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Using podcasting as learning aid in Operations Management

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Abstract

This paper describes the use of podcasts as learning aid in the teaching of operations management, particularly in a Simulation class. A podcast is a digital recording of a radio program, which is normally downloadable to a portable mp3 player. The paper presents the exercise that was used with the students and analyses their response to this new way of learning. An evaluation questionnaire was used to gather data from the perceived utility and benefit gained by using the podcasts. Both quantitative (e.g. percentage of students who found the use of podcasts useful) and qualitative (e.g. what the students think are the characteristics of a good learning podcast) data is presented in the paper. Lessons for the use of podcasts in OM are drawn.

Introduction

This report describes the use of podcasts as a learning aid in the Simulation module at Aston Business School. This project intends to provide an alternative way of learning for those students which have preference for aural learning. The idea was to provide an alternative way of learning while in the university or at home, but also to provide the mobile capability that MP3 players provide, taking advantage of those dead periods when walking, riding on a bus or a train in order to study.

Origins of the idea.

This idea springs from reading the technology section of the Guardian, where the concept of podcasts was discussed (for example, see Young, 2005). At the time, the BBC had also started experimenting with podcasts in order to provide listen-again capabilities for their radio output. A condensed version of the Today programme, including the daily interview was made available for users to download. Podcasting has since become a normal feature in the BBC website and a popular feature in many other outlets (e.g. the most downloaded podcast in 2006 was the Ricky Gervais Series in the Guardian Unlimited website).

The potential for its use in learning was also starting to be explored (for an example see Leach, 2005) and the idea of using podcasts as a substitute for presentations was formed.

What is a podcast?

A podcast is a digital recording of a radio programme, which is normally downloadable to a portable mp3 player. Initially it was seen as the audio equivalent of blogging, however, its use has extended to cover interviews, opinion pieces, comedy, news and other areas.

Using podcasts in education

The flexibility of the format makes an ideal vehicle to use in education. Podcasts can be used in many ways in education. Some are outlined next:

For Students:

- As an alternative to presentations (as in the case reported here)
- To keep a learning/working log
- To make notes and observations
- To communicate with group members when dispersed across different locations.

For lecturers:

- To provide records of lessons/tutorials
- To provide feedback to students
- To describe case studies
- To bring “guest” lecturers” to the students by recording a conversation or a speech by an academic or industry expert.

For administrative personnel:

- In the marketing of the organisation
- As a communication tool to disseminate information through the organisation
- As a way of recording important lectures and talks and making them available online
- To keep records of meetings.

Using podcasts in Simulation

The students in the simulation class were tasked with the creation of a podcast for a topic assigned to them randomly. Groups of 3-4 people were formed. The students had the freedom of choosing their team members and most teams had the same composition for the podcast creation and for the coursework element of the class. An important point to make here is that students had worked on the coursework assignment before the creation of the podcasts. This is relevant because the teams were already well integrated and knew each other and had developed trust between them.

The task given to the students was:

“You will create a podcast (a downloadable radio programme) in which you will discuss the particular topic assigned to you. You can use any format for the podcast (interview, documentary, song, phone-in, sketch, etc.)

The podcast should not be longer than 8 minutes and preferably keep it song-size (3-5 minutes).

A guide on how to create a podcast is available on Blackboard or at the sites:

http://www.windowsdevcenter.com/pub/a/windows/2005/04/05/create_podcasts_with_pc.html
http://radio.about.com/od/podcastin1/a/aa030805a_p.htm
<http://education.guardian.co.uk/appleeducation/story/0,16926,1682639,00.html>

I have equipment to use when creating the podcasts. You may borrow the equipment by signing for it. The equipment will not be lent for more than 4 hours.

The equipment available includes:

Three headsets with microphone included.
One external Microphone
One digital voice recorder.
One mp3 player with recording capabilities.



You can also use the recording facilities of your mp3 players (Creative players have this feature built-in, check for other manufacturers).

In addition to your podcast, you need to submit the script used for the production of the podcast and a list of references for the information in your podcast and for 'further information' (Four references as a minimum)".

