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Delivering unprecedented access to learning through podcasting as OER, but who,s listening? A profile of the external iTunes U user

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Highlights:

- First large scale survey of iTunes U independent learners.
- Most learners are aged 25-54 and in full time employment.
- Users access learning resources on iTunes U mostly because of personal interest.
- Materials designed for distance learning may lead to higher downloads and ratings.
- Better knowledge of users should lead to better material design.

Computers and Education submission

Title: Delivering unprecedented access to learning through podcasting as OER, but who's listening? A profile of the external iTunes U user

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Delivering unprecedented access to learning through podcasting as OER, but who's listening? A profile of the external iTunes U user

Abstract:

Little is known about the learners who download iTunes U resources but do not belong to the Higher Education institutions that provide them. This paper presents the first full profile of the external iTunes U learner and their practices and opinions of the materials they download. The data was gathered through a large survey (over 2000 responses) carried out over two years using the iTunes U site from The Open University. It shows that external iTunes U learners are very different from the internal users and practices described in the literature so far: there are more men than women, mostly middle-aged, and they use the resources mostly for personal reasons. Despite the fact that respondents used the iTunes U site from a distance university, the paper argues that the respondents are comparable to external learners who use resources from other iTunes U sites. This profile of the iTunes U user provides a clearer picture of the target listener and can help inform and improve the materials design and delivery strategies for iTunes U as an independent learning tool and Open Educational Resources (OER) in general. The article also proposes areas for further research and argues for more studies into external learners' use of podcasting resources.

Keywords: adult learning; distance education and telelearning; evaluation of CAL systems; lifelong learning; media in education.

1 Introduction

The most popular method of distribution of learning podcasts is through iTunes. The iTunes store was launched in 2003 in the US and from 2004 in Canada, parts of Europe and beyond. By October 2011 it had reached 16 billion downloads. As well as songs, it soon started distributing other media including music videos, films, and podcasts. Apple launched iTunes U in 2007 as a repository of audiovisual materials (as well as PDFs and iBooks) provided by universities to disseminate digital education content, both to the general public and - in some cases - to their own students through an internal section accessible through password protection. The service was heralded as as a new way of providing unprecedented access to lectures and materials created by top experts in their fields. It was also immediately successful, and within three years it had reached 300 million downloads (Apple press release, 2010). iTunes U was initially open to U.S. and Canadian universities. In June 2008, institutions from Australia, New Zealand, Ireland and the U.K. joined the service, followed in January 2009 by universities throughout the rest of Europe and beyond. This expansion met with similar success: in the first week since its launch, the iTunes U service from Oxford University in the UK provided 60,000 downloads, and by August 2009 they had reached 1 million (University of Oxford on iTunes U website). As of February 2013, more than 1200 colleges and universities,

and 1200 K-12 schools and districts in 30 countries have active sites (Apple press release, 2013), with hundreds of thousands of files available for public download. There is also a 'Beyond Campus' section, where other educational content providers (such as museums and libraries) also make resources available.

With the launch of the iTunes U app in January 2012, the accessibility of the context expanded, leading many commentators to talk about a revolution in education. As an explanation for the success of iTunes U, Ford (2009) states that there is a clear appetite for online lectures, making reference to the success of sites such as TED or YouTube EDU, and welcomes the access granted to great experts in their field from top prestigious universities, previously available to an exclusive minority only. Ford ponders what the universities which do so have to gain from it. She quotes Steve Carson, president of the OpenCourseWare consortium, who claims that "online content attracts prospective students, keeps alumni connected and encourages innovation" (Ford, 2009, p. 44).

Although iTunes U provides a wealth of teaching and learning material beyond the audio or video resources that are usually associated with podcasting, most research into iTunes U has been based on the research carried out on educational podcasts. It could be argued that the principles are the same: the delivery to the wider public of mostly audio-visual teaching and learning materials online, which makes the research in that field relevant to research into iTunes U.

