



Digital

Voices

edited by **Andrew Middleton**
for the Media Enhanced Learning
Special Interest Group

A collaborative exploration of the recorded voice in post-compulsory education



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SECTION 1

UNDERSTANDING THE OPPORTUNITY OF AN AUDIO-ENHANCED LEARNING ENVIRONMENT

Introduction

Andrew Middleton

A time for digital voices

The value to education of recording and sharing the voices of teachers, students, professionals and others is the main focus of *Digital Voices*; a relatively straightforward idea technically, and one that can be used to engage learners as they prefer to be engaged: through the personal connectivity inherent in the human voice.

Digital audio can take many forms as demonstrated throughout *Digital Voices*. Its accessibility in the twenty-first century is enhanced by the ubiquity of devices that can now be used to record our ideas as easily as they can play them. It is therefore important for education to assess how digital audio, in its various forms, can be used to enhance learning.

To date, linear media have had a peripheral role in education. Educational radio in the United States during the 1920s, for example, demonstrated how technology could be used to widen access to learning, and elsewhere educators have subsequently turned to other forms of analogue media in order to bridge distance and provide isolated learners with authoritative voices. In mainstream education the cost of analogue media production, however, has tended to make it inaccessible and exclusive.

The advent of affordable digital technology has introduced new levels of accessibility to the academic producer as has been epitomised by interest in podcasting. However, *Digital Voices* looks beyond this particular technology to the greater opportunities that await academic innovators and their students as they explore what can be done with recorded audio and adapt it to suit their particular needs.

Digital Voices does not dwell long on the technicalities of making and distributing recordings, though it does spend a little time explaining what is meant by 'podcasting.' Educational interest in podcasting is less to do with any specific technical method and more to do with having access to a new medium that, for many, feels right for education. It provides a way to extend education's physical and virtual learning environments so that academics and students can engage with each other and the world beyond in rich and meaningful ways. *Digital Voices* takes a pedagogical, rather than technical, interest in podcasting. It does this by considering the significance of the digital voice; the ability to make timely and meaningful media interventions through both pedagogic design and opportunity in situations in which the microphone provides an alternative to the pen.

The contributors to this book recognise how podcasting has captured the imagination of many people, both inside education and beyond. However, the exact meaning of the word has become unclear and, in many ways, unimportant. What is important is that any of us can harness the voices around us, wherever we are so that we can choose to listen to them again whenever we decide it is useful to do so.

The digital voice is symptomatic of the Digital Age: a vibrant and creative era that brings as many new challenges as it does opportunities. The experience of students must reflect this so that the literacies they develop are also appropriate. Today's graduates need to be confident and astute users of digital technology.

Digital Voices explores educational digital audio within the context of progressive theories for the cognitive and active engagement of learners, dismissing any suggestion that digital media is primarily a tool for teacher-centred practice. It demonstrates, through discussion, case studies, and scenarios, why digital audio is such a useful and important tool.

Shared interest

There is a real curiosity about what can be achieved through the medium and a strong desire for our blended learning environments to be livelier spaces. In the appendix to *Digital Voices* Jethro Newton reflects on the Podcasting for Pedagogic Purposes Special Interest Group (PPPSIG), which later became the Media-Enhanced Learning SIG (MELSIG). He explains how academics, developers, learning technologists and managers from further and higher education institutions across the UK continue to fill events and engage with SIG activities. It is clear that this shared interest is not just about a technological change; yet changes in technology have been important. It is pedagogic purpose, more than any fixed technical view of podcasting and digital media that has been the driver for this community.

The writing process that has resulted in *Digital Voices* has itself been informed by communal constructivist principles (Holmes *et al.*, 2001) where there is a shared responsibility to develop knowledge co-operatively; principles that are also fitting for the collaborative approaches often used in co-operative student assignments. By involving the SIG community as a whole so directly in this work, the book project is proof of what can be achieved through the collaborative production of media; creating a shared focus that can be enlightening for all concerned.

MELSIG is online at <http://melsig.shu.ac.uk> and #melsig.

Who is Digital Voices for?

As with any other learning technology, podcasting affects many stakeholders: students, academics, educational developers, senior management, support staff, systems administrators, and learning technologists from organisations large and small. All have contributed to *Digital Voices*. The challenge in developing the potential of learning technologies is to co-ordinate a proper collaboration of those

interests so that their various experiences, energies and perspectives work usefully together. *Digital Voices* is intended, therefore, to serve as a source of information and inspiration to all. For example, *Digital Voices* aims to inform the understanding of:

- Academics considering their practice and its development to meet the needs of today's Digital Age learner;
- Educational developers involved in promoting, developing and supporting pedagogy;
- e-learning and mobile learning advisers;
- Learning technologists and learning support staff with responsibility for both the student and academic use of digital media as both users and producers;
- Students studying Education, Communications, Media, Computing and other subjects interested in creative and disruptive media and technology;
- Systems administrators, repository managers and IT managers with responsibility for developing and maintaining institutional infrastructure and policies relating to the use of digital media and user-generated material.

More specifically, *Digital Voices* is for anyone in education who is interested in a view of education in which learner engagement derives from the value we find in each other.

Contributions and methodologies

Special Interest Group — emerging expertise

Digital Voices began life in a one-hour PPPSIG workshop involving about 70 people at the University of Chester's Warrington campus in June 2008. Those attending were asked to generate, mostly from scratch, 100 ideas for educational podcasts. 173 ideas were actually generated in that session. Later these ideas were transcribed and uploaded to the PPPSIG wiki. Other ideas were added subsequently and invitations were sent to members to review what they found: to improve the ideas, to comment on them or to add further ideas. The work was edited to make it consistent and is presented here in Section 3 of *Digital Voices*.

The point of that workshop was to demonstrate that definitions or explanations of educational podcasting, or any other technology, can be unnecessarily constraining: podcasting is what it needs to be. Above all the exercise proved that educational podcasting can be designed to meet the needs of any academic, any cohort and, ultimately, any student.

Subsequent SIG events have seen other methods used to generate discussion. Those attending the SIG event at Thames Valley University, for example, took part in a

collective role play that sought to highlight how the varied responsibilities and interests of educational stakeholders do not necessarily align. The outcomes of the role play, which inform the chapter *Student-generated podcasting – perceptions, challenges and facilitating innovation*, in fact suggested more alignment than was expected and helped to challenge assumptions about the student use of digital media. Thunderstorms (quick-fire presentations) and bar camps (loosely organised user-driven conferences) have given everyone attending SIG events the opportunity to share their own experience of working with digital audio, and several of the pieces in *Digital Voices* emanate from these impromptu contributions.

The contributors have used various methods, as necessary, in generating the ideas and evidence discussed here. Qualitative methodologies have informed many of the chapters: appropriate in recognising the emergent nature of the work, especially where this is based on small-scale uses of audio. Often these ideas have been evaluated through interviews and focus groups with students and staff, and in some cases the methods used have been quite innovative, exemplifying the creative spirit of the book. Emerging technology is difficult to evaluate. Not only is the technology itself in a constant state of flux, but so is our individual and collective understanding of it. Furthermore, we each operate in different contexts. What works for me might not work for you. Individually, case studies do not deliver generally applicable conclusions, but they do provide insight and inspiration.

Section 2 contains a collection of case studies; many written by people who would not normally be involved in writing for publication. A continuous theme in *Digital Voices* is an exploration of the user-generation of content as a way to unravel and share ideas and learning. In this way *Digital Voices* aims to inspire us to be both creative and critical in thinking about teaching and learning.

Audio creativity for change

Digital Voices is mostly concerned with media that are generated by the academic or student producer. Its interest is in the new accessibility that supports the democratic use of media and that promotes creativity in curriculum design and pedagogic transformation. The purpose of *Digital Voices* is to highlight real, achievable possibilities that provide engaging alternatives to familiar pedagogy. Much of the literature on educational podcasting, especially beyond the UK and Australia, has so far discussed educational podcasting as a supplementary medium for reinforcing existing practice. In particular this is seen in the literature on ‘coursecasting’ – the practice of distributing lecture recordings (Middleton, 2009). There are undoubtedly some benefits to recording lectures, but the practice offers little to those interested in richer forms of learner engagement and who are curious about the advantages presented by new and emerging technology. It also neglects the possibilities of a new learning environment. A SIG member at an event at the University of Bath suggested that ‘complementary’ is a more useful way to think about the opportunity: the distinction being that its use is integral, not additional nor necessarily optional, to the

learning experience. The idea of augmented pedagogy may be useful too, but certainly educators should expect to change practice, not just add to it, when introducing something new.