Once the instructions were given to the students, a demonstration of how to use the software to record voice and music was provided during one of the tutorials. The students worked on the creation of the podcasts over a period of three weeks towards the end of term.

The topics were assigned randomly during the lecture, using a random generator created in MS Excel. This step had two purposes: transparency in the distribution of topics and demonstration of how to create and use a random generator (in itself a topic needed for simulation).

Results

The resulting podcasts varied in style, length and sophistication. Some of the styles and typical quotes are presented in *Table 1*:

Table 1 Examples of formats, topics and dialog used in the podcasts.

Topic	Style	Typical quote
Advantages and disadvantages of simulation	Gladiators	“This week we have a new gladiator, ‘The simulator’; taking on our contestant ‘Real Life’”
Identifying data requirements	Conversation between student and “lecturer”	<p><i>“Data requirement identification Is so important for simulation First we must draw the process flow This isn’t easy, oh no! Then we identify the categories of data As defined by the model’s creator Don’t forget to consider the experiments And that is identifying data requirements!”</i></p>
Simulation in the health	Little Britain	“Simulation, Simulation, simulation...”

sector		Invented by me on July 3rd. But just who are simulation”
Three-phase rule	Lost	Locke (Shaun): “We could use the three-phase rule. I used this for simulation projects I worked on when I worked for that box company I was telling you about.”
Simulation in the military	Current events radio programme with field interviews	<Military noises in the background> Professor: Yes, simulation provides a safe environment where student pilots, for example, can make mistakes which don’t actually matter.
Comparing Multiple Scenarios	Radio discussion programme	Today were joined by two final year students Zara (Guest A) and Zoe (Guest B) from Aston University who will participate in our discussion of experimentation when comparing multiple scenarios.

In total 21 podcasts were created by the students, covering the range of topics studied in class and some additional topics needed for the exam. Most of the podcasts were produced in MP3 format, although around 20% were .wav format. This variation in format did not affect the ability of the students to listen to the podcasts.

The podcasts and scripts were then screened for inappropriate content and sound quality. Only one minor cut (less than 5 sec.) had to be made to one podcast and about three podcasts had to be “re-mastered” to improve sound quality. The main problem found was the different volumes at which different podcasts were recorded. This caused the listener to have to turn up the volume for some podcasts and start the next podcast at very high volume. A standardisation of volume was carried out before uploading the podcasts.

The podcasts and the scripts were uploaded to Blackboard™ and students were asked to listen to the podcasts and evaluate them. MP3 players were available for those students that did not have a player of their own. Acquiring these resources proved relatively inexpensive. The results of the evaluation are presented in the next section.

Examples of the podcast created can be found on <http://tinyurl.com/y47r58>

Evaluation

The students were asked to evaluate the podcasts. A questionnaire was created for Blackboard™ using Respondus 3.0. The questionnaire included:

- **Pre-podcast questions:** General questions about the familiarity of the students with the concept of podcasts, whether they have MP3 players, whether they have used/produced podcasts before.
- **Podcast creation questions:** Questions about what equipment and software was used; how many times did they have to record the podcasts, how long did they spend researching and recording the podcast.
- **Specific podcast questions:** For each podcast, students were asked to evaluate whether the podcast was easy to listen to, entertaining, added to their learning, useful for revision. In addition, they were asked to “mark” the podcast in a scale of 1 to 10. (NOTE: The student evaluation did not influence the final mark given to each podcast). At the end of the section, students were asked to select the best three and the worst three podcasts and to provide reasons for their selection.

- **Generic post-podcast questions:** These included behavioural questions such as where did you listen to the podcasts (in terms both of the equipment used, and the place where they listened to them), how many times did you listen to the podcasts. They also included evaluation questions such as describing five characteristics of a good and a bad podcast. A five-point Likert scale was used to assess the perceived benefit of using the podcasts to revise. Typical questions included whether podcast were an efficient way to revise, whether podcasts shortened or lengthened the revision time and whether they can be used as replacement for lectures, tutorial or as a complement to them. Finally, two questions about whether they would have liked to have podcast for other classes and whether they would recommend the use of podcast to other students were asked.

