2010-5

Using Podcasts to support Communication Skills Development: A Case Study for Content Preferences among Postgraduate Research Students

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Manuscript Number:

Title: Using Podcasts to support Communication Skills Development: A Case Study for Content Preferences among Postgraduate Research Students

Article Type: Research Paper

Keywords: Podcast; Communication Skills; Generic Skills; Postgraduate Research

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Suggested Reviewers:

Opposed Reviewers:

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1.0 Introduction

Recent years have seen a growing recognition and general acceptance of the need for the introduction of structured generic skills training into postgraduate research programmes (often referred to as 4th level education) in Ireland, see for example Forfas (2007), HEA (2006), IUA (2005), IUA (2008), IUQB (2005), NUIM (2007). This recognition and acceptance is consistent with international practice in fourth level education development, see for example, EUA (2007), Spinks (2006), Rifkin (2004), Roberts (2002), UKGRAD (2008a), UKGRAD (2008b), UKGRAD (2001), UKGRAD (2004), UniSA (2008), Manathunga (2008), Carnegie (2007). Despite such a widespread development, effectively embedding and integrating generic skills training into postgraduate research programmes remains a challenge for a number of reasons such as

- Each student's research programme is unique to the student and ideally generic skills training should be available at a time most appropriate to the student's needs, IUQB (2005), DeViney (2006).

- Time pressure to complete the research workload can result in little or no time for generic skills training.

- Despite the widely recognised importance of the generic skills training, the primary objective of a PhD research programme is the creation of new knowledge. The generic skills training is seen by some students and faculty as secondary rather than complimentary to their primary research goal.

- Depending on the career aspirations of each individual student, different students will require different generic skills modules and these modules will require some level of customization, UKGRAD (2004).

- The development of many generic skills are more conducive to experiential learning than formal training courses e.g. teamwork.

A number of researchers have looked towards the use of online learning resources to help alleviate the problem, for example, by enabling self-paced access to generic skills training resources, NewRoutePhD (2008), SkillCity (2008), Vincent (2006), UK GRAD (2008), McLoughlin & Luca, (2002), Peat, et al, (2005), Hong (2003), Bennett (2007), McKinney (2009), Russell (2007). In this paper we use the term 'podcast' rather loosely to refer to any text/audio/video content which can be made available on the Web or on an intranet such as a university virtual learning environment (VLE). Strictly speaking a podcast consists of an audio/video file which is posted on a Web server along with an RSS feed. Would-be recipients of the podcast file(s) need to subscribe online via the URL of this RSS feed. Deal (2007, p. 2) explains that 'generating appropriate and compelling content for a podcast is typically the most time- and labor-intensive part of the process'. Posting the podcast file(s) to a Web server and setting up the RSS feed is often automated whereby registered students will automatically receive any material posted to the module space within the VLE. The aim of this work is to help optimise the 'time- and labor-intensive part of the process' and generate podcast content in a format which the target students deem best suits their needs.

2.0 Research Question

In light of the varied findings throughout the literature as to the effectiveness of online learning resources and the many calls for further research in this area, we felt a definite need to focus this research on one specific aspect of a very broad and multifaceted issue and to frame the research question accordingly: do postgraduate research students in the faculty of science and engineering have a preferred podcast content format which they feel best suits their communication skills development needs and if so, what is this preferred content format?

3.0 Background

3.1 Postgraduate Researcher Generic Skills Training

The Irish Universities Association (IUA) graduate skills statement, IUA (2008), lists the following seven generic skills categories:

- Research skills and awareness
- Ethics and social understanding
- Communication skills
- Personal effectiveness/development
- Team-working and leadership
- Career management
- Entrepreneurship & innovation

Within each of the seven categories, specific skills are listed. These skill sets are largely in line with similar overseas graduate skills statements, UK GRAD (2001), UniSA (2008), Carnegie (2007). In relation to the IUA graduate skills statement, one point to note is the fact that there are significant elements of communication skills in all seven categories e.g. *"synthesise new and complex information"* under Research skills and awareness; *"avoidance of plagiarism"* under Ethics and social

understanding; *"persuade others of a viewpoint's merits, demonstrating and communicating credible suggestions to achieve one's aims"* under Personal effectiveness/development, to list but a few. This over-arching nature of communication skills affirms their importance. The relative importance of communication skills over other generic skills is further evidenced in Spinks (2006) who surveyed three cohorts of engineering graduates on the relative importance of a selection of generic skills. For this reason, the focus of this work is primarily on communication skills development. However, the over-arching nature of communication skills as evidenced in the IUA graduate skills statement and related graduate skills statements, suggests that the findings may be readily adaptable to other areas beyond communication skills.

