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# INVESTIGATING THE USE OF PODCASTS TO SUPPORT BASIC AND INTERMEDIARY SKILLS DEVELOPMENT, IN EXCEL, AT UNDERGRADUATE AND FOUNDATION LEVELS

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## ABSTRACT

*Audio or video podcasts can offer students different ways of learning and can add value by providing access to learning materials 'on the move'. This paper presents an initial investigation into the use of excel podcasts for undergraduate and foundation level students in different faculties at a single university. The podcasts were shown in lecture and seminar settings and uploaded to an online server for all students to access in their own time; either via a web browser or portable video player such as an iPod.*

*Results for the on-going study were positive with the majority of students using them for developing their understanding of excel and exam revision. Students expressed an interest in having similar supplementary learning materials for other modules. Such conclusions drawn from this study highlight the need to investigate the use of podcasts further in the teaching and learning environment.*

## Keywords

*Podcast, screencast, educational multimedia, iPod, mobile media player*

## 1. INTRODUCTION

As part of the CETL ALiC (Centre for Excellence in Teaching and Learning: Active Learning in Computing) initiative this paper discusses one of many projects being conducted across Leeds Metropolitan University within the area of technology enhanced learning. CETL ALiC is a collaborative HEFCE funded project between the universities of Durham, Leeds Metropolitan, Leeds and Newcastle [1].

In this paper we will discuss findings from an on-going investigation into the use of podcasts as supplementary learning materials to support students in their development. 'Podcasts' are digital audio or video files that can be played on a computer or downloaded to a portable player, such as an iPod [2]. Podcasts have the benefit of being continuously available and can be used flexibly by the learner, either via mobile or fixed technologies, which may enhance both learning and motivation [3].

Podcasts can be implemented as reusable learning objects to explain concepts to students. They have the advantage that the podcasts can be viewed repeatedly by students to aid understanding and for revision purposes [4]. They can also be beneficial for teaching staff as they can be reused for different student cohorts and for distance learning students. In addition, research [5] has demonstrated the potential that podcasts can offer to students for whom English is the second language.

## 2. BACKGROUND

In the academic year 2008/09, we introduced a series of podcasts to students studying on modules that covered Microsoft Excel skills as part of their course content. The modules were based in three different faculties at Leeds Metropolitan University at different levels of study.

Each module was a one semester taught module:

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1. Module A: Foundation level, i.e. on a pre-university course (approximately 130 students)
2. Module B: Undergraduate Level 1, HND (approximately 180 students)
3. Module C: Undergraduate Level 1 BA (Hons) (approximately 470 students)

[780 total student numbers; not accounting for non-attenders]

Modules A and B were taught exclusively in computer labs, Module C was taught in computer labs and lecture theatres. The short video clips, or podcasts, were developed specifically for students with varying levels of Microsoft Excel experience from basic through to intermediary level. The podcasts were designed to support the learners in acquiring, developing and maintaining excel skills.

We produced a series of ten podcasts to explain basic elements of excel, such as naming sheets and inserting columns/rows, through to excel functions such as SUM and VLOOKUP - see Figure 1. The podcasts varied from one to six minutes in length to not exceed the attention span of the listener. Module A was designed as an introductory course to excel whereas Modules B and C covered more advanced functions. Hence a subset of podcasts was used for Module A with an additional podcast based on creating charts. All ten podcasts were used for Modules B and C.