As podcasting grew in terms of content and popularity around the middle of the first decade of the 2000s, researchers started looking into its potential as a teaching and learning tool. Early reports described the technology and pondered its potential uses (Blaisdell, 2006; Clark & Walsh, 2005; Laing et al, 2006, Manning, 2005; Meng, 2005, Sloan, 2005), followed by a number of research projects into actual use of podcasting (Belanger, 2005; Edirisingha et al, 2007; Lee & Chan, 2007; McCarty, 2005). Many of the research reports on the impact of podcasting have found that students rated the podcasts highly as supplementary materials, to catch up on missed lectures, and as revision tools (e.g., Bennett, 2008; Copley, 2007; Daniel & Woody, 2010; Evans, 2008; Fernandez et al, 2009; Lee & Chan, 2007; Malan, 2007; Walls et al, 2010). A review of learning outcomes based on podcasting for teaching and learning initiatives found that there was "no significant difference in students' actual performance" (Hew, 2009). Similarly, O'Bannon et al (2011) found no significant differences in achievement or study habits; they linked this to unfamiliarity with podcasts and lack of awareness of both their potential for learning and technical know-how. Research into actual attainment (Lord, 2008; Stephenson, Brown and Griffin, 2008; Daniel & Woody, 2009; McKinney et al, 2010; Abdous et al, 2012) has so far produced mixed results: the research projects varied in terms of context, approaches, and degrees of success (see Rosell-Aguilar, 2009, and Heilesen, 2010 for overviews of different projects and their outcomes). Research into podcasting as an educational tool, has been "isolated, disconnected and highly contextualised"

(Lee et al, 2009, p. 58), so it is difficult to make generalisations about the findings reported.

None of these studies were carried out on podcasts delivered through iTunes U to non-formal learners external to the providing institutions. Is the iTunes U learner the same as the learners that took part in those studies? There is some evidence that the type of learner (either enrolled on a course or outside learner) has an effect on their use of podcast material, as found in (to this researcher's knowledge) the only paper available that compares 'internal' learners from a university with 'external' learners through iTunes U (Hürst, Welte & Jung, 2007). Hürst, Welte & Jung's research found that whereas internal learners fitted with the traditional university student age bracket, the age distribution of external users was more diverse, ranging from 17 to 53. The motivation for listening was different too: internal learners listened for credit; in contrast, external learners did it mostly out of personal interest, although education and work featured among their reasons too. These differences between internal and external learners may have an effect on teaching delivered through iTunes U.

Teachers usually know their students: whether they fall into the traditional demographic, their socio-economic background, cultural make-up, learning style etc., and they use or design appropriate resources taking these circumstances into consideration. When they upload the materials they have developed to an online distribution repository such as iTunes U for external consumption, those materials can be considered Open Educational Resources (OER). The term OER is defined as "the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes". (UNESCO, 2002, in Geser, 2007 p. 21). Geser (2007, p.20) identifies two attributes of OER (not including open software):

- that access to open content (including metadata) is provided free of charge for educational institutions, content services, and the end-users such as teachers, students and lifelong learners;

- that the content is liberally licensed for re-use in educational activities, favourably free from restrictions to modify, combine and repurpose the content; consequently, that the content should ideally be designed for easy re-use in that open content standards and formats are being employed;

As Geser points out, however, "these are rather demanding principles and, in fact, repositories of educationally relevant resources often do not fully abide by them" (ibid). Indeed, although the practice of making materials available as podcasts fits with the principle of using technology to provide educational resources for use by others, it does not fit with the idea of those resources being open. In most instances, learners and teachers may use them for their own purposes and many teachers may indeed integrate them into their teaching, but the copyright for the most part remains with the providers and permission to modify or repurpose the content is not given.

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This is changing, however: some institutions, including Oxford University in the UK and Stanford and MIT in the US, now offer some of their materials under a variety of Creative Commons (CC) licences, some allowing sharing and remixing for derivative works.

Since most providers of open educational resources through iTunes U offer materials that were originally intended for their own students, their resources go from being ideally designed for their target audience, to being a resource that – despite high production values and unprecedented access to leading figures in the subjects – may not be appropriate for the listener. From teaching a known audience, providers teach 'strangers' instead. The concept of teaching strangers was used by Panter (2010) to explain the difficulties that school librarians face when trying to advise students about whom they know very little on what educational materials would be best for them.

The iTunes U providers' audience will vary in many ways. Variation factors may include:

- personal circumstances: geographical location, age, gender, occupation…

- aims (teachers wanting to use the resources available for their own teaching purposes, casual learners, learners studying the topic at another institution…)

- expectations from the resources in terms of content (full lectures, revision notes, a small concise nugget…) and format (audio, enhanced audio, video, transcript, eBook…).

- previous knowledge of the subject, as well as their abilities, ranging from those with a high level of digital literacy to others who may struggle with some of the aspects of the technology.