3.2 Podcasting (Communication skills development and online resources)

Lim, et al, (2006) shows that in the medical field, the use of online resources to support the development and updating of a range of competencies including communication skills is now widely established. For example, since 1994, practicing psychiatrists in the US are required by the American Board of Psychiatry and Neurology (ABPN) to renew their certification every 10 years. The ABPN recertification requires that a range of 'competencies' be kept up-to-date including 'interpersonal and communication skills'. The ABPN recommends a range of online resources including so-called 'netcasts' (often referred to as 'webinars') which can be 'accessed at ones own pace' 'by self-directed learning'. Such use of online resources to support the development/updating of core competencies is not limited to the ABPN but rather is now commonplace across the medical profession for what they refer to as maintenance of certification (MOC) as required by the American Board of Medical Specialties (ABMS), [www.ambs.org]. Other professions such as science and engineering which now recognize the importance of communication skills development stand to gain by adapting related training resources and practices from the medical profession. Lim notes (p. 541) that in recent years, the CME landscape has changed radically from one in which 'credits had to be earned by subscribing to journals, completing questionnaires, paying fees for CME, …traveling to meetings which would incur associated cost such as airfare, accommodation, and registration' to a far more convenient landscape nowadays in which 'anyone with a computer and an internet connection can download articles, … and read or watch CME content right on the computer, which saves time and money'.

In the higher education sector in general there is also a growing recognition of the need for generic skills development. For example, McLoughlin & Luca, (2002, p. 572) present an interactive approach to developing team skills through the use of 'online-learning and self-directed learning pedagogies'. These team skills include communication skills. They note that many university course curricula result in the students developing 'inert knowledge rather than transferable skills attuned to the complexities of professional life' whereas, 'many employers expect not only a strong knowledge base, but also diversified social, communication and cooperation skills' in university graduates (p. 572). They cite 'economic realities' as being largely responsible for necessitating 'new delivery strategies and approaches to developing lifelong learners'.

Other related attempts to develop online resources to support communication skills development in the face of 'economic realities' are evident in the higher education literature, for example, Peat, et al, (2005) developed a set of 'comprehensive online resources' to facilitate independent learning and the enhancement of her student's 'oral and written communication skills'. Peat's online discussion forum analysis 'showed that participating students practiced their thinking and communication skills particularly at the more sophisticated levels as postulated by Bloom (1956)' (p. 142).

McKinney et. al. (2009) presents a study into the effectiveness of podcasts as an alternative to face-to-face lectures. They note that many related studies 'have shown that class attendance is far superior to getting lecture notes from a friend or even from the professor' (p. 618). A key difference between McKinney's study and many related studies is that in most related studies the effectiveness of the podcasts is examined as a follow-up enhancement to the face-to-face lecture i.e. the students using the podcasts had also attended the associated face-to-face lectures. The McKinney study is different in that it sets out to examine the effectiveness of a podcast <u>as an alternative</u> to attending the original face-to-face lecture. The results showed that the student group who only had the podcast to work with (i.e. they did not attend the original face-to-face lecture) scored significantly higher in the exam than the student group who attended the face-to-face lecture (and were not given access to the podcast!). Their analysis identifies two key factors associated with the higher performance of the 'podcast' group, namely,

1. The high-scoring podcast students compiled detailed notes on a paper copy of the associated PowerPoint slides while watching the podcast and

2. They studied the podcast more than once, on average 2.56 times.

Similarly, Lazzari (2009) reported a positive impact of the use of podcasting on the learning experience of a group of undergraduate university students studying multimedia communication and human-computer interaction. Lazzari found that the positive impact was not evidenced in their exam results but rather in 'satisfaction surveys and interviews'. It should be pointed out that Lazzari had the students involved in actually producing the podcasts as well as receiving them.