Creativity is an important word in this book. Like 'innovation', 'engaging' and 'podcasting', it is a word that is often over-used. However, it is appropriate here for two reasons: firstly, creativity is required to transform academic practice, and, secondly, enabling student creativity has become an important theme in post-compulsory education (Jackson *et al.*, 2006). Creativity can be understood as the personal ability to harness "imagination, insight and intellect, as well as feeling and emotion, in order to move an idea from its present state to an alternate, previously unexplored state" (*ibid*, p.8). More often than not that personal ability is brought to bear socially, but it is always dependent on the individual accepting the challenge to bring about their own change and that of others.

In order to transform learning, teaching and assessment it is essential that everyone involved (i.e. teachers, support and development staff, administrators and managers) believes in the need for change and understands their own responsibility in the complex interconnection of responsibilities (see the chapter *Sound infrastructure for academic innovation*). When it comes to innovation, academics have to be assertive as change agents once the rationale for innovation becomes clear to them. At these relatively early stages of integrating user-generated digital media into the curriculum, academics need to develop and believe in their ability to make and lead useful change. It is hoped that, in reading this book, some insight is found that enables this.

Creativity is increasingly seen as an important graduate attribute (Biggs and Tang, 2007) and complements digital literacy and independent or co-operative problem-solving: attributes that can set today's graduates apart from others and instil them with the confidence to make the most of themselves. All of these attributes can be promoted in assignments that require the generation of digital media by students. Creativity through collaborative production is discussed in several of the chapters with a methodology for such work explored in the chapter on Digital Audio Learning Objects.

Digital Voices: essays, case studies and ideas

Digital Voices is arranged into three main sections.

Section 1 — 'Understanding the opportunity of an audio-enhanced learning environment', largely written collaboratively by MELSIG leaders, is composed of a series of chapters that collectively aim to establish the recorded voice as a dimension of a changed Digital Age learning environment. Section 2 presents a collection of case studies of real world applications, while Section 3 offers 50 ideas for educational podcasting, intended to inspire the academic reader as they develop their own ideas.

Section 1 — Understanding the opportunity of an audio-enhanced learning environment

In the chapter *Why audio? – recognising the digital voice* a moment is taken to consider digital audio and its capacity for capturing the essence of learning: the voices of teachers, students, professionals, and publics.

Podcasting and RSS – the changing relationship explores the different meanings of the term podcasting. It explains what RSS is and why it is sometimes an important technology for distributing and organising digital media in education. However, it argues that with the increased ubiquity of ‘always on’ smart technologies the value of podcast syndication afforded by RSS has lessened. In the appendix *Students don't listen*, findings from a literature review and a student survey into podcast syndication conducted at two universities are discussed.

Podcasting – a flexible medium considers the characteristics of podcasting and compares this to what is valued in a learner-centred, twenty-first-century curriculum. *Digital media and their pedagogical opportunities* considers the implications of these characteristics and how the flexibility of digital media can lead to curricula that benefit from the democratisation of media production and usage, and the asynchronous access the media affords to authentic voices. It introduces the idea of ‘media intervention’ – and proposes how digital media can be used to initiate and facilitate learning by orienting, motivating, and challenging the learner, and by supporting students to reflect on their learning.

Lindsay Jordan sets out the benefits and related challenges of user-generated video for education in *Mirror and memory – benefits and challenges of using video for feedback and reflection*. While many of the benefits pertain to the digital voice and demonstrate the principle of media intervention, the chapter also compares video to audio. The focus on video reiterates ideas found in other chapters that discuss user-generated audio, its ease of use, ‘good enough’ or lo-fi production values, and its capacity to capture and store rich interaction for later reflection.

Learners take control – audio notes for promoting learner autonomy describes why and how learners, acting autonomously, have used MP3 recorders and mobile phone voice memo technology to make audio notes.

Valuing podcasting – students talk about their experience of educational podcasting finds out what students think about the use of audio in their courses. It draws on interviews with students who have received and made educational podcasts.

Student-generated podcasting – perceptions, challenges and facilitating innovation highlights the need to recognise and manage the complex perspectives of stakeholders when proposing digital media innovation.

A set of design principles and a design methodology for effective audio production are offered in *Academics as audio designers – approaches to the design of educational*

podcasting and a methodology for the collaborative design of digital audio by students groups is introduced in *Digital Audio Learning Objects – student co-operation and creativity in audio design*.

Sound infrastructure for academic innovation looks at the difficulties our universities and colleges are addressing in developing infrastructure capable of supporting the ideas discussed in *Digital Voices*.

Section 2 — Case Studies

Case studies from further and higher education are presented in Section 2 describing the real world educational use of digital audio and video. Academics, students, developers and learning support staff explain what educational podcasting has meant to them: what has worked and what has not worked so well. Because enhancing the feedback given to students on their work is such an important agenda for higher education there has been more innovation around audio feedback than in other areas of educational digital media and several of these case studies discuss how audio feedback has begun to change academic practice. Other case studies consider how the recorded voice has been combined with digital photography, for student reflection, for mediating online discussion and collaboration, and how it can enhance face-to-face activities.

Section 3 — 50 ideas for educational podcasting

Section 3 offers a collection of scenarios and techniques for integrating audio into the curriculum. These ideas are intended to inspire, while demonstrating audio's versatility as an educational medium.

And finally...

Digital Voices challenges previous understandings for the use of audio in education. One of the difficulties in discussing new and emerging educational technologies like digital audio is that the technology can easily dominate the imagination. This book, however, focuses on learning *voices*, especially where their asynchronous reproduction allows for timely and constructive interventions.

With *Digital Voices* the mystery of educational digital media is broken. Look for the red button, press it and talk!

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Why audio? — recognising the digital voice

Andrew Middleton

Appreciating learning voices

At the heart of *Digital Voices* is the proposition that digital audio offers education a new and important opportunity for engaging the learner through the voices of teachers, fellow students, professionals, other experts, organisations and individuals.

In an age where learners can be connected to each other irrespective of space and time, blended learning is transforming education. Blended learning, however, is often understood as "the convergence of text-based asynchronous Internet-based learning with face-to-face approaches" (Garrison and Kanula, 2004, p.96). The digital voice has been absent in much of the literature on transformative pedagogy because leaders in the field, though well versed in the emergence of Computer Mediated Communication as a written form, are only now beginning to realise the educational potential offered by accessible digital audio (Newton and Middleton, 2009; Salmon and Edirisingha, 2008).

Digital audio technology allows us to record and distribute the essence of the learning experience found in the voices of people who, in many cases, have not been readily accessible to the learner before. As a consequence the value of the voice to learning in the blended physical-digital domain has been under appreciated and its use ephemeral, until now. Williams (2007, p.512) points out that information and communication technologies facilitate "new forms of conceptualisation, new media for expression and alternative ways of thinking." He describes how each media evokes a different type of consciousness. New and widely accessible audio technology, therefore, now allows the teacher and the learner to capture those transient, ephemeral and, in some cases, inaccessible conversations so that they can be revisited, shared, stored, and reconsidered.

Tentative and formative exchanges

The spoken word is not equivalent to the written word; at the same time it would be unhelpful to suggest that these media are dichotomous. Throughout *Digital Voices* the written and spoken word are often described as complementing each other towards a common purpose and it is useful, therefore, to understand the different attributes of these media. Whilst the written word is often used to visually set out

knowledge, the spoken word is inherently exploratory, forming, open-ended and is able to carry more nuance and meaning (Davies and Witthaus, 2009). The listening learner can infer meaning (and so develop it for themselves) through the prosody of the spoken word (Caelen-Haumont and Zei Pollermann, 2007); the natural rhythm, intonation and intensity found in speech can help the speaker to communicate good *thinking*, especially in situations where they are not ready to finally commit their understanding or conclusions to the written word. This is something that has, for example, been highlighted in much of the literature on audio feedback (Rotheram, 2007). The recorded voice is different to the written word in terms of the social presence it creates. Although both are asynchronous, the communication mediated through digital audio is likely to be perceived as being more real, and so believable (Gunawardena and Zittle, 1997). The written word, on the other hand, produces a more concrete and convenient artefact that can be evaluated according to established academic conventions. Writing is perhaps a medium that demands more accuracy. In terms of academic literacy the two media, therefore, are both useful and in different ways.

Biggs (1999, p.145) reminds us that “teaching assumes change, not stability.” If learning is considered as a change process therefore, it is not *always* helpful to demand accuracy and concrete statements of the learner. Media is also needed that is suited to mediating the formation of their knowledge, which helps to explain that learning is not a series of end points, but is something that is expected to emerge over time, usually with the help of others. Education needs media that convey and promote learning as a more open-ended process and which values the tentative articulation of knowledge. This is something that has been appreciated by others including Elbow (2000), where the process of writing has been understood to develop learning. Writing, after all, is not simply a matter of sticking what you know onto paper – the process itself is a challenging, formative one. Committing your ideas to words in a spoken form is similarly challenging and formative, but because it has not been easy to capture, and so reflect on those words, it has been of less value to education until recently.

