group and personal feedback on their assignments (France & Wheeler, in press). Podcasts have been used to support student learning by facilitating revisiting of materials (Brittain et al., 2006) and by encouraging active learning (Jenkins and Lynch, 2006; Lum, 2006).

At Duke University in the US, students can access a comprehensive visual glossary of human neuroanatomy (Blaisdell, 2006). Podcasting is a way to 'democratise learning' in the sense that these learning materials can be accessed by disadvantaged and developing countries (Lum, 2006). Nie (2006) and Ruedel (2006) reviews included further examples of how academics are using podcasts to achieve a range of teaching an learning objectives.

For podcasting to be used on more widely, academics require empirically grounded, theoretically informed models of using podcasts to address disciplinary and context specific teaching and learning challenges.

THE TEACHING AND LEARNING CONTEXT AND THE USE OF PODCASTS

The study was conducted in 2006 within a Level 1 module entitled 'Introduction to Intercultural Communication', a core undergraduate module in Linguistics and Communication. The module is delivered via face-to-face lectures and seminars, with supplementary resources on Blackboard VLE and is assessed by portfolio tasks. Students who take this module (65 in academic year 2006–07) combine English Language with other subjects from a variety of fields: Journalism, Literature, Creative Writing, French, Drama, Business and Sociology.

Key challenges for the academics teaching this module are creating a cohort identity, teaching collaborative skills, and developing skills required for assessment by portfolio and presentations. To address these issues, the content and the delivery of the module has built in academic skills development activities with further student support provided by an academic skills development centre, staffed by trained student mentors from the final year as well as regular lecturers.

The module leader and the lecturer in charge of students' academic skills development (the last-named author of this paper) explored using podcasts as an integral part of student support activities. Six podcasts were developed, each about ten minutes long, and were delivered via the Blackboard VLE on a fortnightly basis. Blackboard VLE was considered as the delivery mechanism rather than syndication feeds (such as RSS or Atom) because the majority of students access the module on a daily basis. Each podcast consisted several elements:

> - staff summaries of key concepts, interviews with students,
> - discussions and conversations on assessment tasks between students,
> - student mentors and
> - tutors, top tips on presentation and research skills given by mentors, and local resources on personal development.

One podcast was generated entirely by the student mentors. Students were informed of the availability of podcasts from the beginning of the semester and were reminded at regular intervals during the semester. Instructions on how to find, download and listen to podcasts were also provided in face-to-face lectures.

RESEARCH METHODS

The podcasts' impact on students' learning was evaluated through qualitative and quantitative methods. Qualitative data were collected from two focus groups with eight students and personal interviews with six students. Focus groups were conducted half-way through the semester (around when the fourth podcast was
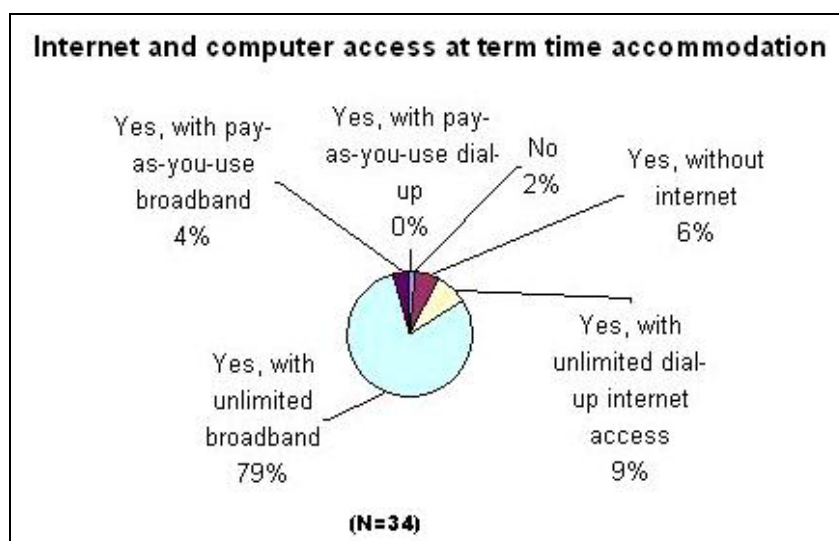
available) in order to derive an overview of patterns of podcast use, specific issues related to accessing and using podcasts and perceived benefits of listening to podcasts. Initial findings from the focus group interviews were discussed with academic colleagues to explore ways of improving podcast design and use. These issues were further explored in personal interviews with students at the end of the semester (after all the six podcasts were available). Student interviews lasted between 45 minutes to an hour and were conducted using a semi-structured interview schedule developed to elicit students' views on how podcasts supported student learning. All interviews were recorded and transcribed verbatim for analysis to identify common and specific themes and issues. Information about the research interviews and process was made available at the face-to-face lectures and on the announcement page of the module Blackboard site. Those who took part in the interviews were given a £5 book token as an appreciation of their time and effort for taking part.