There are also negative findings throughout the literature as to the effectiveness of online resources in the support of communication skills development, for example, Vicent, et al., (2006) present the findings of a study as to the appropriateness of e-learning resources for the development of 'transversal skills'. What they refer to as transversal skills include 'interpersonal, teamwork, learning and communication skills'. One of the specific competences which they list under interpersonal skills is the 'ability to integrate and communicate with experts from other areas and in other contexts' (p. 2). The online resources used include synthetic or computer-generated video, video lessons (recorded specifically for viewing on a computer), video recording of an on-campus class, video movies, video recording of interviews etc. Vincent's methodology consisted of an email survey of 45 university lecturers (35 engineering and 10 humanities). The lecturers were asked to rate on a scale of 0 to 3 the appropriateness of each resource for the development of each skill. An internet link is given from which the detailed results can be downloaded (albeit in Spanish!). According to Vincent's survey results the various online video resources were deemed NOT well suited to developing the 'ability to integrate and communicate with

experts from other areas and in other contexts'. However, the conclusion does note that 'lecturers prefer to work skills like written communication … in the LMS's than in the classroom' (p. 6). It should be borne in mind that these results are based on the opinions of the 45 university lecturers surveyed (35 engineering and 10 humanities). It is unclear as to what level of experience these survey respondents actually had at teaching 'transversal skills' such as 'ability to integrate and communicate with experts from other areas and in other contexts'. Indeed, many engineering education commentators have noted that engineering curricula in general are so heavy on technical content that transferrable skills become totally neglected e.g. Sheppard et al (2009). Although it was noted that 35 of the 45 lecturers had 'experience of e-learning', it must be assumed that this experience is largely within their own discipline i.e. engineering (35) or the humanities (10). Despite Vincent's findings, he nonetheless concludes that 'pedagogical methodology, or how e-learning tools must be used to develop and evaluate competences, should be studied in depth' (p. 6). This conclusion is supportive of our current research.

Mixed findings in the literature are further evidenced in Hong, et al, (2003), who present a study of postgraduate student's level of satisfaction and perceived learning with a web-based course. They include a broad review of previous research on web-based learning in general and highlight contention in the community as to the impact of web-based delivery on learning. Although their research shows that 'achievement in the web-based course was comparable to a face-to-face version of the course' (p. 123), they note that some online groups 'had better group dynamics than others'. Although they don't give a percentage, they do note that some students were 'lurking, listless, lagging and lost'. Such findings support the case for blended delivery as opposed to 100% web-based. They conclude that further research is needed to refine the web-based environment to support and enhance student's learning.

Bennett (2007) also studied the effectiveness of online resources (specifically videoed lectures) as teaching tools in general. He acknowledges that video content can effectively supplement a learning experience, for example, by grabbing a student's attention and motivating them to learn or by giving a highly realistic depiction of reality. He warns strongly against the use of video recordings of live face-to-face lectures but at the same time he acknowledges the fact that such recordings can be useful in allowing a student to catch up if they miss the face-to-face lecture thereby enabling a 'more flexible learning pattern'. His broad review of the literature shows 'conflicting findings' with some evaluations indicating that videoed lectures can improve student's grades and increase their overall level of satisfaction while other evaluations found that the availability of videoed lectures made no significant difference. He suggests two ways in which videoed lectures might potentially have a negative impact on student learning, namely, videoed lectures make learning uninteresting and secondly, they may hinder the development of students as independent learners.

4.0 Research Design

The methodology which we devised in order to capture the necessary data involved first of all video recording a one-hour workshop presentation. The topic of the workshop was postgraduate communication skills and the speaker was a vastly experienced and highly regarded expert in the field. The student cohort consisted of

15 first-year Science and Engineering PhD research students. The video recording process was deliberately non-invasive in that no specialised lighting was used. A small Sony Handycam (DCR-HC24E) was mounted on a tripod and positioned discretely at the back of the room. It was set recording at the start of the presentation and left unmanned throughout. Ethical approval for the research was obtained in writing in advance from the University Ethics Committee. Informed consent was also obtained in writing from all of the participants prior to the session. Following the session, the video recording was post-processed into seven alternative podcast formats. A mixed-methods approach was deemed most appropriate to produce the required representative variety of podcast content formats. The podcast formats were selected three criteria in mind, namely,

- That the selection of podcast formats while not being exhaustive, was nonetheless sufficiently varied as to be representative of most likely podcast formats.
- That the resources needed to produce the various formats be straightforward to use by any computer-literate academic without the need for any specialist training.
- That the podcasts be low-cost to produce i.e. that the resources needed to produce the various formats be either freely available or available at low-cost for all popular computer platforms.