In general, 52% of the students were not familiar with the concept of podcasts, and 92% did not have previous experience of using podcasts. The majority used a headset (43%) or Laptop/Desktop Built-in Microphone (38%) to record their podcasts. The free software Audacity was used by 92 % of the students to create the podcast and they spent on average 8 hours per student researching the topic and 5 hours per student creating the podcast. On average they recorded the podcast four times before arriving to the final version.

When faced with the option of being given the podcasts by the lecturer or producing them themselves, 92% favoured producing the podcasts themselves. The main reasons cited were the experience of using a new technology and the learning achieved by

investigating the topic. Example quotes from the justification is: *“Because learning come through doing. And if I retook this module I would prefer to do it all over again”*. *“If the lecturer had given me the podcasts, I don’t think I would have learnt as much as I had from first hand research”*

Seventy-two percent of the students own an MP3 player. Eighty-five percent listened to the podcasts on their personal computers, 34% on their MP3 players, and 15% in a computer lab in the University. (Note that this means that students used more than one method of listening to the podcasts). The use of MP3 players is lower than originally expected, although this does not seem to affect the overall experience. 69% of student listened to the podcasts in more than one session and around 45% listened to the podcasts while on the move.

When asked whether they agreed with the statement that the podcasts were useful for revision, 88.4% strongly agreed or agreed. 85% agreed that podcasts provide flexibility in the revision, while 88.4% said that the podcasts provided information that they did not have.

Positive aspects

The students were asked to provide what in their perception were the positive aspects of using podcasts. The main themes were the innovative nature of the podcasts, the complete freedom to create the podcasts, the use of different learning methods. Some of the answers provided are provided below:

“When compared to other methods of assessment it was a more 'fun' way to do it. I learnt a lot about not just the Simulation topic we recorded but also about a new piece of software (Audacity) and Podcasts (how they can be used, how to make them etc)”

“It enables you to think more concisely about what your saying, it can sometimes be easy to write lots of information down in report format but when you come to actually saying it out aloud it makes you think a little more about what your saying!”

“Podcasts are also not as restrictive as other learning mechanisms. With the rising popularity of MP3 players it is quite easy to essentially be learning while not restricted to a desk or computer screen. I would have thought that one of the biggest benefits is the cost reductions associated with learning in this way and the fact that mobility is increased, meaning it may not be necessary for people to convene in one location in order to learn.”

“...podcasts are a *different method of learning*, which is *interesting* and *interactive*”

“The positive aspects of creating a podcast, I think are:

- Educational - As the task to be completed was fun, it made the learning aspect of the podcast assignment fun also. I found I learnt more about the

topic of my particular podcast from completing the assignment than I did from listening in the lectures. I feel this is because I was genuinely interested in creating a podcast.

- Technology - A podcast is a relatively new concept, and makes use of some technology that I would otherwise never have come across.”

Negative aspects:

The students were also asked to provide what in their perception were the negative aspects of the podcasts. Most criticisms are related to the length of time to produce the podcasts and on the quality of the information provided. Another common topic is the balance between entertainment and content. Some typical quotes are:

“The negative aspect to this, is the quality of information provided. Since some students got a bit carried away with the entertainment side of sound effects the content was lacking”

“The negative aspects include the clarity of the voice, or the quality of the recordings by amateurs.”

“When describing a complex topic, such as mathematical calculations or the significance of the shape of a graph for example, it is *useful to have visual representations*”

“Although listening to a podcast has benefits over lectures or tutorials as detailed in the previous answer, you are *unable to ask questions* straight away. Any questions have to be noted and asked at a later date. This *interaction is lost* with podcasts and asking questions is often the best form of learning.”

“I think creating a real good podcast takes time and needs better materials, which we did not have. It takes time as well to use some tools from Audacity. For example, in our group, we had to record 14 different parts from the background sound to the content/the subject of the podcast, then put them altogether, use some tools like "fade in or out", making sure the volume was alright, etc. But at the same time, this was the most interesting part in creating the podcast. So I would not say it is a negative aspect but rather that it is a difficult aspect in creating the podcast.”