Findings from the interviews were complemented by quantitative data gathered through an end of semester questionnaire. The questionnaire consisted of items with multiple answers, multiple choice and open ended questions. It aimed to capture data on the technologies available to students attending the modules, their typical usage and students' experience with podcasting (numbers of podcasts listened to, context of listening and activities carried out while listening to podcasts). The response rate was 53.8% (35 out of 65 answered the questionnaire). Quantitative data were analysed using Excel to derive descriptive statistics.

RESULTS

Student profile and their access to technologies for learning The respondents' average age was 20 years and 86% were female; they were like others on the module.

Most respondents had access to the internet via their own computer at their term-time accommodation (Graph: 1) 51% owned a laptop computer, 30%, a desktop computer, and 13% both types; 79% had access to the internet via a broadband connection while nine per cent had dial-up internet access. Only 2% had no access to the internet and a computer at their term time accommodation.


Internet and computer access at term time accommodation

Yes, with pay-as-you-use broadband 4%

Yes, with pay-as-you-use dial-up 0%

No 2%

Yes, without internet 6%

Yes, with unlimited broadband 79%

Yes, with unlimited dial-up internet access 9%

(N=34)

Graph: 1

Internet and computer access at term-time accommodation

Most accessed the internet regularly: 79% daily, 15% every other day. Only 6% reported that they accessed it twice a week.

Students Use of Podcasts
Six podcasts were available, one every two weeks, through the VLE: 50% of the respondents declared that they had not listened to any podcasts, 13% to four, another 13% to three, 7% to five, and only 3% to all six podcasts.
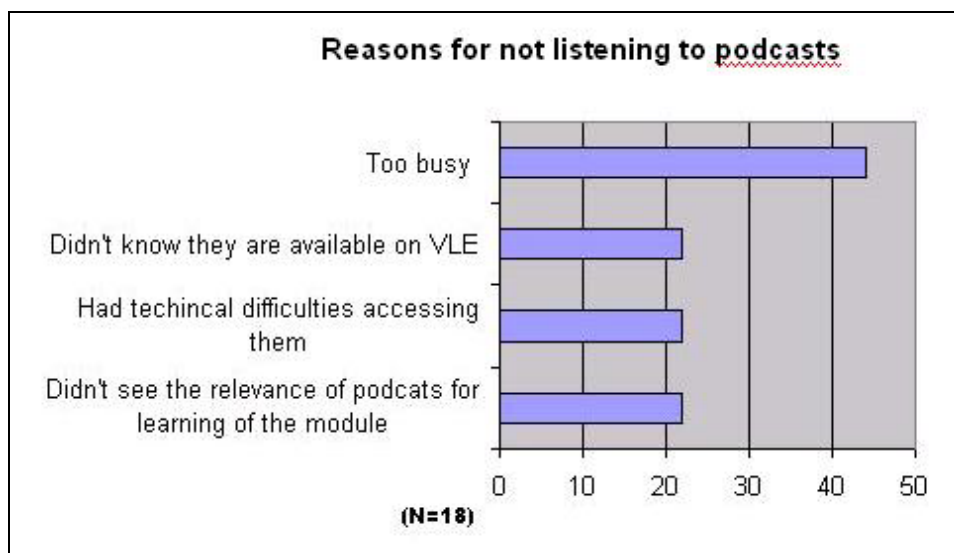
Graph: 2
Reasons for not listening to podcasts

Reasons for not listening were explored in the questionnaire (Graph: 2). For many students (44%) lack of time was a main reason for not listening to podcasts. Other reasons were: not being aware of the availability of podcasts on the VLE (22%), technical difficulties in accessing them (22%), not seeing the relevance for their learning of the module (22%).

Further reasons for not listening to podcasts were uncovered in focus group interviews. The most cited reasons were: lack of interest in topics covered in podcasts, and the fact that listening to podcasts was not compulsory or not necessary.

Students' lack of familiarity with Web 2.0 technologies such as podcasts can be an explanatory reason for the low level of listening to podcasts. The questionnaire included an item that asked what activities they carried out online. The internet was little used for listening to podcasts (9%), contributing to wikis (6%) and sharing bookmarks (4%). Accessing content (89%), using chat rooms (79%), on-line shopping (68%), playing games (47%) were the main internet activities declared. These results possibly show that students were not very familiar with Web 2.0 technologies such as podcasting.
Location and patterns of listening to podcasts

A significant proportion of respondents (44%) listened to podcasts 'always or nearly always off the campus' and 18.5% listened 'usually off campus'. By comparison, 19% listened to podcasts 'always/nearly always from the university campus' and 18.8% 'usually listened from the university campus'.