The seven podcast formats were as follows:

1. Full video. The post-process in this case simply involved saving the video file in a popular format which facilitated video streaming via a standard broadband internet connection. Numerous freeware and low-cost computer applications are available for performing this process.

2. Full audio. The post-process in this case simply involved saving the audio content from the recorded video. It was saved as an MP3 file. Again, numerous freeware and low-cost computer applications are available for performing this process.

3. Re-enacted video. In this case, a member of academic staff who had attended the original session recorded themselves re-enacting the key-points of the session using a standard white board and the same video camera as was used in 1 above. See Figure 1.

Figure 1 – Re-enacted Video

4. Re-enacted screencast. In this case, the member of academic staff who had attended the original session recorded a screencast summary of the key points from the session. Microsoft PowerPoint with the Camtasia screen-capture plugin was used for this process. This is a low-cost and user-friendly solution which any lecturer could quickly master. Technical details of all of the podcast generation software and hardware used in this study are available on request from the corresponding author. Figure 2 shows a screenshot of this format.

Figure 2 – Re-enacted Screencast

5. Slides with Original Embedded Audio. In this case, the original presentation slides had the original speech segmented and embedded as a separate audio file in each slide. This involved using the original video file to identify the individual sections associated with each slide and then saving each audio segment as a separate file. These audio files (in .wav format) were then embedded in their associated original slides using Microsoft PowerPoint to create the desired podcast format. Figure 3 shows a screenshot of this format.

Figure 3 – Slides with Original Embedded Audio

6. Raw Slides. In this case, the original set of unedited presentation slides were simply made available online. We used Microsoft PowerPoint for this format.

7. Raw Transcript. In this case, the full audio recording from the presentation was typed-up 'word-for-word' and made available online in PDF format.

4.1 Quantitative Data Capture

All fifteen of the students who attended the original session were asked to rate the usefulness (in their opinion) of each of the seven podcast formats. This quantitative rating was on a 5-point scale from 'not at all useful' to 'very useful'. The students were also asked to indicate their 'top-3' preferred formats i.e. their 1st most preferred, their 2nd most preferred and their 3rd most preferred.

4.2 Qualitative Data Capture

The students were also asked to provide written comments to qualify their preferences.

5.0 Results

5.1 Quantitative Results

The quantitative results are presented in Table 1.

Podcast Format	Usefulness					Most Preferred			In 3 Most Preferred
	Not at all				very	1st	2nd	3rd	
1. Full Video file	0	4	5	4	2	3	1	5	9
2. Full Audio file (wav or mp3)	1	4	1	5	4	2	6	2	10

3. Re-enacted Video file	**4**	**5**	**5**	**1**	**0**	**0**	**1**	**0**	**1**
4. Re-enacted Screencast	**1**	**4**	**7**	**1**	**2**	**3**	**0**	**2**	**5**
5. Slides with original Embedded audio	**0**	**1**	**2**	**9**	**3**	**4**	**4**	**5**	**13**
6. Raw slides	**3**	**5**	**2**	**4**	**1**	**1**	**3**	**2**	**6**
7. Raw transcript	**4**	**3**	**4**	**3**	**1**	**3**	**1**	**1**	**5**

Table 1. Quantitative Results

The main points worth noting from the quantitative results in Table 1 are:
- Podcast format 5 (Slides with Original Embedded Audio) was deemed the most useful with 13 of the 15 students ranking it among their top three preferred formats.
- Podcast format 3 (Re-enacted Video) was deemed the least popular with only one student ranking it among their top three preferred formats.
- Podcast format 2 (Full Audio) was deemed the second most useful with 10 of the 15 students ranking it among their top three preferred formats.
- Podcast format 1 (Full Video) was a close third in the top-3 preference ranking.