There is a call for research into podcasting to move from the individual academics or lecturers into institution-wide initiatives (Lee et al, 2009). So far, most studies on this area have been short-term, and longitudinal studies on podcasting as a teaching and learning resource are extremely rare (Heilesen, 2010). Several areas for further research in the use of podcasting for teaching and learning have been identified. These include not only basic information about the type of learner who downloads educational podcasts, but also obtaining further data on how they use the resources and what they think of them (Rosell-Aguilar, 2009). Despite the great claims during the iTunes U launch and the very large numbers of downloads it generates, very little information is publicly available about what the take-up of these types of resources outside their own target audience is. The main questions that frame the research for this study are therefore:

- Who downloads resources from iTunes U?

- How do users engage with the resources they download?

- What is the users' opinion of the resources they download?

- What else would users like iTunes U to provide?

The next sections will describe the research conducted to answer these questions.

2 Methods

2.1 Context

One of the most successful content providers for iTunes U is The UK Open University (OU). The OU was one of the first universities invited to contribute materials when iTunes U launched in Europe in June 2008. In August 2010, the download figures for iTunes U overall had reached 300 million (Apple press release, 2010), of which 25 million were from the iTunes U at the OU site. By February 2013 the number of downloads for iTunes U overall had risen to 1 billion (Apple press release, 2013), and in the same month the OU reached over 60 million downloads (not including any from the OU intranet), making it the iTunes U provider with the largest number of downloads in Europe.

Even though the OU is based in the UK, only 9.9% of downloads (as of January 2012) originate there. The largest countries in terms of iTunes U at the OU downloads are: the USA (26.8%), Canada (3.7%), China (3.4%), Australia (2.5%), Germany (2.2%), Japan (1.8%), France (1.7%), Netherlands (1.2%) and Spain (1.1%). The remaining 45.4% are from elsewhere, but no other country accounts for more than 1% (The Open University on iTunes U Impact site, 2012).

The iTunes U at the OU site offers a large number of educational digital materials, referred to as 'collections'. The collections comprise a set of audio and/or video resources, which in most cases include PDF transcripts. As of February 2013, 428 collections containing 3,261 tracks (1,484 audio, 1,777 video – as well as PDF transcripts and 423 iBooks) are available for download from iTunes U at the OU (The Open University on iTunes U Impact site, 2013).

2.2 Data collection

To find out more about the profile of the iTunes U at the OU user and how they engage with the materials they find there, an online survey was created using Surveymonkey. Questions can be classified into four sections: personal data (age, gender, occupation), use of podcasts (why they download them, which subjects), opinion of the materials downloaded (quality, rating, whether the podcasts improved knowledge of the subject) and further use of iTunes U (what else users would like from iTunes U, paying for content, certification of studies).

A link to the survey was featured on the main page of the iTunes U at the OU external site and placed on each external individual collection page. The data collection ran for 21 months between 2009 and 2011. Of the total number of responses, 94.3% was collected in the first 12 months that the survey ran for. The drop off after that time was due to layout changes: in August 2010 iTunes U changed the way external links are displayed, which made the link to the survey less prominent. In addition, from September 2009 it became possible to access iTunes U directly from devices that run iOS (Apple's mobile Operating System) such as the iPhone or iPad. Unfortunately, iTunes U did not display the link to the survey to users who accessed iTunes U from such devices, another reason for the major drop in respondents.

In total 2129 responses were collected, although not every participant responded to every question. The data was statistically analysed using SPSS 19. Due to the exploratory nature of the research questions, the data was analysed using descriptive statistics.

2.3 Participants

A question in the survey asked users whether they use the podcasts mostly for learning or mostly for teaching. Since this study focuses on the use of iTunes U for learning, all respondents who indicated that they use the podcasts for teaching (3.7% of the 1970 who responded to that question) as well as anyone who did not respond to it were eliminated from the data used. The total number of learners was therefore 1891.

All 1891 respondents gave their age, arranged from under 15 to over 65. Of the 1874 learners who opted to provide information about their gender (17 chose not to), 1049 (55.5%) were male and 825 (43.6%) were female. It breaks down as follows, including the male / female percentages for each age bracket:

Table 1: Age range and gender breakdown.

Age	Number of respondents	Male	Female
Under 15	26 (1.4%)	38.5%	57.7%
15-18	118 (6.2%)	37.3%	61%
19-24	203 (10.7%)	53.7%	46.3%
25-34	356 (18.8%)	55.1%	43.8%
35-44	394 (20.8%)	53.3%	45.7%
45-54	374 (19.8%)	58.8%	40.4%
55-64	305 (16.1%)	59.7%	40%
Over 65	115 (6.1%)	67.8%	30.4%
Total	1891	1049 (55.5%)	825 (43.6%)

Some figures do not add up to 100% because of those respondents who chose not to disclose their gender.