These data show the potential for making academic content available for listening beyond the physical bounds of the academic institution (see also Edirisingha et al, 2007). Students preferred to access podcasts in an informal environment: their learning was split between formal and informal contexts.

Only a small minority of students (7%) chose to use a dedicated MP3 player to listen to podcasts, while further 21% students saved podcasts to their laptops for later listening.

Most students listened to podcasts live from the VLE.

Students were asked the reasons for not downloading podcasts onto a dedicated MP3 player. The majority of students (54%) claimed that there was no need to download for later use because they could access the module anytime they wanted.

A substantial minority (31%) preferred to use MP3 players only to listen to music, and these students may think that listening to academic materials on their MP3 players is an intrusion into their personal lives.

Of the respondents, 15% had technical difficulties of downloading, and another 15% thought there was no need to listen to podcasts more than once.
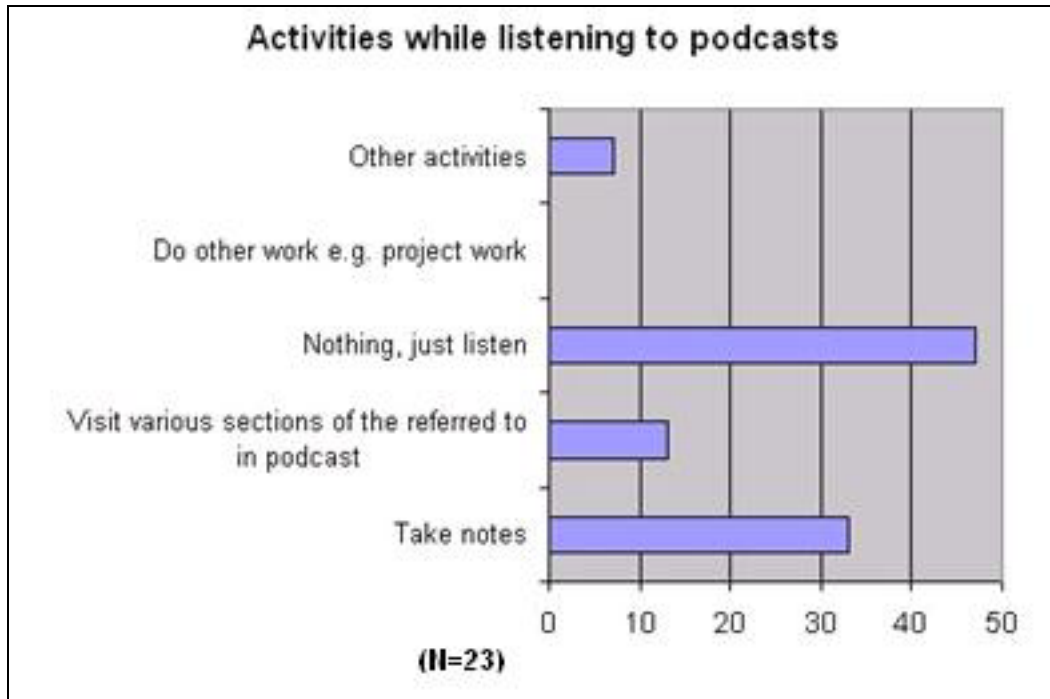
Most (53%) did not follow a particular pattern in listening to podcasts (Graph: 3). This result possibly shows a 'needs driven' podcast usage and they listened to them when they felt the need: 27% used podcasts at the end of the week, while 13% used them 3 to 4 days after they were made available. Only 7% listened just before the seminars.

None said they listened to them just before the tests or on the same day or the day after they were made available.
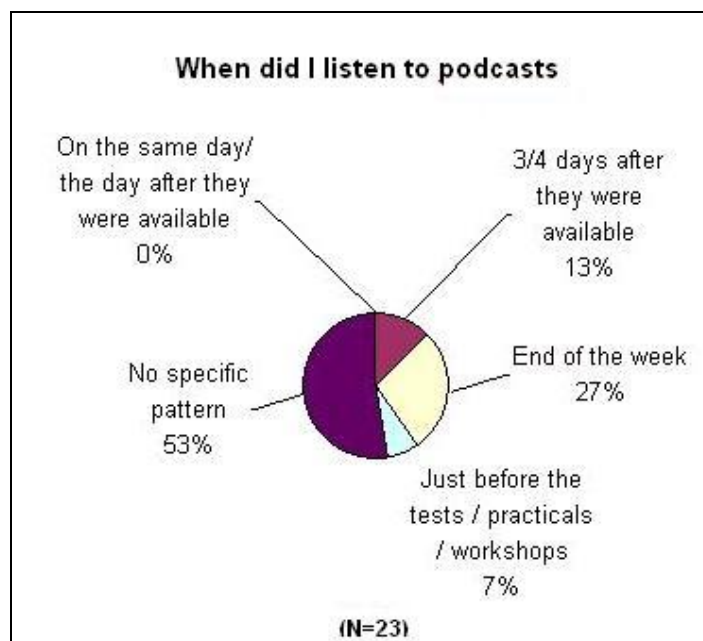
Graph: 3
Time of listening to podcasts

The interviews showed that many students preferred listening to podcasts in the evenings when they were quiet and relaxed at home.