5.2 Qualitative Results

As indicated above, qualitative data was also gathered in the form of written comments on what the students liked and/or disliked about each podcast format. This data was analysed using an interpretivist approach, Miles (1994). The main points worth noting from this qualitative data analysis are:
- The principal reason cited for the popularity of format 5 (Slides with Original Embedded Audio) were:
  - Its multimedia nature. 8 of the students who ranked this format in their top-3 cited this multimedia nature as a reason. Example comments included: *'Useful because you can follow in an independent way the speech while made focusing on key words on the screen'; 'Much better as you can listen to Dr Downey and look at slides at the same time'; 'Very useful to see written points at same time as listening, key points being emphasized'*
  - Its use of original speech as opposed to a third-party interpretation. Three students cited this as important. Example comments included: *'Prefer this as you have original speaker'.*
  - Two students liked the fact that the file size for this format was relatively small. Example comments included: *'With original audio and written notes, it includes all the content, and not such a large document'.*

- The principal reason cited for the unpopularity of format 3 (Re-enacted Video) was that it was a third-party 'interpretation' of the presentation and not the original speaker. 12 of the 15 students wrote comments to this effect. Example

comments included: *'Too much dilution from the original content'; 'Only thing that I can say about this is that we might not pick out the same key points so potential to lose some info'; 'Regardless of who compresses the information I would feel like something was missed'.*

- Podcast format 2 (Full Audio)
    - The convenience of this format was cited by 5 students. Example comments included: *'Very useful for this particular talk, all info given on day of workshop readily available for future ref. MP3 file very easily transported and stored'; 'I feel the audio alone would be easier to access. I might listen to it again and take some notes out for myself on the points I thought were important. Its useful because taking notes during the presentation might make you miss something';*
    - However, two students commented that it would be too long to listen to the whole file. Example comments included: *'It would just be too boring trying to listen to an audio file for an hour'.*

- Podcast format 1 (Full Video)
    - 5 students commented on the poor quality of the video recording. Example comments included: *'I like that it's the complete talk but for myself the quality might get irritating, video is needless. Also the size and length of the file would discourage me'.*
    - 5 students commented that it would be too long to watch the whole video. Example comments included: *'Good resource but quality of video makes it tiring to watch for long periods of time. Length of video would put me off before I even started. Very useful if you missed a session or were not eligible to attend. Very necessary for speaker to be good speaker or would get bored quickly. With this resource (and no. 2) I would be shy to get involved during the actual presentation because I know its being recorded. Should keep this in mind if you want people to get involved in the session rather than just listen'.*
    - The inconvenience of the very large file size was also commented on by 3 of the students.

The qualitative analysis highlighted some interesting issues. For example, one student notes in their comments that knowing that a presentation was being recorded would make them less likely to ask questions (see final quote above). Although only one of the 15 students made a comment to this effect (we hadn't specifically questioned them on this issue) we decided that it was worthwhile following up.

5.3 Focussed follow-up

The qualitative data analysis raised six focused follow-up questions. These focused follow-up questions were formulated into a follow-up interview sheet (see Appendix A). Five of the original 15 students were then interviewed individually to capture their answers to and comments relating to this set of questions. The main findings of this focused follow-up were as follows:

- If students know that a session is being recorded, then they are less likely to ask questions and actively engage in the session.

- Students do like to have a paper copy of the presentation slides for making notes on during the session.

6.0 Discussion

Much research has been carried out in an effort to assess the effectiveness of online learning resources. Some researchers report positive effects, some negative and some report little or no effect. Many researchers acknowledge the conflicting findings throughout the literature and in turn call for further research. Few researchers make reference to Mayes important principle that *'there are really no models of e-learning per se – only e-enhancements of models of learning'*, Mayes (2004). So the effectiveness of an online learning resource depends heavily on the underlying model of learning. If the resource is systematically integrated into the underlying instructional design and clearly aligned with the learning outcomes and assessment methodology, then the resource has the potential to be far more effective than if it is simply uploaded and monitored as an optional extra. Mayes principle suggests that the most effective approach to e-enhancing a model of learning is to start with a tried, tested and pedagogically proven model and to iteratively explore small prospective e-enhancements, incorporating and possibly adapting what works and discarding what doesn't. The single most influential stakeholder in an underlying pedagogically proven model is the lecturer who is also the subject matter expert. Only they are in a position to explore such e-enhancements and adaptively incorporate or discard as appropriate. In light of the growing range of possible e-enhancing resources available, a busy lecturer could be forgiven for feeling over-whelmed. The other major stake-holding group in the underlying model of learning are the students themselves. For this reason we set out to investigate student preferences in relation to a selection of low-cost conveniently produced podcast formats.