Respondents were asked to select where they live: some 34.8% are from North America, 33.4% from the UK, 17.8% from another European country, 4% from

Australia and New Zealand, 3.9% from Asia, 3.3% from South and Central America, 0.7% from Africa, and a further 0.7% from the Middle East. The remaining 1.4% indicated "other".

With regards to their employment status, most respondents are employed (40.2% in full-time and 6.8% in part-time employment) and only a small proportion are students (15.4% full-time and 2.5% part-time). Other respondents are self-employed or doing freelance work (11.3%), retired (8.6%), unemployed (5.2%), have family responsibilities (2.9%) or doing unpaid voluntary work (1.9%). The remaining participants either selected "other" or "prefer not to say".

A separate question asked participants if they are registered on an Open University course. The majority of respondents (82.1%) are not.

3 Results

The main results from the survey are presented below.

Table 2: Reasons for downloading and gender of respondents.

Why are you interested in the podcasts you download?	All	Male	Female
Personal interest	71.7%	57.5%	41.7%
Relevant to my profession	11%	53.9%	44.5%
Relevant to my studies	17.3%	46.8%	52.8%

Some figures do not add up to 100% because of those who chose not to disclose their gender.

Cross-tabulated with the respondents' main occupations, the breakdown is as follows:

Table 3: Reasons for downloading and occupation of respondents.

	All	Employed full-time	Employed part-time	Full-time student	Part-time student	Retired	Unemployed
Personal interest	71.7%	74.2%	71.1%	58.1%	45.2%	89%	83.5%
Relevant to my profession	11%	13.9%	14%	6.4%	2.4%	1.3%	4.4%
Relevant to my studies	17.3%	11.9%	14.9%	35.5%	52.4%	9.7%	12.1%

The next question asked respondents to select the subject area they download OU on iTunes U content from. If more than one applied, they were asked to only select their main subject area. In table 4 below the subjects are presented in order of popularity as reported by the respondents, the ratio of males/females for that subject, and the age bracket that downloads resources from that subject most.

Table 4: Most downloaded subject areas, gender breakdown and age range.

Subject	Percentage of respondents	Male	Female	Age bracket
Languages	24.1%	52.5%	46.6%	35-44
Arts and Humanities	19.3%	47.4%	51.5%	55-64
Science	16.2%	64.1%	35.6%	45-54
Psychology	8.7%	41.5%	57.9%	35-44
Social Sciences	7.2%	48.2%	51.1%	25-34
Mathematics and Statistics	4.4%	76.2%	22.6%	45-54
Engineering and Technology	4.1%	83.3%	16.7%	35-44
Creativity and design	3.9%	47.9%	52.1%	45-54
Computing and IT	3%	80.4%	17.9%	25-34
Environment, Development and International Studies	2.5%	70.2%	25.5%	35-44
Law	2.5%	68.1%	29.8%	35-44
Health and Social Care	2%	43.2%	56.8%	45-54
Childhood and Youth	1.1%	30%	65%	25-34
Other	1.2%	61%	39%	45-54

Some figures do not add up to 100% because of those respondents who chose not to disclose their gender.

When asked to rate the overall quality of the content of the OU podcasts they downloaded, the responses were very positive: some 40.6% rated the materials "very good" while 44.3% rated them "good". Far fewer (12.2%) reported them to be "OK" while very few (0.6%) rated them "not so good" and even fewer (.1%) considered them "terrible". A further 2.2% reported that the quality was "variable". There was no significant difference between the different age groups for this question. With regards to gender, the split for those who rated the materials positively matched the overall gender of respondents (55% males / 45% females).

Participants were asked whether using the OU podcasts had improved their knowledge of the subject area. In response to this question 95.7% selected "yes", and 4.3% "no".

In the only open question in the survey, participants were asked what else they would like the OU on iTunes U to provide. A total of 455 responses were gathered. The vast majority of these said they wanted more content and more subjects. Other respondents suggested study skills, and making the vast OU archive material (the University has broadcast TV programmes since the 1970s) available online. Eight respondents stated that they would like to see full OU courses online, and a further eight expressed a preference for longer, more in depth lectures – similar to the type of content other universities provide on iTunes U.