Activities while listening to podcasts

Other activities

Do other work e.g. project work

Nothing, just listen

Visit various sections of the referred to in podcast

Take notes

0 10 20 30 40 50

(N=23)

Graph: 4
Activities while listening to podcasts

> *I prefer to do it in the evenings when I'm relaxed at home and have nothing else to do instead of trying to do it in the university and rush out to work.*

A significant proportion of the respondents (47%) just listened to podcasts without doing anything else (Graph: 4); 33% took notes, much as they did in class when listening to the lecturer, while 13% visited sections of the module being referred to in the podcasts.

In class, students could only follow what the teacher showed on the projector, whereas podcasts could promote learners' personal navigation at their own pace and rhythm. Only 7% of the students did other activities.

This possibly shows that students try to separate their study from routine personal activities such as cooking and washing.

How did podcasts help student learning?
This section presents findings in relation to the contribution to student learning and the features of podcasts, as perceived by students, which facilitated learning.

Contribution to student learning

Key objectives of developing and integrating podcasts into the module were to help students develop their study skills for assessed work, such as portfolio development and presentations and collaborative skills and to cultivate a cohort identity.

The questionnaire included an item with a set of statements to gather students' responses to key learning objectives (Graph: 5).
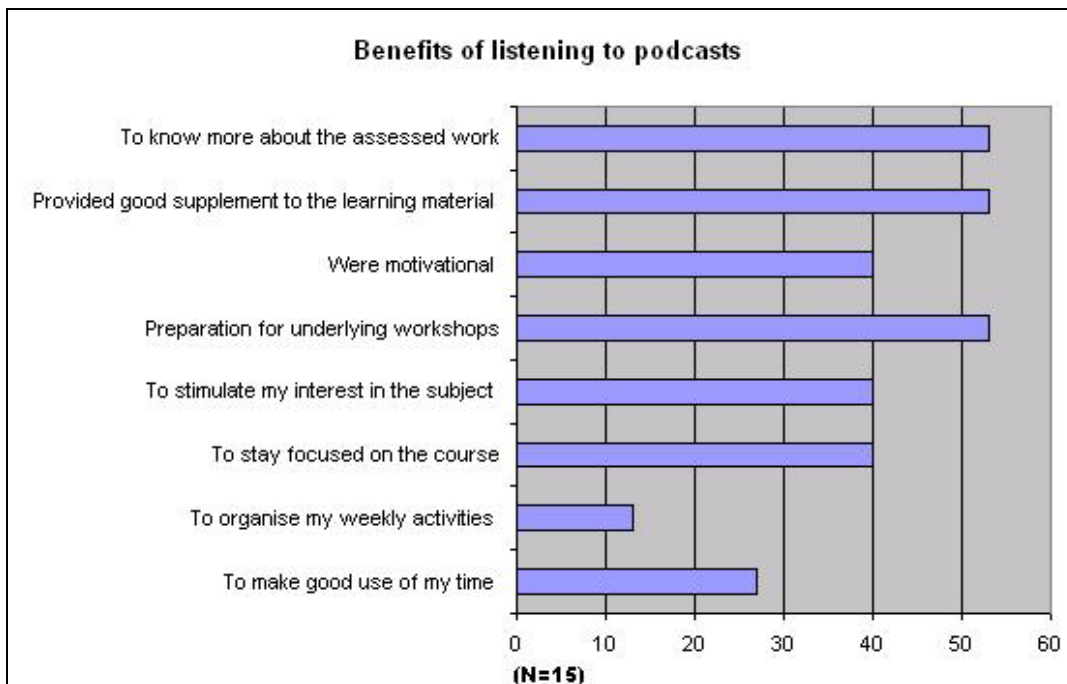
Graph: 5
Benefits of listening to podcast

Two statements ('podcasts were useful for me to know more about the assessed work' and 'podcasts were useful in preparation for workshops/seminars') ranked highest with 53% of students agreeing with each statement.

Personal interviews with students revealed how the podcasts helped them in their assessed work such as presentations. Podcasts provided students with advice and tips:

> ... we've got to do assignments and ..., presentations. [In podcasts] they ... discuss how to do presentations, so you've got to listen to it and practise it. So it's really helpful for me because although I have done presentations many times, but doing the presentation at university level is ... different, so I need such advice.