We further focused our research on professional communication skills as our analysis of the generic skills literature led us to conclude that this was the most important of the recommended postgraduate generic skills. The results of the survey analysis gave good insight into target user preferences in relation to podcast formats. Despite the narrow focus of our research i.e. science and engineering postgraduate researcher professional communication skills, the nature of the findings look readily scalable to other skills and disciplines. For example, the use of a multimedia podcast format with original speaker embedded speech was popular. Such qualitative preferences are largely independent of the subject matter content and as such may be readily scalable.

One interesting finding which was only uncovered via the focused follow-up questionnaire is the fact that the majority of students are less likely to ask questions and actively engage during a face-to-face session if they know that it is being recorded. Further, if the video recording needs to be of better quality, as indicated by 5 of the 15 students, then this would probably warrant specialised lighting and a camera operator making the recording process more invasive and in turn making students even less likely to ask questions and actively engage. It would be worthwhile verifying this finding with larger cohorts in a range of disciplines. If it holds true, then the most effective podcast format may well be a set of slides with embedded speech which the lecturer records privately and makes available to the students allowing sufficient time to study and read around prior to a face-to-face questions and answers session on the topic. Any related reading material might also be made readily

available to the students in advance to facilitate their informed engagement in the discussion session. Such discussion can be hosted and/or continued online via a discussion forum if necessary. The advantage of the online asynchronous discussion is that it allows time to reflect and research between postings but as many practitioners have indicated in the literature, it doesn't guarantee any of these three activities.

Communication skills are often associated with team-work. Peat (2005) notes that 'teamwork is considered to be one of the most important skills of a practicing scientist'. She notes further that much of the team-work for her students is developed 'in a face-to-face environment, rather than online' (p. 142). A group task which she finds 'is an excellent way to introduce students to the concept of dissemination of scientific endeavour' is a poster presentation. We conclude from Peat's findings that a useful 'permanent' online archive of good (and maybe also not-so-good!) scientific poster presentations would be a worthwhile resource to support the student groups as they engage with such tasks. We would further conclude that online moderated discussion about the pros and cons of such resources may well push the students 'thinking and communication skills particularly' to the 'more sophisticated learning levels as postulated by Bloom' (p. 142).

As mentioned above, Bennett (2007) suggests two potentially negative impacts of videoed lectures i.e. making learning uninteresting and hindering independent learning. These are indeed valid points, for example, if a student had to access an entire course via videoed lectures, that could potentially make for an uninteresting learning experience. However, no reference is made to the more fundamental pedagogy underlying the course in which the videoed lectures are used. Recall that the making available of videoed lectures should be nothing more than an e-enhancement of an instructionally designed course delivery (or pedagogy), Mayes (2004). Perhaps the reason for the 'conflicting findings' regarding the suggested benefits may simply be down to the fact that some of the underlying pedagogical practices were more successful in integrating the videoed lectures and aligning them with the learning outcomes and the associated assessment methodologies. For example, during the course of a live face-to-face lecture, the lecturer might pose a question and ask the students to reflect on and research this question after class and further to document and post their reflections on a discussion forum associated with the lecture and/or to reply to at least one other reflective posting. There is growing evidence that such reflective interaction facilitates deep learning, McLoughlin & Luca (2002), Lawlor (2008a and 2008b), Donnelly & Gardiner (2009). However, facilitating such reflective and interactive learning in this way still doesn't guarantee that the intended learning actually happens for all students. The level and extent to which deep learning is likely to follow depends on many factors, some of which are under the control of the lecturer and some of which are not. Factors which the lecturer has some control over include:

- The way in which they frame and communicate the question; and
- Their training and experience at moderating an online discussion forum.