Whether we are talking about the teacher’s voice or the learner’s voice, digital audio technologies allow us to capture rich interventions, exchanges and presentations, and to guide and share learning as it happens. The recorded voice, therefore, would appear to be well-suited to teaching and learning.

At the same time, listening at just the right time is also useful, whether that is listening to other people or to yourself voicing your understanding. In either case such aural media can be as revealing as the picture that speaks a thousand words. Aural representation can also help to highlight contrasting positions such as hearing experts defending different positions or members of the public voicing their opinion. Audio is suited to conveying change and differences in thinking, and so invites the listener to be curious, critical and academic.

In discussing continuous assessment Biggs notes that,

For formative assessment to work, students should feel free to reveal their ignorance and the errors in their thinking.
(*ibid*, p.143)

Thinking of education as a process of 'revealing ignorance' might sound unhelpful, but articulating our understanding to ourselves and others is part of the natural processes of learning. Vygotsky and Kozulin (1992, p.219) explain that,

Thought undergoes many changes as it turns into speech. It does not merely find expression in speech; it finds reality and form.

The learner's articulation becomes a constructive commitment; one that is particularly revealing to them. Though the written word can of course represent many voices, positions, and claims to knowledge, it can be inflexible as a *learning* medium. Learning is a continuous, human process, and instruments are needed that help educators to value and promote learning as a discursive, reflective and forming process.

Jackson (2010) identifies the value of aporia; the personal rhetorical struggle to establish a theoretical proposition. If there is value in the process of struggle, what channels does education have to mediate it? The tentative nature of the learner's spoken words needs to be celebrated; dialogue, conversation and independent attempts to articulate knowledge need to be encouraged amongst learners. This is particularly the case in the Digital Age where it may be relatively easy for the reticent online student to stay socially disconnected and hidden; teachers must find ways to entice everyone into feeling comfortable enough to become active participants (Alley and Greenhaus, 2007; Beaudoin, 2002).

Academia values evidence-based knowledge and authority, but it could do more to recognise the value in the processes of gathering and personally constructing knowledge.

Audio, meaning, asynchronicity and semi-formality

However, all this begs the question that if the understanding is still being formed, should it be captured? The answer to this permeates *Digital Voices* and a simple response might be that education already values the transient formal, semi-formal and informal spoken contributions of tutors and peers, but has not had the facility to pay it due attention until now. As a consequence, the learner often misses the opportunity to reconsider what is said by themselves and others. Furthermore, educators have, in general, embraced the benefits of digital writing tools, but have not so far been able to consider the extended opportunities afforded by digital speaking and listening tools.

Replaying and reconstructing

The abstracted and asynchronous nature of digital audio brings potential learning benefits. Revisiting what has already been said, in the very least, allows the learner another chance to hear and think the same thing, but by revisiting and replaying recordings it is more likely that the learner is presented with a new opportunity for rich and deeper re-engagement.

The recording of seminar group discussions, for example, isolates what *was* said and gives the listener another chance to engage with what is *being* said, and perhaps follow a different train of thought the second time round. Carpenter and McLuhan explain (1970, p.67),

Auditory space has no point of favoured focus. It's a sphere without fixed boundaries, space made by the thing itself, not space containing the thing. It is not pictorial space, boxed in, but dynamic, always in flux, creating its own dimensions moment by moment... We can shut out the visual field by closing our eyes, but we are always triggered to respond to sound.

This lack of "favoured focus" can be used to remove the spotlight from the individual so that the contribution is seen as part of the collective act of discussion. Participants in the discussion can revisit and reflect upon their contribution and that of their peers and, importantly, a further layer of reconstruction is available when one seminar group compares their discussion with that of another. The recording of a simple classroom activity can now cross-pollinate learner construction, supporting learner meta-cognition and re-immersion. The sense of ownership over the discussion becomes both individual and collective.

Audio should not be understood, therefore, as a medium that necessarily relocates teaching and learning, but as one that can relay learner engagement spatially, temporally, cognitively and socially. In this way conversation no longer has just a single iteration; instead the iterations and interactions are potentially infinite and highly formative.

Semi-formal engagement

Digital audio is particularly interesting when it is able to capture and represent the rich semi-formal encounters that happen *around* the formal planned curriculum; those valuable encounters in which the learner is able to raise questions, check their interpretation, or develop their thinking with tutors and peers. These more casual and open-ended conversations amongst teachers and students or students and their peers, that happen when the guards are down, can be the most enlightening. In such situations audio can be used to capture and *re-present* meaningful and constructive dialogue, whether it involves voices that are gritty, searching and tentative, or voices that are clear, confident and authoritative. This discourse is naturally and necessarily tolerant of the grammatical conventions and the formalities of academia, whilst being just as rigorous when the conversation becomes challenging, orienting,

motivating, reflective and purposeful. Less formal discussion may be somewhat messier than essays and presentations, but can result in deeper recall (Bligh, 2000).

Speech is a natural function, whereas the written word is always mediated by technology of some kind. The qualities and conventions of written language affect its capacity to communicate, and though its value to academia is indisputable, it is not *always* the best tool for the job. Audio provides us with a way to recognise and appreciate the semi-formal formative interactivity of education.

Thinking with our ears

Articulation is partnered by reception: we do not talk into voids. Talking expects, requires and receives responses, whether they are rendered in spoken, written or cognitive form.

Bull and Back (2003, pp.1-2) point out that,

In the hierarchy of the senses, the epistemological status of hearing has become a poor second to that of vision... The dominance of the visual has often meant that the experience of the other senses - touch, taste, smell and listening - has been filtered through a visualist framework.

The implication of this is that, as educators, we are filtering our experience and knowledge construction by neglecting anything other than that which is visually rendered (i.e. through text) to the detriment of learning. We need to learn to do more "thinking with our ears" (*ibid*, p.3), or at least acknowledge the orality of learning.

This may require us to more actively develop deep listening skills, and indeed deep speaking skills, as teachers and learners. Deep listening is listening that,

...is not straightforward, not self-evident - it is not easy listening. Rather we have to work toward what might be called agile listening and this involves attuning our ears to listen again to the multiple layers of meaning potentially embedded in the same sound. More than this, deep listening involves practices of dialogue and procedures for investigation, transposition and interpretation.
(*ibid*, pp.3-4)

Bull and Back are not explicitly referring to education in the above passage, however, the notion of agile listeners resonates with what a Social Constructivist learning environment should be. They describe *deep listening* as listening that challenges us to reassess the meaning of what we receive through social experience; the implication is that we need to learn to become critical listeners and critical participants in our learning, able to develop what we hear. A deep listening community becomes an active, dynamic and engaged learning community. Again, this is not new to educators, but as use of our digital environments matures, it is useful to ask how or whether we are promoting and supporting deep listening and deep engagement in our blended learning environment as much as we could.

Invisible knowledge

Though there is much agreement amongst progressive educators about the essential nature of effective pedagogy, with its emphasis “on collaborative learning, authentic tasks, reflection and dialogue” (Mayes, 2001, p.17), it can be argued that online learning environments have lacked the richness of face-to-face communication to properly enable such engagement. The social dimensions of learning are inevitably affected by any move from face-to-face to online learning environments. In some cases both teachers and students have explained the great value they place on at least establishing their relationship through face-to-face contact (Nicol *et al.*, 2003); its absence, they believe, adversely affects their subsequent efficacy in the online social learning context. What is it that is hoped for in this face-to-face interaction? - Perhaps no more than recognition of the human, collective uncertainty and excitement that can be found in learning. However,

The distinguishing features of the new [sic] online environment – lack of auditory and visual cues, asynchronicity and dependence on written text – have been shown to result in the emergence of new types of interaction and discourse.
(*ibid*, p.278)

Others have demonstrated how much can be achieved through computer mediated text-based online discussion and indeed how liberating the online space can be (e.g. Salmon, 2002). Such innovative forms of discourse may indeed be productive in their own way, but they are inevitably limited by the mechanical nature of their mediation and so miss some of the instinctive and natural qualities of social interaction found in corporal communication.