Another student commented on how podcasts were useful for portfolio tasks:

> The third one was really useful because...mentor students were talking about the portfolio task, which one you have to write, the assignment, so it's very useful...and they show you their point of view, so you can have the different or you can have the same...so I find it very useful.

Podcasts were also considered as enriching the learning resources available to study the module ('podcasts provided good supplement to the other learning material for this module', 53%). Podcasts were also useful to stimulate students' interest in the subject (40%). Additionally, podcasts were helpful in motivating them and helping them to stay focused on the course (40%). Fewer respondents mentioned the podcasts helping students to make good use of their time and to organise their weekly activities (13%).

Maybe this low percentage is related to the type of content included in podcasts: summaries, interviews and discussions related to assessed work and to provide additional learning resources.

Overall the data show that most respondents considered podcasts were a source of information relevant to their studies, but how did the podcasting support their learning?

Features of Podcasts That Supported Learning

The focus groups and personal interviews further explored students' views on the specific features of podcasts that were particularly successful in supporting student learning. Interviews revealed three broad categories: learner choice and flexibility offered by podcasts; conversational and discussion style content of podcasts that offered perspectives and advice from peers and tutors, and an unconventional, different way of learning bringing a sense of informality to formal learning. Each category will be explored with illustrative comments from student interviews.

Learner Choice and Flexibility

Many students highlighted that podcasts were flexible and convenient because the learners could listen to them at a place, time and pace of their choice. The following comment is about podcasts' ability to reach learners on the move:

> *Yeah, it just gives you an extra dimension of learning, you know, if you haven't got the time to sit down and read a book, …, I can just…on the iPod …just go out and I can listen to it, you know, if I'm walking to somewhere, I can listen to on the way.*

Many students mentioned that podcasts enabled them to revisit key concepts and topics that they had studied. Some of them pointed out the benefit of being able to stop and re-play the podcast in case they missed some part of the speech or if they wanted to listen to it again.

> *And the main difference in fact is you can stop the podcasts and go back to it if you want to listen to it again. With the lectures, it's not so easy.*

Students pointed out how learning from podcasts shifted control over the pacing of learning activities from the teacher into their own hands. Note-taking in a lecture was given as an example:

> *In lectures you have to take notes down pretty quickly because they move to the next points in the time…and [in] podcasts, you can stop, take notes down, continue whatever you like … and I think that allows the person who's listening to learn at their own pace instead of being set by the lecturer.*

Students further pointed out the advantages of being able to listen to podcast content a number of times: to catch up on points missed in a lecture, to understand concepts further, to clarify and to confirm understanding and to test their knowledge:

> *If I download a review of the lesson, the last lecture, I can listen to that before the next one, just to give me a refresher of what I've done previously, so I got a refreshed in my mind when I'm going in, what kind of things we've been looking at, you know.*

Some students appreciated the fact that podcasts provided them with another chance to access subject matter that they had missed when they were not able to attend lectures. An example came from a student who enrolled in the module a few weeks later than the starting date and, therefore, missed a few lectures. Podcasts were helpful for her to catch up; they provided an additional resource that she was able to combine with lecture notes:

> *… so having missed a few lectures, it made an awful lot easier to … download the podcasts, just to get that brief, a review of what I missed … not feel like that I missed a lot when you put together the lecture notes. Because the lecture notes are ok, but again it's very much like flat and plain, just read it and you've got, having that podcast is just an extra bit of information you might have missed, they might not be in that paper.*

As the above section shows, students identified podcasts as offering choices of how they could carry out their learning activities. Collis and Moonen (2001) suggest 'learner choice in different aspects of the learning experience' is essential for learning.

Although their conclusions were in the context of distance learning, what our research showed was that students in conventional on-campus courses also value the opportunity for having more control over their learning activities. Podcasts appear to offer this flexibility in a variety of ways. We will return to this point in the discussion section.

Access to Peer Knowledge Through Listening

Students' comments on the format of the podcasts highlighted how the particular design features were instrumental in learning. The podcasts included not only the voices of tutors, but also contributions from other students, which were incorporated in a conversational and discussion style. The design enabled students to listen to their colleagues' perspectives. An informal and friendly tone in podcasts attracted students' interest and attention:

> *Yes, this is a kind of debate going on. The students were discussing with the tutors. It was conversations going on between people. And you listen to them, and the thing is that you have the advice of, the point of view of both of them, the tutors and the students.*

This student valued the opportunity not only to receive advice from her tutor, but also to listen to personal perspectives of other students. Podcasts seem to have brought 'a real conversation between people' into the academic learning context:

> *Yes, it does make it interesting because it is a proper discussion. Even though you can't participate in the discussion, you listen to [it], and you're gaining a lot of information … on the subject.*

One student provided an example of how she preferred to receive practical advice from other students:

> *… about the portfolio tasks, I prefer to have a couple of students having a conversation. It's easy for me to understand, … for me in my situation.*

The above comments and observations by students reveal an important point about the potential of podcasts as a means of tapping into the knowledge of peers and senior students as a valuable learning resource. Although as on-campus students these students are able to interact with their peers on a more regular basis, they appreciated the added value of being able to listen to the voices of their peers and senior students. Podcasts have the potential of capturing this informal and 'tacit knowledge' that can be reused and made available to a wider student cohort. Tacit knowledge is the knowledge that resides in individuals' experience and actions (Shin *et al.*, 2001). For distance learners podcasts, like audio and video technologies in the past, have the potential of capturing informal and 'tacit knowledge' that can be presented in small chunks, reused and made available to a wider student cohort. There is also potential to encourage students to create their own podcasts for their peers.

A Different Way of Learning–Incorporating Informal Learning

Most of the students interviewed pointed out that learning with podcasts represented a new and attractive experience. None had any experience of using podcasts for learning:

> *That is a very new experience. In fact I've never heard of podcast before I came to the university, I've had no idea of what that was. I just thought, 'wow! What a great idea'! ... because it's just very easy to access .... .*

Another student compared the learning experience with podcasts to that of learning from conventional resources. For this student podcasts offered a new way of learning and studying.

> *Omm, first of all, it's not like, I mean papers, like books, you've just got to listen to it. It's another way of learning, and it's a new way of studying.*

A third student pointed out that he had listened to podcasts as a form of diversion from other academic tasks and as a form of relaxation. For this student, podcasts offered a mix between entertainment, relaxation and learning.

> *I listen to [podcasts] in the evening, and try to practise, revise everything, what things you mustn't do and must do.... Sometimes, when I'm in the Learning Resources Centre, I usually listen to the podcasts for example if I'm feeling a bit tired of typing the assignment, ... It's a kind of entertainment ... , so you just go and listen to podcasts. You're relaxing yourself listening and learning.*

Students tried to characterise the nature of this informal way of learning through podcasts. One student considered learning from podcasts as 'not serious learning'.

> *It's not really serious learning. But you do learn from it.*

For another student, the process of learning by listening was easier than reading text books:

> *..., for example, to sit down and to read, for Media Cultural Studies is very demanding, you have to really concentrate. It is quite taxing, and audio might not be much as that. It might be easier to do.*

> *Listening ... requires less concentration on your part. [Learning] just happens, you know.*

Another student focused on the fact that listening to podcasts gives you an easy and relaxed way to access information—all she had to do was to listen:

> *I remember [I was] surprised how easy it was for me to access the information, just like that, hearing it, how easy for me to be able to take notes … .*

Some of the above comments hint at a preference for learning by listening, which cannot be generalised for all learners. Students receive and process information in different ways: 'some students are comfortable with theories and abstractions; others feel much more at home with facts and observable phenomena; some prefer visual presentation of information and others prefer verbal explanations' (Felder and Silverman, 2005).

The teacher has the difficult task of offering content in a variety of formats to cater for the diversity of student preferences. Podcasts offer the teacher a new tool to provide access to information in audio format.

Although the use of audio for education is not new to education, digital audio is comparatively 'cheap and simple to produce and manipulate' (Lee et al, 2007).

Students' comments on learning by listening to podcasts revealed that they experienced a way of learning that is contradictory to general traditional conceptions of learning as an activity that is carried out by attending formally scheduled classrooms, reading books, and paying 'serious' attention to learning activities. For those who listened to podcasts, the experience hinted at possibility of carrying out formal learning through informal processes.

DISCUSSION AND CONCLUSIONS

Evidence from students who used podcasts clearly shows that they benefited from podcasts. The key objective for the use of podcasts within the undergraduate module was to improve students' learning and study skills.

Data analysis showed that podcasts were successful in supporting students' preparation for assessed work, providing significant advice on portfolio and presentations. These students highlighted various benefits linked with the use of podcast within the module. Podcasts enriched the learning resources available for the module.

They provided students with information on the assessed work and helped students in the preparation for workshops and seminars.

By identifying key features of podcasts that facilitated student learning, we will be able to develop a transferable model (as depicted in Graph: 1) and guidelines for developing podcasts that can be applicable in other contexts.

A model of how podcasts helped students' learning
The model depicts the key features of podcasts that facilitated student learning. In the middle of Figure 6 is the key objective set out by the lecturer who developed the Kingston podcasts, i.e., helping students to develop skills required for two kinds of assessed work: portfolio development and presentation skills.