In learning intervention parlance, these factors would come under so-called 'instructional quality' which research shows to be the second most effective learning intervention among post-16 year olds, Coffield (2004b). However, according to the extensive critical review of learning styles and interventions presented by Coffield (2004a and 2004b), the most effective learning intervention is 'reinforcement' (see

Table 14 p. 52 of Coffield (2004b)). Of course reinforcement can happen in many ways but one cost-effective way to at least facilitate it is to have some version of the instructional content available online 24/7.

The main factors outside of the lecturers control are:

- the student's prior cognitive ability; and
- the student's disposition to learn.

Interestingly and perhaps fortunately, these factors rank slightly lower on the learning intervention effectiveness scale. Whilst it is recognised that conflict in the research literature exists on the effectiveness of videoed lectures (and online learning resources in general) as a teaching tool, it is argued here that if carefully designed and integrated into good pedagogical practice, they have the potential to e-enhance the learning experience and to facilitate flexibility in course delivery.

McKinney's (2009) key findings relating to high-scoring students making their own hand-written notes on a paper copy of the podcast content slides and viewing the podcasts more than twice do sit comfortably with related pedagogical research findings e.g. by compiling their own notes while watching the podcast, the students are reflecting on and internalising the content in an interactive manner, Coffield (2004). Secondly, the podcast group viewed the podcast multiple times which implies reinforcement which as mentioned above has independently been shown to be the most effective learning intervention, Coffield (2004).

7.0 Conclusion

We conclude that a well prepared podcast formatted in line with target user preferences does have the potential to e-enhance the learning experience through self-paced reinforcement and directing subsequent discussion and individual self-paced note taking. This potential is more likely to be realised if the podcast is integrated into the course in question rather than bolted on as an optional extra. With the abundance of conflicting findings as to the effectiveness of such online learning resources, the debate looks set to continue well into the future. Such debate is good as it facilitates community solution of a problem which no one individual is likely to solve alone. We hope that the findings presented herein will enrich this fascinating debate and inform further research in the area.

Appendix A – Focused Follow-up Survey Questions

1. If you know that a lecture / presentation / workshop is being video recorded, are you

(a) less likely to ask questions and actively engage

(b) equally likely to ask questions and actively engage

(c) more likely to ask questions and actively engage

Any comments:

2. Do you find it helpful to have a paper copy of the lecture / presentation slides during the session? Please tick a box.

Not at all useful				Very useful

Any comments:

3. In a video recording of a lecture / presentation, would you find slide-based indexing useful? Please tick a box.

Not at all useful				Very useful

Any comments:

4. In a video recording of a lecture / presentation, would you find vari-speed playback[1] useful? Please tick a box.

Not at all useful				Very useful

Any comments:

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[1] Vari-speed playback enables the recorded playback to be speeded up or slowed down without affecting the pitch/intelligibility of the original speech. Typical variability ranges from around one third to four times normal speed.

5. In an audio recording of a lecture / presentation, would you find slide-based indexing useful? Please tick a box.

Not at all useful				Very useful

Any comments:

6. In an audio recording of a lecture / presentation, would you find vari-speed playback useful? Please tick a box.

Not at all useful				Very useful

Any comments:

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Podcast Format	Usefulness					Most Preferred			In 3 Most Preferred
	Not at all				very	1st	2nd	3rd	
1. Full Video file	0	4	5	4	2	3	1	5	9
2. Full Audio file (wav or mp3)	1	4	1	5	4	2	6	2	10
3. Re-enacted Video file	4	5	5	1	0	0	1	0	1
4. Re-enacted Screencast	1	4	7	1	2	3	0	2	5
5. Slides with original Embedded audio	0	1	2	9	3	4	4	5	13
6. Raw slides	3	5	2	4	1	1	3	2	6
7. Raw transcript	4	3	4	3	1	3	1	1	5

Table 1. Quantitative Results

Figure(s)

Figure 1 – Re-enacted Video

Figure 2 – Re-enacted Screencast

Figure 3 – Slides with Original Embedded Audio

- **Paper Title: Using Podcasts to support Communication Skills Development: A Case Study for Content Preferences among Postgraduate Research Students**

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