Nicol *et al.* (2003) note that, amongst tutors who use social constructs, student engagement in peer or tutor interaction is regarded as important if learners are to respond adequately. Some students, however, describe how their unease in using “impoverished” online environments can result in them hiding or “lurking” rather than in being visible participants. Mayes (2001, p.17), for example, says that a key challenge facing e-learning is,

...how to offer the pedagogical experience equivalent to that of an individual tutorial with a knowledgeable, sympathetic and well-equipped teacher to large numbers of learners in geographically dispersed and socially diverse settings.

The introduction of digital audio does not of course resolve the challenges highlighted by Nicol *et al.* and Mayes, and it would be wrong to suggest audio is a panacea; the virtual domain should be understood in its many forms to provide a different and valuable extension to the traditional physical learning environments we use. However, the introduction of the digital voice squarely addresses the sense of impoverishment and invisibility they have highlighted.

The value of conversation is at the heart of Social Constructivism (Vygotsky, 1978), whoever is talking and listening. In education, conversation takes many forms and uses many media (see table I.II Principal media forms, Laurillard, 2002, p.90), however the purity, immediacy, reliability and simplicity of recorded voices offers education a much needed and rich opportunity.

A counter-argument to the promotion of asynchronous audio voices might be that they are static and disembodied - they are recorded and packaged and so do not really reflect the richness found in conversation. This position would suppose that learning dialogue is inevitably confined to a single channel, a single engagement and to the active rather than cognitive domain. Any learning encounter, whatever its granularity, exists in a much wider context than its initial manifestation might suggest (Greeno and Moore, 1993). Furthermore, conversation involves as many meanings as there are engagements with it.

Extending the learner's reach to authentic knowledge

Digital Voices is mostly concerned with articulation, listening and communication, and the new levels of access offered by digital media to the many voices that exist in and around teaching and learning.

The challenges facing teaching and learning in the twenty first century include the lack of physical access we have to each other. Student numbers have grown, more flexibility is demanded by students and governments, and learning communities are widely dispersed. The drive for each of us to see learning as a lifelong opportunity implies that we cannot be expected to always be physically co-located with our fellow learners and teachers. However, the virtual learning environments that have been rolled out on all campuses since the turn of the century are dominated by the use of text, even where the pedagogy is dialogic. If we wonder why our online environments are so often used as content repositories, perhaps it is because they do not appear to readily address our need for vibrant interaction. Again, text is often the best tool, but sometimes it is not.

At the heart of education is knowledge, but knowledge itself is problematic. It is not always as black and white, codified and inflexible, as it often seems in academia. Knowledge is increasingly understood in at least two ways: as being propositional, peer reviewed, and authoritative; and as being procedural, 'knowledge-in-action' and embedded in real-life situations (Gibbons *et al.*, 1994). This second view resonates more with education in the Digital Age. Gonzalez (2004, p.1) talks about the "shrinking half-life" of knowledge, how in the Digital Age it becomes obsolete faster than before and how what is known in the world is doubling every 18 months. This active, changing view of knowledge also resonates with George Siemens' idea of Connectivism (2005) where authentic connections are easily made by anyone through personally defined networks. In this Digital Age connections to real world and living experiences are as valuable and meaningful to academia as knowledge

that has been written down. The voices in the world beyond education, therefore, offer so much to today's student, yet they largely remain an untapped resource.

The advent of digital audio technology allows us to reach further into the world beyond education, so extending our learning environment. This extended learning environment is not concerned with just supplementing what can be done pedagogically, but with changing pedagogy itself by allowing academics and students to operate in ways that have not been possible before, creatively exploiting our natural human qualities, and so heightening the learner experience through a more personal and social engagement.

Conclusion

The opportunity for digital audio enhanced learning and teaching is becoming clear: we can begin to converse more naturally as teachers and learners wherever we are, and whenever we are ready. We can use not only the more formal, black and white channels of the written word, but the softer-edged, more colourful, ambiguous, challenging and natural channels of the spoken word to encourage deeper learner engagement. Audio offers education ways to extend the learning environment to make personal, timely and meaningful connections with those around us and beyond.

As Bull and Back remind us (2003, p.6), "sound connects us in ways that vision does not."

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Podcasting and RSS — the changing relationship

Graham McElearney and Andrew Middleton

Introduction

The advent of podcasting and its use in higher education in 2005 introduced several new ideas to teaching and learning. Many of these are discussed in *Digital Voices*, however, the idea of podcasting and its pedagogic potential became confused with a particular technical approach: a user-based subscription model for distributing and receiving podcasts based upon RSS (Really Simple Syndication).

This chapter explains what is meant by the term podcasting, especially in relationship to the significance of RSS — a method used for distributing podcasts and other content to subscribed users. It explores the different uses of the term podcasting and clarifies the significance of these changing meanings to education and its appreciation of recorded voices.

The emergence of RSS

During the first few years of the twenty-first century an abundance of new technology and terminology emerged which indicated a shift in the relationship between the Web and the general user, especially in relation to content: podcasting, blogs, wikis, user-generated content, online digital media, online social networking, and RSS feeds seemed to appear at once. Until that point the Web was the domain of the specialist publisher who was either technically competent or was technically well supported. But then the Web changed: it became an interactive, social, user-centred space, often referred to as 'Web 2.0'.

This shift found resonance in education where e-learning and Virtual Learning Environments (VLEs) were being rolled out. Central to e-learning was the provision, for the first time, of tools that not only allowed the non-technical academic to publish content to their students online, but that allowed those students to publish *their* ideas too. VLE discussion boards particularly helped to redefine thinking about what academic discussion could be now that students and tutors could engage with each other at different times and in different places.

Because the various emerging Web 2.0 technologies appeared to come at once, the messages about them became mixed, and in retrospect, overly optimistic and

confused. To the technically-minded the shift was fundamental, potentially highly disruptive and exciting. To the general user of web-based technology, however, words like *blog*, *wiki* and *podcast* were likely to be further technical mysteries, peripheral to ongoing day-to-day activities. For a while then, it would be left to the technical savvy to consider the potential of such new tools and this explains why initial conceptualisations of new and emerging technologies are usually technology-centred and with a tendency to replicate existing modes of practice. In education this means that inevitably pedagogic innovation based upon new technology is bound to lag some way behind the emergence of the technology itself.

A simple technical protocol called RSS was a feature of many of these new technologies (RSS Advisory Board, 2005). To the technically minded, this seemed to be closely related to the whole shift from expert producer to user-producer, sometimes referred to as the 'prosumer': the new writer on the Read/Write Web (McManus, 2005).

From a technical perspective, RSS in 2005 was an important property of podcasting. It offered a standard and efficient way to distribute digital media to niche audiences through aggregator or 'podcatcher' software. Gardner Campbell (2005) captured the mood well in his visionary article titled "There's Something in the Air" that sought to describe a learning environment in which the podcast feed was part of the everyday habits of teachers and students:

The real power of podcasting is unleashed by the RSS function in tandem with the podcatcher (audio-video RSS aggregator or feed-reader). With a podcatcher, the listener can subscribe to his or her favourite podcasts, which will then be downloaded automatically to the computer at a time of their choosing.
(Gardner Campbell, 2005, p.8)

We can summarise this as follows:

- Pre-Web 2.0: the user visits a web page to find information;
- RSS: the user can see updated content by checking an RSS feed;
- RSS plus podcatcher: the user can automatically receive updated content.

What is RSS?

RSS (Really Simple Syndication) is the name of a standard mark-up language - similar to HTML, the simple language used to produce web pages. Its purpose is to make it easy to deliver or receive frequently updated information. It allows the end-user to subscribe to, and so manage, 'feeds' of information designed to be frequently refreshed with new content.

From the publisher's point of view it provides a simple and standard way to distribute content to tools on the end-user's computer or device known as 'feed aggregators'. Aggregators are designed to automatically check for and download

new content whenever it becomes available, appending it to previously downloaded items from the feed. This new content is then presented to the user, alongside content from other feeds to which the user is also subscribed, whenever the user decides to find out what is new.

Winer (2004), who was largely responsible for devising RSS, describes RSS as a syndication format for Web content; an idea that recognises the continually refreshed nature of dynamic content and the potential to develop niche audiences for such information when working to the scale afforded by a global internet community.

RSS feeds are composed of a 'channel' to which the end-user subscribes and 'items' - the chunks of published information (see fig.1). Usually RSS feeds deliver text-based information to the subscriber; however, by adding a reference known as a 'media enclosure' to the item description, the RSS feed can also include links to web-based audio, video or PDF files. This media-enhanced approach to using RSS feeds became known as podcasting. Originally, therefore, podcasting was a technical term used to describe the protocol for delivering digital media to subscribers. Over the years, however, common usage has broadened to embrace the use of audio and digital media files in general.