The three surrounding circles depict the three main features of podcasts that supported student learning: learner choice and flexibility, accessing tacit knowledge of peers though discussions and informal way of learning.

Each of these features will be discussed following a summary of student learning outcomes from the podcasting.
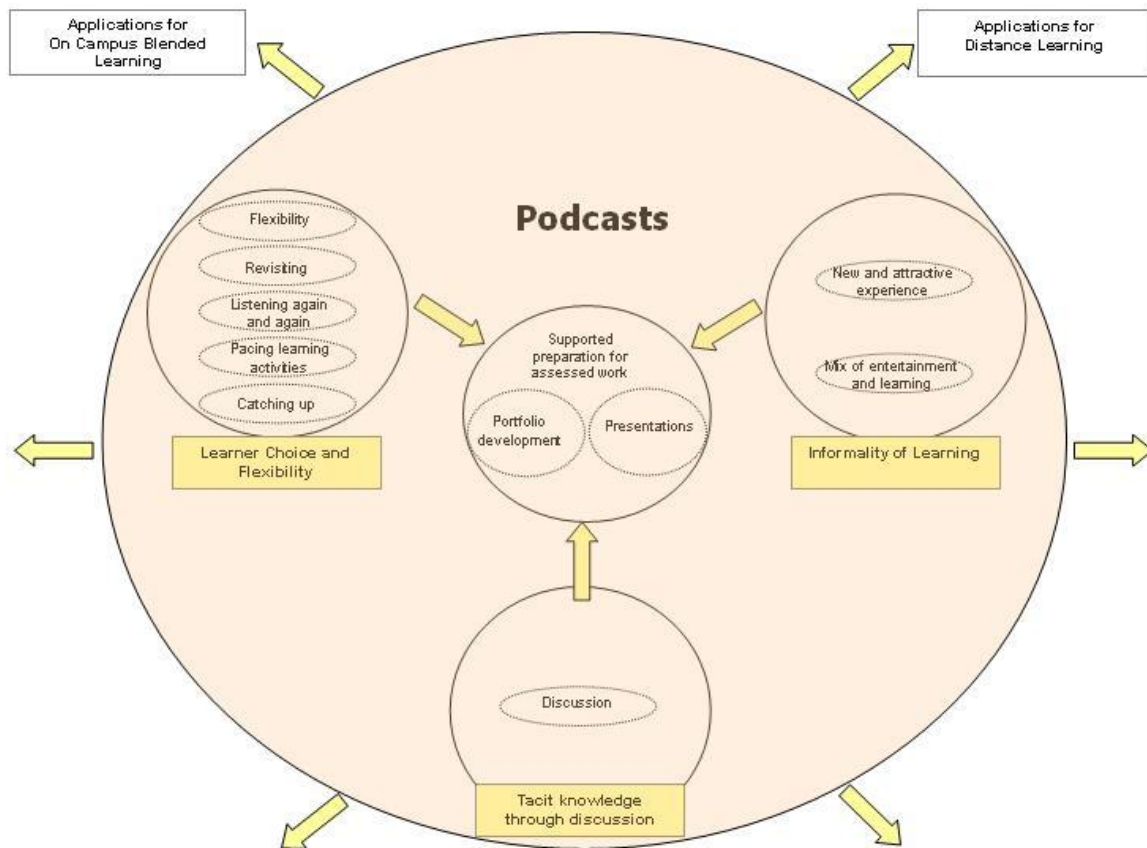

Figure: 1

Podcasts' features in facilitating learning

Learner choice and flexibility
Collis and Moonen (2001) point out that learner choice and flexibility is a key consideration in designing learning, especially in distance education. Our findings show that students on campus-based courses can also benefit from having choice and flexibility to organise their learning. Students who used podcasts considered thatpodcasts offered them flexible learning in a variety of ways. Our data analysis identified choices and options for flexibility that match the range of flexibility dimensions identified by Collis and Moonen (ibid., p. 10):

> ➢ **Time: tempo or pace of studying**
> ➢ **Content: learning material**

> ➢ **Instructional approach and resources: learning resources, modality, origin**
> ➢ **Delivery and logistics: time, place, methods, technology and delivery channel.**

Access to peers' tacit knowledge though discussions

The ability of podcasting to capture and convey the tacit knowledge of peers and senior students in a more accessible form is the second feature identified. Shin et al (2001) define tacit knowledge as knowledge that resides in individuals' experience and actions. Explicit knowledge, in contrast, is codified and communicated in symbolic form or language.