The final two questions asked participants whether they'd consider paying for more content (at the usual track price of US$0.99, £0.79 or €0.99) and whether they'd be interested in taking some form of assessment (for a fee) leading to a qualification based on a fuller version of the current podcast content. In response to this question, 44.9% of respondents claim they would be willing to pay, and 69.1% say they would be interested in a qualification.

4 Discussion:

This section will discuss the results and provide some tentative hypotheses about the issues raised, presented below in four sub-sections corresponding to the four main research questions outlined in the introduction.

There has been very little publicly-available research into external learners using iTunes U as a teaching and learning tool, so there is no major body of work to compare these results to. As a consequence, and given the exploratory nature of this study, the results raise as many questions as they answer.

4.1 Who downloads resources from iTunes U?

There is a common stereotype that gadgets and new technologies appeal more to men than women. In several of the previous research studies available, though, a large proportion of respondents were female (e.g. O'Bannon et al, 2011, Bolliger et al, 2010). Other findings suggested that females pay a higher level of attention and find the content of podcasts more relevant than males had (Bolliger et al, 2010). This could simply be a reflection of the pool of students who have been surveyed in the past. According to the UK Higher Education Statistics Agency (HESA, 2012), of a total of 2,501,295 students (full and part time, undergraduate and postgraduate) in 2010-2011, 56.4% were female and 43.6% male. Similar ratios (57% female) can be observed in the US as well (Holder, 2009). Given that the respondents for this survey were overall 56% male and 44% female, this seems to support the stereotype that podcasting technology appeals more to men. This might suggest that podcasting could be a way of attracting more males to university studies.

However, the cross-reference of the data for age and gender shows that male users tend to be older than female users. From the 15 to 18 range, the percentage of males increases proportionally with age, whereas the percentage of females decreases. Among younger users (under 18) females outnumbered males 61.7% to 38.3%. In contrast, the percentage of over 65 respondents was 69% males and 31% for females. This could be interpreted as a sign that the stereotype that podcasting technology may appeal more to men than women may not apply to younger generations.

Even though the download data shows that around 30% of downloads originate in the USA and Canada and nearly 10% in the UK, the percentages of respondents are quite different, with 33.4% of participants stating they live in the UK. It may be the case that UK residents are more likely to respond to a survey about a British University. Over 72% of survey respondents came from countries where English is the main language. One can only hypothesise as to why this is. A possible reason is that the survey was carried out in English. However, the vast majority of the resources available (with the exception of language learning materials) are in English too. Another possible explanation could be because iTunes has had a much bigger

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presence in those countries. It is interesting, however, that many among the top 10 countries where users download from (China, Germany, Japan, France, Netherlands and Spain) are not English-Speaking. There could be many reasons for this: it could be interpreted as a sign of the global predominance of English as a lingua franca among non-native speakers; maybe the downloads are generated by English native speakers in those countries; or perhaps some of those users from non-English speaking countries download the resources as English language learning materials.

There was an expectation that iTunes U materials would appeal to older users (Hürst, Welte & Jung, 2007) and perhaps also retired people, who may have more time on their hands for learning. Indeed, few respondents were in the typical university student 19-24 age bracket or full-time students, but only a small number are over 65 or retired. It appears that the OU iTunes U user is typically between 25 and 54 years of age and employed. This is consistent with previous findings (ibid).

The majority of respondents are not registered on an Open University course. This confirms that most users of OU on iTunes U resources are external learners, and it is reinforced by the fact that over 66% of participants are not based in the UK, where most OU students live. For the purposes of this study, we consider all respondents 'external': it is most likely that the vast majority of the 17.9% of users who stated that they are enrolled on an OU module are not studying the subject they download materials for. The reason for this is that the resources on the university's public iTunes U site are aimed at external learners, and any resources that are part of a module can be found on the internal OU site. Their reason for downloading OU on iTunes U materials could therefore be awareness of their presence on iTunes U or an appreciation of the quality of OU materials.

4.2 How do users engage with the resources they download?

The responses from the previous section confirm that participants are not primarily traditional internal students. Therefore it is not surprising that less than 18% of the respondents who download OU resources from iTunes U do so because the materials are relevant to their studies. It also echoes the findings of Hürst, Welte & Jung (2007). Predictably, those respondents between ages 15-24 (the age bracket that most traditional university students fit into) have a bigger presence among those respondents who download because it is relevant to their studies than among those that download for personal or work reasons. However, the correlation between reasons for downloading and occupation shows that - even though 'student' is the occupation with the highest proportion of respondents who are interested in the materials because of the relevance to their studies - a large proportion of those respondents still download for personal interest.