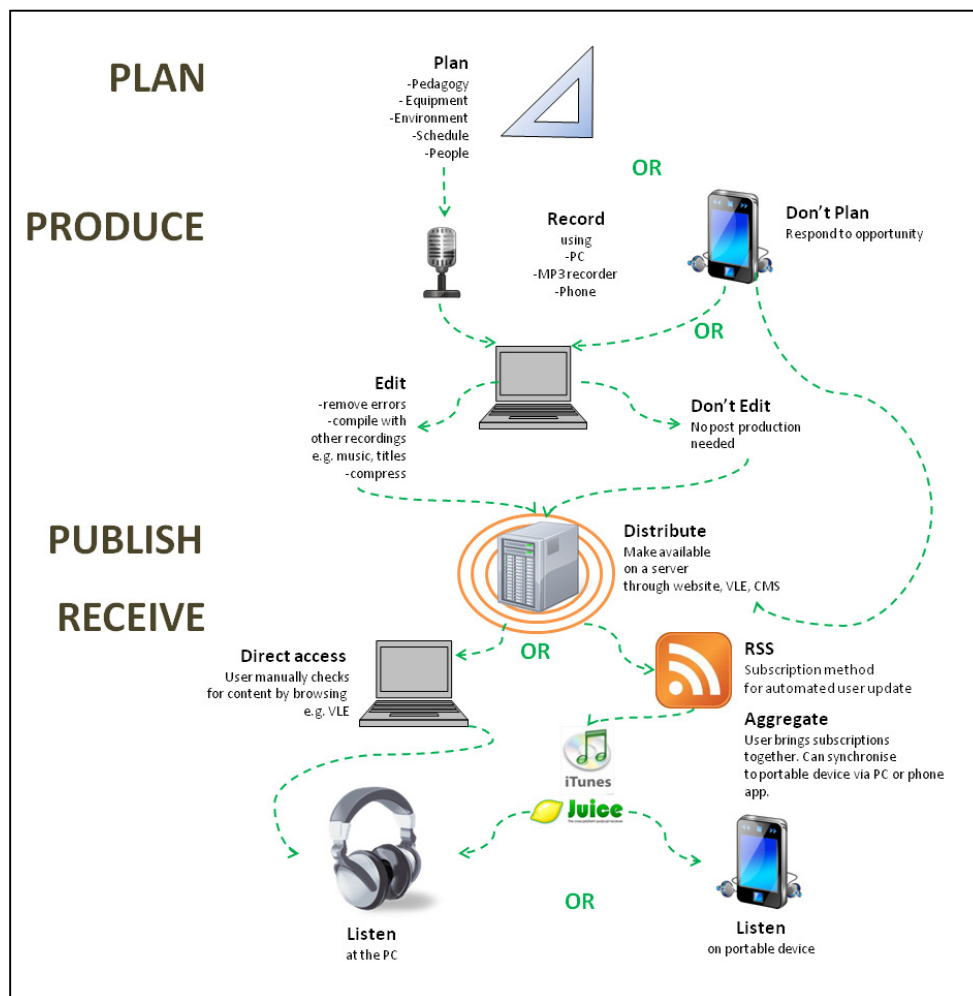


Figure 1. Podcast workflow showing alternative approaches to producing and using podcasts

Using RSS to produce and receive podcasts

The channel's RSS file is updated by the publisher whenever a new episode is ready for release. This updated file is then reposted to the server along with the associated media files. The end-user of the podcast registers the Web address of the feed with their podcatcher software which regularly and automatically checks the feed address for updates. The podcatcher on the end-user's PC or device automatically retrieves a fresh copy of the RSS file if it has been updated since it last checked and, in the case of podcasts, also downloads any associated media.

iTunes is the best known podcatcher, though there are others which have been designed specifically for the job, such as *Juice* (Lifehacker website, 2010). *iTunes* is now widely installed but perhaps most commonly thought of as an online digital entertainment store, media player or media library. Its capacity to manage podcast subscriptions is not as widely appreciated or used.

It is worth noting that not all podcatcher software is capable of handling all the types of media that can be made available via podcast feeds. The freely available open source *Juice*, for example, can (at the time of writing) only manage mp3 audio files, whereas *iTunes* (also freely available) is able to download and play mp3 audio files, mp4 video files, pdf files, and enhanced podcasts in m4a format.

A podcast channel can be set up by anyone using institutional services or web-based services like *Podcast-o-matic* or *SoundCloud* and anyone interested in the channel's topic can subscribe to it (Mobs, Salmon and Edirisingha, 2008). The channel, therefore, provides the end-user with up-to-date, refreshed content to listen to whenever it suits them. The listener can access the downloaded episodes directly through their aggregator software or by synchronising the collection of downloaded podcasts to their portable device. The synchronisation is optional; users can choose to just listen to or watch their podcasts on their PC or other internet-connected device.

In this model there is no constraint on the frequency, number, duration or type of episodes that are produced in any given channel, though common sense and the preferences of producers and users may suggest some regular pattern.

RSS, therefore, changes the Web from being just a repository of information to a mechanism capable of pushing content to those who have signalled interest in particular channels of information. This explains why education does have an interest in exploring the potential of RSS driven, or syndicated, podcasting, as discussed next.

Features of syndicated podcasting

Episodic education for niche audiences

The serial distribution of digital media through podcast feeds, in effect, results in the periodic release of media-rich episodes to niche audiences of subscribers. In theory this model fits well with education, which is familiar with the idea of serially engaging its participants with content in one form or another through classes, seminar groups and assignments. Similarly, the notion of *niche audience* echoes the way students as learners are grouped into classes, cohorts, modules, levels, courses, and so forth.

Syndication in education

Because syndicated feeds, such as podcasts, automatically 'push' content to the subscriber, they remove the need for the user to perform regular searches in order to keep abreast of new developments. By using RSS feeds, the user can regularly browse information from a pre-selected set of sources at their convenience, so that information is always current and within a continually refreshed and lively learning environment.

The RSS feed is essentially a management device that promises to supply pertinent information to the user from their pre-selected trusted sources.

Access all areas all of the time

Podcasting can be thought of as time and location neutral due to the asynchronous nature of the downloaded media involved and the way it can be distributed to multiple devices, whether fixed, mobile, connected or stand-alone; hence the use of terms such as 'time shifting' (Donnelly and Berge, 2006) and 'space shifting' (Meng, 2005).

'Space shifting' is dependent on the user having access to either a mobile device, several devices in various locations such as University, work and home, or a mix of fixed and mobile devices. In education, 'space shifting' has mostly been discussed within the context of the student ownership of mobile technology, especially the *iPod* (e.g. Belanger, 2005; Bryson and Hand, 2007; McKinney *et al.*, 2009; Salmon and Nie, 2008; Thomas, 2006; Windham, 2007). 'Space shifting' is an important concept for educational audio given that many students prefer to access audio from computers that are off-campus where they have more control over their listening environment (Evans, 2008; Brittain *et al.*, 2006; Lane, 2006).

The uptake of mobile and ubiquitous technology has seemed inevitable for many years. Takemoto (1987), for example, suggested that education was on the brink of losing its physical constraints over 25 years ago, with the proliferation of commonly available audio equipment such as radios or cassette players which can be used to deliver learning resources anywhere and at any time. While Takemoto's vision was not fully realised at the time, the increased accessibility offered by digital technology

may be significant in seeing greater uptake of such ideas. However, Lee and Chan (2007) highlight the difficulty of learning by listening to podcasts while multitasking due to problems of split attention. Similarly, Edirisingha (2006) has raised concerns about the quality of listening while on the move: if students encounter podcast content while in the gym or while commuting, is this really the right environment in which to learn? Certainly this highlights the need to design podcast media with care, paying attention to the likely levels of attention. As with any content, students need to be guided in its use, particularly about *where* to use it. As is discussed throughout *Digital Voices*, many of the best ideas for exploiting educational audio do not require sustained and deep levels of concentration, offering more illustrative and immersive interventions rather than being instructive in nature.

The convergence of the media player

The topic of mobile access and student ownership of devices is in continual flux, however the high level of student laptop, netbook and smart device ownership, with their installed media players, means portable technologies are less likely to be perceived as either leisure or non-leisure. At the same time, it is useful to recognise that students typically now have more opportunities to access the internet, especially since the advent of WiFi and mobile broadband. This extends the notion of ‘space shifting’ beyond that which involves the flexible use of synchronised, downloaded material to mobile devices such as phones, tablets or MP3 players. Now it is increasingly likely that media will be accessed on demand, synchronously, and over more widely accessible networks using portable devices with ‘always on’ connectivity.