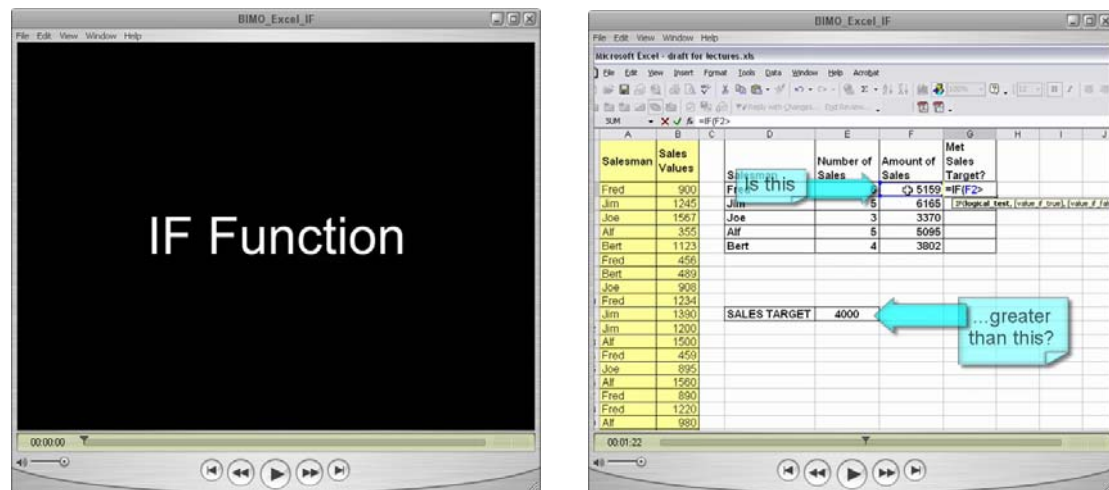


Figure 1: an example screen shot of one of the excel podcasts (IF function)

## 2.1 Development and delivery of podcasts

The podcasts were produced using screen video capture software<sup>1</sup> which allowed the recording of on screen movements and voice over. This footage was then exported to an 'editing studio' in a chosen file format, such as MP4 or MOV, edited and then finally saved as video files. These short video tutorials were then made available via the university's virtual learning environment (Blackboard Vista). The podcasts could be viewed directly through a web browser or downloaded to the computer's hard drive. In addition, the files were uploaded to the university's podcast server, which enabled students to subscribe to the podcasts via RSS feeds and RSS readers such as Apple iTunes. This meant that once a student had subscribed to the podcast series, new episodes of the podcasts would be automatically downloaded to the student's computer via the iTunes software and could then be automatically transferred to their mobile multimedia player.

The podcasts were shown to the students in the lab sessions (Module A and B) and lectures (Module C), and the students were encouraged to view them again in their own time.

<sup>1</sup> We used Camtasia Studio (<http://www.techsmith.com/camtasia.asp>) but free open source software is also available, such as <http://camstudio.org/>

Members of staff teaching on the modules used the podcasts in different ways; some offered the podcasts as supplementary materials to be viewed in addition to the course material, whereas the majority of staff used them to demonstrate excel concepts within the class environment.

### 3. DATA COLLECTION AND RESULTS

Shortly after the students had completed the excel section of the module, they were encouraged to complete a short online survey (ten questions) or module evaluation survey to gather their views about the podcasts. Information was sought on issues such as how useful the students found the podcasts and whether they accessed the podcasts outside university. Ethical approval had already been confirmed via the university ethics committee.

Data was collected from Module A and Module C at similar points in the academic calendar. The data collected was analysed and as a result additional questions were added to the survey for Module B in order to collect richer data, such as in what ways they used the podcasts, i.e. as a reminder or for development of skills. Response rates to the surveys were as follows: Module A (53 out of 130 students) 41% return rate; Module B (66 out of 180 students) 37% return rate; Module C (86 out of 470 students) 18% return rate.

#### 3.1 MODULE A (Foundation Level)

From the results collected for Module A, 64% of the respondents stated that the podcasts were 'useful' or 'very useful'. 56% of the respondents said that they would like to have similar podcasts in other modules.

Having been shown the podcasts in the classes 44.5% of the respondents went on to view them again in their own time either at home or on university campus. Figure 2 shows the number of times that the excel podcasts were viewed by the students on the module. The podcasts were accessed a total number of 159 times with 'getting started' viewed the most (58 times).

Excel podcast episode	Visits	Length of podcast (minutes)
Getting started	58	01:36
AutoFill Insert Col	41	01:08
Creating charts	35	03:19
Dates Times	25	01:58
<i>TOTAL</i>	<i>159</i>	

Figure 2: Usage statistics for excel podcasts Module A

#### 3.2 MODULE B (Undergraduate Level 1 HND)

Responses to the evaluation for Module B showed that 79% thought the podcasts were 'fairly' or 'very easy' to view. However, outside of the lessons, only 1.5% viewed them on their iPod as stated in the questionnaire. 44% of the sample had viewed them again on their home PC, 15% of the sample had revisited them on a campus computer and 45.5% of the respondents had not viewed them again outside of the lesson.