Languages is by far the most popular subject. Language learning is an area where the use of audio material fits particularly well (Rosell-Aguilar, 2007). Many language learners look for language learning materials online (either as independent learners

or to complement their formal studies), so it makes sense that it would be a popular subject. This is supported by actual download numbers, as languages account for over a quarter of OU on iTunes U downloads.

Even though the gender mix was approximately 56% male / 44% female, cross referencing the subject areas and the gender of respondents shows that this depends on the discipline. Some disciplines appeal more to males than females and vice versa. Over 75% of respondents who download resources for Engineering and Technology, Computing and IT, and Mathematics and Statistics are male. At the OU, registrations for the core subjects for these disciplines also shows similar rates of male dominance (Engineering and Technology: 89% male / 11% female; Computing and IT: 77% male / 23% female; Mathematics and Statistics 68% male / 32% female). For the rest of the subjects there is a more even split, except in the case of Childhood and Youth studies, where females account for 65% (this split is less skewed towards females than registrations for the OU core course for Childhood and Youth Studies, which has an 87% female / 13% male split). A comparison of the iTunes U gender split with traditional university population gender split supports the notion that podcasting may appeal more to male rather than female users. For example, registrations for language studies in Higher Education in the UK usually have a 70% female / 30% male split whereas the split for languages in this survey is around 47% female / 53% male.

Similarly, according to the survey, some subjects (Arts and Humanities) attract older students whereas others (Social Sciences, Computing and IT and Childhood and Youth) attract younger students. This does not seem to reflect the student population at the OU: registrations for the core module for Arts and Humanities show that it appeals to a larger number of older students than other modules, but it also has a higher percentage of younger students than subjects such as Mathematics or Computing and IT.

4.3 What is the users' opinion of the resources they download?

The opinion of the resources downloaded is very positive, with a vast majority of respondents rating them either good or very good. Ratings, however, are not enough to ascertain the educational value of the materials. As mentioned in section 1, research on actual learning, attainment and retention has so far produced mixed results. Most researchers state that podcasting is useful as a revision tool, but they have concerns about its use for independent learning. The key question with regards to learning in this survey is whether the respondents think that they have learnt something by using the podcasts. The response here was extremely positive, with 95.7% indicating that using OU podcasts had improved their knowledge of the subject area. This suggests that podcasting can provide a useful source of learning to independent users. This result, however, needs to be handled with caution. The

improvement in knowledge is self-reported, unmeasured, and comes from learners who do so for personal interest in the majority.

4.4 What else would users like iTunes U to provide?

The users' requests for further material at the time the survey was carried out have been realised with the continuing expansion of iTunes U to include more institutions and countries and the constant addition of new resources by all institutions. The addition of iTunes U courses also fulfils the indicated desire for full courses online.

Some respondents took the opportunity of being able to enter text in the open question to thank and praise the university for the initiative of making resources available online for free. An example of this is the following comment: "keep up the excellent work with the podcasts for those of us who did not get an opportunity to go to university". The comment, left by an over-65 year-old external learner who lives in Africa, highlights the previously-unavailable learning opportunities afforded by providing OER through iTunes U.

The expectation regarding paying for content and interest in a qualification based on the podcast material was that very few people would want to pay, and there might be a small amount of interest in a qualification. Surprisingly, 44.9% of respondents claim the would be willing to pay, and 69.1% say they would be interested in a qualification. This opens up new possibilities for OER, and podcasting in particular, as a revenue source for Higher Education institutions. Initiative such as the Open Educational Resources University (OERU) may be an indication of a possible new direction in the rapidly-changing world of online education. From an Open Content advocate point of view, however, it would be most disappointing if institutions started charging for iTunes U content instead of providing it free of charge, especially in the light of user comments such as the one above.

5 Conclusion:

5.1 Implications

This study contributes to the knowledge in the field of podcasting for teaching and learning by reporting on the development and analysis of the first major large scale study of iTunes U as a source of learning materials. Cebeci and Tekdal (2006) argued that podcasts make materials accessible to a wider diversity of learners. Evans's (2008) findings were consistent with this. The difference between external and internal learners was presented in section 1, but little data was available on these external learners who are taught through iTunes U. This study has generated the first ever full profile of the external iTunes U user: age, gender, occupation, how they use the resources they find and what they think of them. It has produced a list of the most popular subjects and what ages and genders they appeal to most. It has also found that most users in this context are independent learners who are not

associated with any Higher Education institution and use the learning materials as OER because of personal interest. In doing so, the results help to personalise these 'strangers' (OER users / external learners) and confirm that they are indeed different from the internal learners that most research on podcasting for teaching and learning has previously focused on. Finally, the research explored possible new directions for podcasting resources for Higher Education institutions.