Device neutrality

At the end of the technological process, the listener uses a media player of some sort. The standardisation of media formats has given the user more ways in which to access media. Media players are available in many forms and include both software and hardware instantiations. Media player software, for example, includes *iTunes*, *Windows Media Player*, and a wide variety of smart apps, while hardware MP3 players include *iPods* and *Creative Zens*, smartphones and tablets, among many others. The advent of smart devices, and the apps associated with them, have increased the ubiquity of media players and enhanced their usability.

Device neutrality is further extended by recognising a third category of player devices. This is the category of the embedded, online media player, used in conjunction with web-based aggregation services such as *Podnova*, start page aggregation tools such as *Netvibes*, and general RSS aggregators like *Google Reader* and *Bloglines*. Such web-based players are also embedded in websites that don’t offer subscription feeds. This third approach does not require the user to download copies of the media, but allows those people with ‘always on’ connectivity to manage their feeds, or play episodes directly, online.

Connectivity killed the podcast star?

Given the 'always on' connectivity of devices such as smartphones, and the habitual tendency of people to search out content, rather than manage it, it is possible that the general user will never need to turn to RSS. In the age of total connectivity, how do you argue the case for RSS? The benefits of pushing information as downloadable media to subscribers through RSS feeds, although real, appear to be limited when compared to the benefits evident in the pragmatic just-in-time searching habits of the Google Generation (CIBER, 2008).

Still, the value of syndicated media deserves some further consideration.

Opportunities for the educational use of syndicated podcasting

Based on the conception of podcasting as a form of syndicated media publication, what does it enable educators to do? Some scenarios are presented here and many others can be found in Section 3 of *Digital Voices*.

Scenario 1

A scenario involving the subscription model of podcast distribution might be where a lecturer wishes to provide students with a weekly podcast, which is aligned to the topics or activities being undertaken by the students. These podcasts might offer a précis of the week ahead or provide a review of the week just passed. In either case, by subscribing to the podcast RSS feed, students are able to receive timely academic materials as they become available without having to seek them out.

Scenario 2

Beck and Stokes (2008) demonstrated how a podcasting channel can be utilised to provide induction information to first year students studying Mechanical Engineering. In this example Beck produced a series of 14 podcasts tackling issues relating to the transition from studying at school to university. Each one addressed topics such as the role of personal tutors, how to correctly write up lab reports, and regulations regarding plagiarism and collusion. These were then staged to be released on a weekly basis throughout the first year.

Scenario 3

In this scenario the idea of 'channel' (another way of conceptualising the idea of 'feed') offers benefits which are reason enough for adopting the subscription model. The module podcast channel creates an audio extension to the blended learning environment. In this scenario the nature of the content in the channel can be various, irregular and infrequent, responding to the needs of the module at different points from its introductory, expectation setting phase, through its knowledge building and assessment phases, culminating in its delivery of feedback and support for reflection.

The presence of the channel signals the value of the digital voice and the value of the learning community itself in its capacity to include a variety of voices on different occasions.

The learner as subscriber?

After everything else has been considered a judgement has to be made about the general usefulness of taking a syndicated approach. While it might not be difficult to generate and offer a subscription feed, doing so introduces two important considerations:

1. Technically, a podcast feed requires that the feed and the associated media must be publicly accessible so that aggregating software can retrieve the podcasts. While this does not mean they have to be *publicised*, it does mean in theory that podcasts can be inadvertently stumbled upon, and this may introduce ethical dilemmas.
2. If the podcast feed is provided as only a supplemental option, how will it be promoted and supported? How will it be explained to the students? What does having optional content and features communicate to students about the value of the media?

Early commentators on educational podcasting such as Campbell (2005) pointed to the proliferation of students habitually listening to *iPods* on campus as a reason to consider podcasting. For a while it seemed that every student was listening to podcasts, but of course the reality was quite different. As a recent graduate, Windham (2007, pp.51-52) points out in her *Confessions of a Podcast Junkie*, “though *iPods* are ubiquitous, podcasts are less so.”

Despite Campbell’s future vision of education, in which he says “It’s natural that school stuff would mingle with other aspects of [the student’s] daily life” (2005, p.33), students almost exclusively listen to music on their portable devices, immersed while traversing their “sonic bridges” (Bull, 2005) between home and university. Edirisingha (2006) notes that students distinguish between listening to music on the move and seriously engaging with academic content. He reported from the IMPALA project that students were, in general, unfamiliar with listening to podcasts until they took part in the project, and this lack of familiarity has been noted by others such as McKinney (2009).

If students are not going as far as transferring their spoken word recordings to their portable players using podcast synchronisation tools, perhaps they are listening to subscriptions on their PCs? A number of studies have reported on this over the years and there seems to be a divide between those who say it can be done and those who say, “But it isn’t actually happening.” This is highlighted in a review of the literature and a small survey of students conducted by the authors for the Media-Enhanced Learning Special Interest Group in 2009 (Middleton and McElearney, 2009 – see

appendix *Students don't listen*). Both the literature and our own investigation suggest that, in general, students are not familiar with podcast feeds, nor are they subscribing to academic content in this way. Our survey highlighted how students are also not using their personal MP3 players to listen to academic-related material in the main. However, there is some evidence in the literature that students will subscribe to feeds and use their personal devices when the reason for doing so is clear. But such cases are exceptional.

Conclusion

In the early days of podcasting the novelty of the technology and the preoccupation of many commentators with emphasising the importance of the RSS feed over the value of the recorded voice obscured much of the pedagogic potential of podcast media to education. Latterly, the word podcast has been used more loosely to refer to any online audio. This change has coincided with the growth in personally owned "always on" smart technologies and a greater and diverse appreciation of recorded digital media to support learning.

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Podcasting — a flexible medium

Andrew Middleton

In order to understand why podcasting might be attractive to education it is useful to take a closer look at podcasting's constituent parts. To do this it is useful to break down the following definition of podcasting:

The serial distribution of locally created, downloadable digital media recordings via a user-defined Internet channel to a niche audience of subscribers who are able to access them whenever and wherever it is useful for them to do so.

The educational characteristics of podcasting

Distribution

Distribution affects both how the producer publishes the content and how the end-user receives it. Technically, publication entails the uploading of recorded media to the Web along with information about the media episode including its title and associated notes. The technical requirements are therefore similar to those needed for the distribution of other materials through an institutional virtual learning environment (VLE) or learning management system. The main differences are likely to be in the size of the media being distributed and the option to produce an RSS feed so that students can receive the content automatically when it becomes available.

Because students in general prefer to access all of their Web-based media by searching and browsing for it, it is now unhelpful to lay too much emphasis on the significance of the RSS feed, even though from a technical point of view it appears to be one of the main defining features of podcasting. Furthermore, access to the VLE through the Web browser, or through specific apps, is likely to remain the preferred way of accessing content off campus with the increased ownership of smart devices by students.

Contrasting with this view of exclusively catering for browser-based access is the view that students should be given the choice of how they receive the content. Tools such as *Learning Objects' Podcast LX* allow the recipient to either find and listen to material in the VLE or to subscribe to it using an automated feed in their feed aggregator (e.g. *iTunes*). This way of embedding media in the VLE creates no more work for the academic podcaster and so may work well as a distribution strategy. The podcast designer needs to decide whether the use of such a tool adds flexibility or creates confusion, and the institution needs to decide whether the cost of such

applications is balanced by the benefits, such as the increased flexibility such tools provide.

So far, this consideration of distribution methods has assumed that the producer or manager of the educational podcast has access to the distribution mechanism. Yet, in general, students do not have administration rights to publish their material through institutional VLEs. This therefore creates an obstacle to supporting many of the ideas for educational podcasting that involve the student publishing the media. So the issue of distribution shifts away from the access of the learning listener to one of access to the learning producer. Much of the creative potential of educational podcasting may be thwarted if institutions are unable to support systems that allow the learner producer to distribute their work to their appropriate audiences.

However, public Web 2.0 applications like *YouTube*, *Vimeo* and *SoundCloud* may offer a way ahead in terms of distribution for all users, though this introduces challenges for institutional support and sustained scalable adoption, as discussed later in the chapter *Sound Infrastructure for Academic Innovation*. While communicating one's ideas and knowledge in the world beyond *can* bring benefits, ethically there are also issues about exposing the formative voices of our students to the world beyond 'the walled garden' - that secure space found in the VLE for example.

Downloadable

Media on the Web are either delivered as streamed or downloadable content. Streaming involves media that are played from a server and which are not downloaded. Streaming is similar to broadcast media in that it is transient: it is played, and then it is gone. Downloading, on the other hand, results in a copy of the media being transferred to the end-user. There are some subtle variations in the way that media can be distributed, but for our purpose podcasting can be understood as a technology that results in downloadable media where each end-user receives a copy of the file on their own computer or device. Once they have it, there is no way of retracting it or protecting it against further exploitation. Having downloaded the media, the end-user has control over its playback, and is able to navigate the file in any way they choose, replaying it whenever it is useful for them to do so.