“The only negative aspect I can think of is that the quality of some of the other podcasts was poor, meaning that certain topics were not covered very well for revision purposes. This is not a big problem as I would have done wide revision myself anyway, and not relied purely on the podcasts!”

These comments imply that care must be taken to select the topics that are going to be presented in the podcasts. There must be also a mechanism in place to allow interaction and feedback after the learners have listened to the podcasts. Potential mechanisms can be a session in a tutorial, a discussion forum in Blackboard or an online chat using an instant messaging service.

What makes a good podcast?

The students were also asked to provide five characteristics that they think make a good podcast. Structure, length, clarity of recording and entertaining were some of the characteristics that the students value in a good podcast. An example answer is given below

1. An interesting theme or format throughout the podcast.
2. A clear and interesting voice which shows a bit of interest in the topic- not a monotonous voice that is obviously just reading off a script!
3. Sound effects or little breaks throughout the podcast to keep the user interested and to prevent attention from wandering!
4. Useful information or content organised in a useful manner, i.e. clearly illustrating points using simple language, etc
5. Duration of the podcast - the content needs to be concise and the duration kept to a reasonable length in order to keep listeners attention.”

When asked about what makes a bad podcast the main concerns expressed were: too much focus on the delivery style at the expense of content; poor sound quality; dull, monotonous voice; too many “gimmicks”; long podcasts.

Finally, students were asked whether they would have liked to have podcasts in other classes, with 71% agreeing or strongly agreeing and whether they would recommend podcasts to other students (82% of respondents agree or strongly agree).

An unintended benefit of the podcasts was articulated by one student as “*we now have a ‘souvenir’ of our classmates voices. Maybe we will not see many of them in the future, but a podcast is a good way of remembering them*”.

Retrospective analysis

From a lecturer perspective, the use of podcasts as an evaluation tool was very enjoyable. It brought a lot of creativity and enthusiasm from the students and it was an entertaining way to assess them

In terms of the effort required, the time to listen to the podcasts was the biggest investment. I listened to the podcasts at least four times, first in order to control the quality of the information and then to actually assess the podcast. I found that it is useful to have a checklist of the issues to be covered in each topic. As mentioned by the students, it is sometimes easy to get sidetracked by the effects and neglect the content. On the other hand, I think that it is fair that a small percentage of the mark is assigned to the creativity demonstrated. Striking a good balance is not straightforward and care must be taken to ensure that this balance is achieved.

Future work

As far as the simulation module is concerned, in the next session (2006-2007), the podcasts will be carried out before the coursework and be used as the “ice-breaker” between groups. The evaluation of perceptions will be carried out again to see if the order of the podcast/coursework has any influence in the perceived value of the activity.

Potential ideas to experiment with is the use of “news feeds” (RSS: Really Simple Syndication) in which students are alerted when a new podcast or announcement is posted and the use of the video capabilities of more recent MP3 players (e.g. iPod 5th generation) and mobile phones.

Acknowledgements

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References and further information

Leach, Jimmy (2005), Podcasting for schools - the basics. Guardian Unlimited. Available at

<http://education.guardian.co.uk/appleeducation/story/0,16926,1682639,00.html>

Young, Ken. (2005) One-man band, Guardian Unlimited. Available at <http://technology.guardian.co.uk/print/0,,5243396-110837,00.html>

Simulation Class podcasts (examples): <http://tinyurl.com/y47r58>

Audacity Software: <http://audacity.sourceforge.net/>

Podcast creating guides:

http://www.windowsdevcenter.com/pub/a/windows/2005/04/05/create_podcasts_with_pc.html

http://radio.about.com/od/podcastin1/a/aa030805a_p.htm

Podcasts from the BBC: <http://news.bbc.co.uk/1/hi/programmes/4977678.stm>

Guardian Podcasts: <http://www.guardian.co.uk/podcasts/>