The introduction to this paper referred to the claim that online content attracts prospective students. Whilst it is true that it attracts traffic to the websites or repositories from the institutions that provide that content, there is no proof that podcasts through iTunes U attract prospective students. University studies are not available to all for many reasons, including cost and academic entry requirements. It may be the case that iTunes U attracts interested learners who know the podcasts may be the only access they will ever get to the content. It gives public access to content that used to be restricted to a minority. The OU is different in that sense. It has an 'Open to all' access policy, and anyone can sign up for their undergraduate courses irrespective of previous qualifications. Despite this, the data collected by the university suggests there is no link between iTunes U activity and registrations.

As stated in section 4, this study raises as many questions as it answers. The enormous appeal of iTunes U demonstrates that people want to learn, be it through formal or informal opportunities. As outlined in section 2.1, the OU is a key player among iTunes U providers, with over 60 million downloads. But what makes OU materials so popular? The rest among the most successful providers (Stanford, Harvard, MIT...) are household names, respected worldwide as top institutions. The OU is not a household name in the same way as Oxford or Cambridge University are outside the UK, yet that is where 90% of the downloads it generates come from. The most likely explanation is that the iTunes U output from the OU is different from other providers'. Most universities provide lengthy recordings of lectures that have been delivered face-to-face as a catch-up service for their own students (or for anyone who might be interested in the topic). Their resources are not primarily designed as distance learning materials; they have been repurposed as iTunes U resources. In contrast, all OU on iTunes U resources have been produced specifically for publication on iTunes U for external users (sometimes recycling OU course materials already designed for distance learners). These differences in design go some way towards accounting for the higher number of downloads, as OU on iTunes U resources are for the most part much shorter and a set of materials that may form part of one single download from other providers is likely to be broken up into several tracks at the OU.

A key conceptual variation may lie behind these differences. The exploitation of digital technologies has been classified as either technology-led, when a new technology has been made available and educators think of ways to incorporate it

into their teaching, or user-led, when educators focus on enabling students to learn and find the most suitable technology for that purpose (Kirkwood and Price, 2012). The approach of making recordings of actual lectures available online could be attributed to a technology-led conception of teaching through iTunes U, whereas the approach of designing specifically for the medium is user-led. Over 40 years of experience in designing for independent learners are what make OU materials different and, possibly, what makes them more popular.

Regardless of whether the iTunes U resources from other Higher Education institutions is technology-led, it is clear that they attract many downloads and interest. Despite the lack of availability of public data from other institutions, it is safe to assume that although a significant part of their download count must come from internal users accessing podcasts as catch up or revision activity (as reported on most research studies on podcasting), they will appeal to outside learners too. For some providers, such as the one that this study reports on, or most of the providers from the 'Beyond campus' section on iTunes U, the aim is not to provide resources for their internal students, but to provide open educational resources for wide distribution among external learners. Indeed, 'beyond campus' is a very appropriate definition of the external learners that this study focuses on. The results from this study can be generalised to those 'beyond campus' external learners, who presumably use iTunes U materials as independent learning resources and are therefore comparable to the learners who took part in the study that this paper reports on. This type of research is relevant because the more that is known about potential users, the better providers can design for them. With the information the results of this study contribute, iTunes U and OER providers can have a better understanding of their audience. Therefore those providers should be able (if they wish to) to shape their materials in the light of the findings of this research. The OU model of providing short media files (or longer one split into different podcasts), clearly indicating the level they're aimed at, making transcripts available, diversifying across many fields and linking resources to mainstream events (such as the Olympic games, Valentine's Day, or the anniversary of Shakespeare's death) is undoubtedly a popular one. Other providers may see the value in providing different materials for internal and external learners, for example. Providing different materials, however, could be seen as elitist, and as an assumption that external learners are somehow less capable of digesting the content.

Digital literacy skills are important too, as other researchers have highlighted: "educators should be cautious in assuming that students are ready for and knowledgeable about podcasting technology" (Walls et al, 2010, p. 376). If iTunes U is regarded as an enormous library of educational resources, learners should be encouraged to use it and learn how to find the resources, just like most institutions provide sessions for their students on how to use their own library: "the challenge from learners has shifted from being able to remember and repeat information, to

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being able to find it and use it appropriately (Bransford, Brown, and Cocking, 2000), and our goal as educators is to support them in that task" (Kirkwood and Price, 2012, pp. 11-12). This support needs to be integrated into their lifelong learning transferable skills training as part of the curriculum. The required training needs to go beyond the technical aspects and help users develop the digital literacy skills required to evaluate the resources that are most appropriate for their needs and how to get the best out of them.