Range of Media

A further characteristic of podcast feeds is their capacity to deliver a range of media: audio files (usually in MP3 format), video files (usually as MP4s), or PDF documents (which may contain static visual information as well as text). Podcasting was initially associated with audio due to its relatively simple production and small file size in comparison to video. Latterly video production has also become more straightforward, and compression technologies and increased server capacity make production more realistic. Podcasts that contain video are sometimes known as *video podcasts*, *vodcasts* or *videocasts*. Podcast feeds also support the use of descriptive metadata (i.e. title, description, date, etc). These descriptions, sometimes called 'show

notes' by podcasters, can be used to offer related textual information alongside the digital media file.

Adaptability

In addition to the range of media, the podcast producer is able to design and manipulate the media so that it meets the needs of the target audience and the subject to best advantage. Duration, structure, number and range of voices, style, and frequency are some of the variable design factors available to the podcast producer.

Locally created

An important concept associated with podcasting is that of user-generated or user-sourced content, allowing anyone with access to everyday digital technology to publish their ideas. A positive ethos of 'mass amateurisation' (Shirky, 2009) has emerged in which producers do not aspire to professional production standards and methods. This amateur, democratised approach to media has a purpose different from that of traditional media produced by professional broadcasters and it should not be judged in the same way. In terms of education there is clearly a step change in what we can do and in what our graduates will be expected to understand. Both the 'doing' and the 'understanding' of user-generated media are dimensions that education needs to consider in terms of its interest in raising digital literacy and critical fluency.

However, this access to the means of production is perhaps most important because of its situated and authentic nature and how it can support many of the characteristics of authentic learning outlined by Herrington (2006), including:

- An authentic context that reflects the way the knowledge will be used in real life;
- Authentic activities;
- Access to expert performances and the modelling of processes;
- Multiple roles and perspectives;
- Collaborative construction of knowledge;
- Reflection;
- Articulation;
- Coaching and scaffolding;
- Authentic assessment.

Openness and abundance

While the idea of 'mass amateurisation' highlights how anyone *can* produce media, with the implication that we should explore this potential for authentic engagement, people like Martin Weller (2011), Christine L. Borgman (2010) and Terry Anderson (2009) set out the case for a new way of thinking about pedagogy, scholarship and content in a more open and connected world. Weller (2011, p.85), for example, discusses a 'pedagogy of abundance' and the "potential for a radically different

approach [to teaching] to emerge.” In this Digital Age ideas such as ‘talent’ or ‘expertise’ are found to increasingly lack relevance, becoming antiquated and unnecessary, suggesting that it is time to rethink the fundamental precepts relating to assessment and knowledge itself. Weller cites Wesch (2008) whose students highlighted how the dominant form implied through the lecture theatre is at odds with what is valued by contemporary educationalists, including dialogue, reflection and critical analysis. Weller says (*ibid*, p.89) that, in contrast, “these environments are characterised by: user-generated content; power of the crowd; data access; architecture of participation; network effects; openness” and suggests how newer environments are fitting for pedagogies such as resource-based learning, problem-based learning, constructivism, communities of practice and connectivism.

Niche audience

The notion of ‘niche audience’ in educational contexts echoes the way learners are grouped into classes, cohorts, modules, levels and so forth. Digital media content can be designed to target the immediate needs or interests of each such group, or can be the product of the audience itself.

Unlike printed media where, as Shirky points out (2002), “the up-front costs are large, and [where] ... each additional copy generates some additional cost,” the risk involved in the local production of digital media to a niche audience is limited to the initial effort required in making a single copy available. This has something in common with the economic concept of ‘the long tail’ in which there is a niche market for anything (Anderson, 2006). Traditional media are notoriously expensive to produce due to high production values and the number of people involved in the production. In education, however, we can learn from *YouTube* where those who flock to the user-generated content appreciate it because of its content and social context, not because of its glossy production values. Similarly, audiences for the academic producer are small and well-defined, whether that producer is the lecturer or the student, and because it is likely that the producer knows their audience personally, understandings of ‘quality’ change. The value of the podcast is likely to be in its relevance rather than its presentational qualities; it is engaging because it is meaningful to the target audience. Similarly, the niche audience is more likely to value the integrity of current, locally generated content compared to studio productions involving people who are otherwise inaccessible. Typically, an educational podcast will have more in common with producing a newsletter than with producing a newspaper.

Timeliness

There are two aspects to the timeliness of podcast production that should be highlighted:

- The potential currency, and therefore relevance, of the media due to the speed with which it can be produced and distributed;

- The asynchronous access to the media that ensures it is available ‘just-in-time,’ as and when the user can make best use of it.

In both cases the timely release of podcast material can increase its meaningfulness. Currency, for example, allows the learner to use media to concurrently debate issues that are being discussed elsewhere, such as in the professional arena. Indeed, student ideas might be published beyond the confines of the VLE, leading to a stronger, active and authentic engagement. Podcasting, whether it is in the form of academic, student, expert or public voices, offers ways to make timely connections between the classroom and the world beyond.

The asynchronous nature of digital media ensures that the learner has control over the content, whether that content is supplied for them or whether it is made by them. This is one of the most important attributes of podcast media: unlike the live conversation, the learner can review recorded content as many times as they wish and at a pace and time that suits their personal needs. They can receive formative feedback while it is still relevant, but can refer back to it later.

Asynchronicity

The challenge of constructing more opportunities for face-to-face dialogue is growing. Encounters between students, tutors and peers are difficult to arrange given that many students now have to work, travel or have family responsibilities. Others study full or part-time at a distance. Lack of access to personal tutor interventions is also compounded by growing class sizes. All this explains why personal and timely interventions are hard to arrange, despite their value to the learner and the processes of learning (Kirshner, 2001). The demand for a more satisfying experience of learning does not go away. This is highlighted every year in the National Student Survey (HEFCE, 2010) which shows how higher education continues to frustrate students through inadequate provision of feedback. Feedback is an important indicator because it represents critical personal contact between tutors and students. This is one reason why academics have embraced audio feedback, perhaps before they have looked at many of the other *Digital Voice* techniques. Many case studies cite the challenge presented by the NSS as a driver for academic interest in engaging students more personally. As the prevalence of audio feedback case studies in Section 2 indicates, digital audio not only provides new access channels, but methods that offer a more personalised and meaningful learning experience.

The characteristics of podcasting, in its various forms, comprise a flexible medium that offers a way to enrich the learner’s experience through asynchronous digital voices.

Mobile media

Much of the early interest in podcasting focused on the use of the *iPod* mp3 player. The word podcasting itself is a portmanteau, or 'mashup', of *iPod* and *broadcast*, suggesting the distribution of media via portable devices to people wherever they choose to listen. One of the earliest podcasting initiatives in education was the often cited experiment at Duke University, as reported by Belanger (2005), which specifically aimed to focus on the feasibility and effectiveness of the *iPod* by academic staff and students. Though Duke's initial planning was based around the use of the *iPod* as a mechanism for audio playback, Belanger's report noted it was the device's capability to *record* that garnered most interest, with 60% of students using it in this way for academic purposes.

Nowadays the ownership of such devices by students is very common. However, Bell (2008, p.182) warns that, "Just because a device can be used for something does not mean that it will be used for something." Many students indicate they are not happy to use their personally owned MP3 device for non-leisure content (Newnham and Miller, 2007; Evans, 2008), a position that is echoed by commentators such as Bull (2005), who describes the reclaimed space and time between home and work as being as personal as the device itself.

Early arguments for podcasting stressed the significance of the mobile interface, noting that MP3 devices like *iPods* allowed the learner to receive and use updated audio in informal and remote learning environments. Some described this as an opportunity to do more with 'dead-time learning', such as during the daily commute (Learn Out Loud, 2005). Mobility is an important factor for some students and academics, though in most cases the learner will want to access their podcast content in the same way that they access their other content.

Table 1 Mobile Voices highlights different ways of appreciating the value of the mobile digital voice. Each cell provides an indication of what is meant by mobility and why viewing the mobile voice in this way can be valuable. A small number of example applications have been described for each view, many of which can be cross-referenced with the ideas in Section 3 of this book. The table demonstrates how viewing podcasting from the point of view of the user as recipient is only half the story: it is also clear that mobile podcasting can be valuable for both learner and teacher producers.