With regard to how the podcasts were used, 74% found that they aided their understanding of the information better, and 26% used them if they happened to miss the lecture or tutorial. A high proportion of students, 83%, said that they would like to have similar podcasts for other modules.

The podcasts were accessed a total of 544 times by the students on Module B. Figure 3 shows a breakdown of the number of visits per episode, as well as the length of each podcast. It is worthy of note that the 'Getting started' podcast received the most number of hits (136).

Excel podcast episode	Visits	Length of podcast (minutes)
Getting started	136	01:36
Updating Formula Results	70	01:24
Dates Times	62	01:58
Auto Fill with Cell References	46	02:40
Auto Fill 4 Formulas	45	02:32
COUNT IF Function	44	01:51
VLOOKUP	43	05:28
IF Function	37	02:41
Creating Charts	29	03:19
SUM IF	25	01:59
AutoFill Insert Col	7	01:08
<i>Total</i>	<i>544</i>	

**Figure 3: Usage statistics for excel podcasts Module B**

### 3.3 MODULE C (Undergraduate Level 1 BA (Hons))

Of those students who responded to the evaluation for Module C, 23% made the extra effort to provide further written feedback stating that the excel component and how it was delivered was one of the elements of the module that they had enjoyed the most.

Usage statistics for Module C showed that the podcasts were accessed a total number of 871 times during the module, November 2008 to January 2009 - see Figure 4 for breakdown. In line with the other two modules (A and B), the 'Getting started' podcast was viewed the most times (198). Out of the total number of viewings, 673 hits (77%) occurred the week leading up to the module exam demonstrating the popularity of the podcasts for revision purposes. In addition the podcasts were viewed 15 times the week before the reassessment module exam which was sat by 20 students.

Excel podcast episode	Visits	Length of podcast (minutes)
Getting started	198	01:36
Dates Times	101	01:58
COUNT IF Function	93	01:51
Updating Formula Results	91	01:24
Auto Fill 4 Formulas	83	02:32
AutoFill Insert Col	74	01:08
IF Function	60	02:41
VLOOKUP	59	05:28
SUM IF	58	01:59
Auto Fill with Cell References	54	02:40
<i>Total</i>	<i>544</i>	

**Figure 4: Accessing excel podcasts for Module C (November 2008 - January 2009)**

Teaching staff from all three modules teams reported positively towards the podcasts as a teaching resource. In addition, they stated that their students commented that they liked watching the podcasts and found them useful and relevant.

## 4. CONCLUSION AND FURTHER RESEARCH

Results gained from our initial investigation were positive towards the use of podcasts for excel teaching. The students on the whole spoke favourably about the short video clips in the survey responses and in addition spoke with enthusiasm to the teaching staff on the modules.

A significant outcome for the research team was the demand for similar podcasts for other modules from each of the student cohorts surveyed. Additional use of the podcasts, outside of the classes, varied from revision to developing knowledge of the skills required. The podcasts for Module C were accessed the most in the week preceding the final module exam indicating their popularity for revision purposes. The usefulness of podcasts for exam preparation has also been found by other studies (see for example [5], [6]).

With regard to viewing the podcasts in their own time, only 1.5% of the students in one module (Module B) downloaded podcasts to a portable device. However as this was not explicitly mentioned by most staff teaching on the modules, this figure is not surprising. Other studies, such as [7] also found that podcasting does not equate to learning via mobile devices, even though podcasting technology supports the possibility of mobile learning. Further research on this will be undertaken.

Although we did not look specifically at the use of the podcasts by international students; Module A was delivered solely to international students and hence we can draw some positives from this resource for non-native English speakers. Research in other case studies at our university strengthens this finding in that podcasts were particularly perceived to be useful as they allowed re-listening to the learning materials and provided further support in learning the language [8].

With an emphasis on demand by the students for similar podcasts in other modules the need to investigate the use of podcasts further in the teaching and learning environment is warranted. We are currently in the process of producing more podcasts for additional modules in order to conduct further evaluation with a focus on potential benefits for international students. In addition we are planning to investigate student preferences with regard to accessing podcasts, such as via a web browser or mobile device.

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