5.2 Limitations:

A number of limitations affect this research project and its findings. As mentioned above, the fact that the data is self-reported makes the responses subjective. This is a limitation that has affected most research on podcasting so far. The fact that the survey was placed on iTunes U means that all respondents are self-selected and have a certain degree of digital literacy, as well as an interest in looking for learning materials on iTunes U and engaging in learning activity through them. This may make them more predisposed towards a positive attitude to learning through iTunes U resources. Although this disposition to search for learning materials may not make the participants in this study representative of internal students in general, it is likely that it is representative of external learners who use resources from most iTunes U providers, not just the OU.

There is a general impression that younger people are less likely to respond to surveys. Some might wonder why the replies were not weighed to take such factors into account. Given the assumption that the respondents are digitally literate and the exploratory nature of the research, such a step would have been difficult to justify.

Another limitation is that few respondents accessed iTunes U directly from their mobile device, which is much more commonplace today. For this reason it may not be easy to replicate this study. As explained in section 2.2, the increase in users who access iTunes U from mobile devices and the fact that institution links do not appear on those devices means that it will be harder to obtain such a high number of responses again.

5.3 Further research

The results presented on this paper do not cover the whole range of questions that the survey asked. More data was collected on issues including the mobile nature of podcasting and whether users transfer the resources they download to mobile devices and use them "on the go". Similarly, the data will be further analysed to look for differences and similarities between the subjects offered.

Most previous research on podcasting has been carried out based on VLE-delivered podcasts rather than aggregator-delivered podcasts. The difference is not just on

delivery medium, but on audience. VLE-delivered resources will be accessed by internal learners. Public Aggregator-delivered podcasts will find an external audience. It would be interesting to find out if the profile of the external iTunes U user in other contexts (based on the e-lecture broadcast model that other institutions utilise, for example) is significantly different from that of the OU on iTunes U user. This could include the expectations that users have of iTunes U resources: do external learners access iTunes U content because they want e-lectures or smaller learning objects? Do they search for further resources, maybe from other institutions? Do they ever convert their interest into a formal learning opportunity (i.e.: do they become internal learners)?

Due to the limited amount of previous research on the use of iTunes U for teaching and learning, the nature of this study has been descriptive and exploratory. It would be worthwhile to further the knowledge in this field by carrying out more qualitative research on iTunes U users: their motivations and expectations, digital literacy skills and their perceptions of engaging with iTunes U resources as an academic activity or as a casual learning activity. It would also be of interest to research the effect that learning styles or preferences have on the use of podcasting. As a tool that carries mostly audio resources, it is likely to fit well with aural style learners, but it may prove to be a hurdle for visual learners.

With the launch of the iTunes U app, iTunes is more mobile than ever. One of the first advantages of podcasting to be identified in the past was that the resources were portable. Now the iTunes U repository is mobile too, giving users the capability to download directly on many smartphones and tablets. The iTunes U app also provides new affordances such as linking different resources, and time-releasing. This may open doors to new ways of thinking about how teaching is delivered. Stanford University, for example, now offers full courses on the iTunes U app. The launch of the iTunes U app is clearly finding new audiences: at the OU, the number of downloads doubled on the week that it was released. It will be worth researching how these changes will affect the profile of the user, their impressions of podcasting as a mobile learning opportunity, and learning in general.

Finally, as others have pointed out, despite the potential benefits of podcasting for teaching and learning identified, "there is little empirical data confirming that these benefits are real" (Lord, 2008, p. 367). It is well known that providing tools does not guarantee learning: "although ICT can *enable* new forms of teaching and learning to take place, they cannot *ensure* that effective and appropriate learning outcomes are achieved" (Kirkwood and Price, 2005, p. 260). This study found very positive results about students reporting that by using the resources they find on iTunes U they believe they are learning. The question about whether those students' beliefs about learning are matched by improved performance in their field of study warrants further examination. Research on iTunes U needs to go beyond reporting and focus on the

quantification of understanding, retention and attainment through the measurement of specific learning outcomes. Bringing together successful measurement of the learners' and the educators' learning goals, will provide a holistic picture of the real advantages and disadvantages of the use of iTunes U as a teaching and learning tool.

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