As Sternberg and Caruso (1985, p. 146) put it, tacit knowledge is 'knowledge that is, metaphorically, acquired through osmosis'. It is a form of knowledge acquired 'on the job'. Students on a higher education course, whether on-campus or distance taught, generally use knowledge that is explicit, formalised and communicated to them through lecturers, seminars, text books and other formalised learning resources. Podcasts enabled these students to gain access to the tacit knowledge and experience of peers and senior students, who according to Sternberg and Caruso's notion acquired their knowledge 'on the job', as students. Although students have access to their peers' tacit knowledge and experience through informal conversations, podcasts provided an additional resource that can capture such knowledge in a formal and re-usable way. The usefulness can be even more relevant to distance learning students.

Informal learning

The third feature of podcasting considered useful by students for their learning was the sense of informality it brought to academic learning. Informal learning is gaining much attention in the recent years, partly due to research being carried in mobile learning (e.g., Sharples, 2000, 2001). Recent literature on learning with mobile devices and using approaches were such as podcasting point to the potential of enhancing informal learning to support the overall learning experience. Sefton-Green (2004) considers the setting in which learning takes place as a continuum from a formal setting, such as a university, to social structures such as a friendship group. Learning takes place throughout this continuum.

Scanlon *et al* (2005) identify how the availability of content via a mobile device can promote informal learning through options for flexibility and the psychological dimensions associated, such as the personal ownership of devices, etc. Results from a study carried out with a group of engineering undergraduates at the University of Leicester (see, Edirisingha et al, 2007) also showed that students valued the informal way of learning offered by podcasts.

The Kingston sample of students enjoyed learning with podcasts because it was a 'different way of learning' – it was attractive and new. They perceived it as a mix between entertainment and learning which stimulated their interest in the subject. Their experience of learning with podcasts pointed to the possibility of carrying out formal learning through activities and mind-sets that are not generally associated with learning, but with entertainment and relaxation.

Some of the words students used were 'new experience', 'another way of learning', 'new way of learning', 'a kind of entertainment', 'relaxing', 'not really serious learning' and 'learning just happens'. Podcasts have the potential of providing a more informal and engaging learning experience.

Level of Podcasts Use and Guidelines For Improving Use of Podcasts

Data on the Kingston students' access to technologies for learning (such as laptops and personal computers) and to the internet via a broadband link from their term time accommodation revealed that they were technologically enabled to access academic material beyond their formal teaching and learning context. The data also showed that a significant majority of students accessed the internet and VLE daily.

Only 50% accessed podcasts regularly, however. Other IMPALA studies (Edirisingha, 2007) also show that the level of use tends to be low in the initial stages of introducing podcast technology to campus based students. The data showed a range of reasons given by students for this level of use, including that students are less familiar with Web 2.0 technologies compared with their traditional uses of the web such as for accessing information, chat room use, etc. In addition to being a novel experience, the use of podcasts was not compulsory. Lecturers who plan to use podcasts have a challenging task to get students to listen to them.

For most students podcasting is a new technology: only 9% of our respondents had previous experiences with podcasts.

As with any new technology, it is important to spend some time introducing students to podcasts. Davies *et al* (2005) identified technological issues hindering students' interaction with technology-supported learning, and found that students' IT skills vary and that some required training. Concannon et al (2005) highlighted the importance of guidance and technical support needed in order to engage students' with learning technologies. Laurillard (2002) also is stressesed the need for preparing and guiding students for technology-based learning. She pointed out that students need to be oriented towards the skills that they need to acquire for learning with technologies. Our students were provided with an introduction to accessing and using podcasts. However, it is important to reinforce such an introduction with technological information about where podcasts are located, how students can access them and how podcasts can be used for their learning.

FINAL REMARKS

Our Kingston study of podcasting, as part of a blended learning approach within an undergraduate module, demonstrated the potential benefits for students. It provided a model of the features of podcasts that can complement students' formal learning processes. Podcasts can be a useful addition to the range of tools available.

Although the use of podcasts at Kingston was within a campus-based module and the learners were enrolled for full-time courses, their pattern of learning tended to blur the demarcation line between on-campus and distant learning. As the EDUCAUSE (2007) report shows, increasing numbers of campus-based students now work at part- or full-time jobs, tend to be mature and have family and social responsibilities, which means that their time on campus is limited.

Therefore, although the findings of this research cannot be generalised to distance learning contexts, it is clear that podcasting may well be valuable for distance learning. Conversely, it is important to recognise that lessons learned over the years from research into the use of audio in distance education may be valuable in developing podcasting in education. Distance educators all over the world have been using audio in a variety of forms (radio, recorded cassettes, and audio-vision) to teach and to provide learner support.

The added value of podcasting as a technology is the ease with which both students and teachers can record, manipulate and distribute digital sound files over the internet. Where students have good access to the internet and use of personally owned MP3 players, podcasting will be worth using while they are on the move. The mix of pedagogy, technology and learner mobility can create a new breed of learning technology that takes the traditional use of audio to a higher level.

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