Some of the example ideas could fit in more than one cell. The cells are not exclusive, rather the table is intended to present ideas viewed through the different lenses of 'moving', 'environment', 'devices' and 'autonomy'.

Other dimensions could be added to the matrix. For example, the range of opportunities that exist across the formal-informal continuum could provide further insight and depth to any of the cells. Voice is valued in more formal educational situations like classrooms and VLEs as well as in situations that do not have a clear

or strong connection to the planned curriculum. Mobility, in particular, can help to form connections *between* formal and informal situations (Middleton, 2011).

Mobility will grow in significance as the technology used by both users and producers becomes more personal due to the increase in smartphone and tablet PC ownership. The subliminal attachment of users to their mobile devices inevitably affects the way they feel about and engage with the content they use on their devices.

Listener	Producer
MOVING <i>travelling presents an opportunity</i>	
<p>The moving learner listens to recordings because doing so is a productive use of time <i>or</i> because the journey to or from a particular place is itself significant.</p> <p><u>Examples</u> Listening to:</p> <ul style="list-style-type: none"> discussions, feedback, audio summaries or revision notes. 'prevision' recordings for field trips; reflecting on interviews. 	<p>The moving learner or tutor records voices they believe are important or illuminating, wherever they find them.</p> <p><u>Examples</u> Capturing:</p> <ul style="list-style-type: none"> their own reflective voice; impromptu 'corridor' feedback from tutors; opportune interviews with 'experts'; the voices of placement colleagues for a digital story.
ENVIRONMENT <i>the context is significant</i>	
<p>The listening environment is significant for the learner as it heightens their engagement with the situation.</p> <p><u>Examples</u> Audio tours or 'talk throughs' of places, objects and processes, e.g. museum, lab work, inductions, works of art, simulation, professional situations or processes like hospital wards, courtrooms, school classrooms, etc.</p>	<p>The producer takes advantage of the situation to teach or learn, e.g. work placement, gathering research data; enquiry-based learning.</p> <p><u>Examples</u> Recording:</p> <ul style="list-style-type: none"> lab notes; an account of a field trip; the essence of a place that will be meaningful later.
DEVICE <i>features affect engagement</i>	
<p>The nature of a device allows the listener to learn. For example, the unobtrusive and accessible nature of the MP3 player becomes significant or the pervasive nature of a student's phone makes its use reliable.</p> <p><u>Examples</u> Listening:</p> <ul style="list-style-type: none"> to personal audio notes on a train; across different situations, therefore sustaining engagement. 	<p>The nature of a device allows the producer to learn or teach. For example, the discrete, portable, and simple functionality of the device makes it possible to gather useful information easily. The type of media supported by the device makes it suitable for a particular situation.</p> <p><u>Examples</u> Recording:</p> <ul style="list-style-type: none"> audio summaries of lecture notes; a-PDP; audio feedback on a student's work; voices for a digital story.
AUTONOMY <i>user control – just-in-time, just-in-place</i>	
The listener chooses the time and place that is	The producer can control the way they learn

<p>most effective for them individually or as a group. They are able to play, pause, rewind, stop and replay the recording wherever and whenever it is useful and beneficial for them to do so.</p> <p><u>Examples</u></p> <p>Using:</p> <ul style="list-style-type: none"> • revision notes; • longer recordings when reviewing written notes; • media-enhanced feedback given to a group. 	<p>or teach to suit the situation.</p> <p><u>Examples</u></p> <p>Recording:</p> <ul style="list-style-type: none"> • feedback with a smartphone at home; • an idea spontaneously; • someone with insight because the opportunity presents itself.
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Table 1. *Mobile voices: different ways of appreciating the value of the mobile digital voice*

While the benefit of educational podcasting is often described as its capacity to offer supplemental material, an appreciation of podcasting as a form of mobile learning clearly signals how integral it can be, whether looking at it from listener or producer perspectives.

Access to voices

The benefit afforded by enhanced access to voices comes from a view of educational podcasting as a medium for affecting both action and cognition. The formal, semi-formal and informal voices of learners, teachers, experts and publics can offer a range of insight to the learner that would otherwise not be viable. Formality and informality can be found in most learning situations and some opportunities are clearly more intentional and expected than others, and some are more determined by the teacher than the learner, but the processes of recording and playback can have a useful role across the formal-informal continuum. Though these voices carry diverse information and insight, they also humanise the learning environment by guiding, challenging and inspiring. This contrasts with the idea that podcasting provides education with another detached transmission mechanism. Digital audio, in its many forms, can be used to enhance any student's everyday learning landscape. Personal encounters found in formal (e.g. lectures, tutorials, placements and field trips) and semi-formal situations (e.g. corridor conversations) are undervalued. Furthermore, there are many people off campus who are able to make significant contributions to education, but who could never be available in person. Potentially every voice in the world beyond the classroom might have something to offer.

Conclusion

In many ways attempting to define podcasting is counter-productive: it is flexible and its adaptability is perhaps its over-riding characteristic. This chapter has outlined several dimensions which indicate its suitability for education, but which also can make it difficult to grasp. Its methods of distribution, its downloadability, the range of digital media associated with, the flexibility of style and formats, the

home production, the niche audience, the benefits of timeliness and asynchronicity, and the different meanings of mobility signal its strengths.

If all of these dimensions are bewildering then it is the access to a wide variety of voices that should signal its value to education above all else.

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Digital media and their pedagogical opportunities

Andrew Middleton

Today's audience isn't listening at all - it's participating. Indeed, audience is as antique a term as record, the one archaically passive, the other archaically physical ... The remix is the very nature of the digital. (Gibson, 2005, p.1)

Education and technology meet in the twenty-first century around the word 'remix'. This chapter describes how educational podcasting, and digital media more generally, can be used in a highly flexible way that is capable of enhancing the experience of both teachers and students. It is accessible, personal and social, well-suited to a contemporary curriculum. Digital media can be effectively used as a catalyst for enhancing learner engagement.

Many of the early advocates of educational podcasting have focused on its capacity to record, distribute and amplify the teacher's voice using methods that attempt to reproduce traditional academic practice. Though there can be some value in this, it offers little in the way of academic innovation; the technology falls short of enhancing academic practice and learner engagement and, in the worst cases, podcasting can actually compound poor learning experiences. Instead, practitioners need to think about how to harness new technologies to make education a more interactive and immersive experience.

The benefit of podcasting to education is in the access it gives everyone to challenging and reflective voices, and to the means of recording and sharing ideas, knowledge and experience through the spoken word. It extends the learning environments with which education is already familiar, making them richer, more vibrant and authentic. In contrast to the traditional use of audio and video where it has been deployed to transmit knowledge directly from teacher to learner, education can now view media as user-generated. In this alternative view, media can be used to initiate and facilitate learning by orienting, motivating, and challenging the learner, or can help them reflect on their learning.

From transmission to intervention

Sharing knowledge by giving lectures has been expedient for as long as universities have existed. Given the need to organise, inspire and inform large groups of

students, the lectern provides a sensible and well-proven solution. The lecturer's job is to not only impart knowledge, but to lead and organise their students, making good use of the weekly slot in the student's timetable. The weekly lecture, or variations on it, inevitably determine the shape of the curriculum and constrain the pedagogy to a repeating pattern of predictably structured sessions, usually reinforced by PowerPoint slides that convey only half the story. The lecture is essentially a passive teaching medium, yet many lecturers work wonders within the constraint of a weekly lecture, relishing the challenge to keep their students engaged. Many will approach a topic by using a rhetorical question, an illustrational anecdote, an invited speaker or a breakout moment. Or they will find other ways to illicit the views and understandings of their students. Interventions such as these will be used to momentarily shift the pace and focus away from the stage, demanding interactivity that involves everyone in the room. In general, though, demands on the lecturer inevitably lead to low-risk, reusable pedagogy, designed according to the constraints of the lecture theatre and the established expectations of the students.

Taking the lecture as the central component of the higher education experience, there have long been attempts to use technology to enable it to be delivered to distance education students. Broadcast radio, and later television, has presented the distance learner with selected, professional and expert voices for about a century. In the United States 'Schools of the Air' reached 2.5 million students (Leach, 1983; Bianchi, 2008), while 'farm radio' in Canada (Selman and Dampier, 1998), and educational radio in the USSR, Africa and Asia have provided channels for teaching (Berman, 2008). In the United Kingdom the Open University was conceived as a 'wireless university' or a 'College of the Air' (Open University, 2004) offering a degree-level education to those who could not attend university in person.

Now online digital media offer a way to amplify the teacher's voice beyond the local lecture theatre to students wherever they might be.

The need for transformation

The knowledge economy demands graduates with a level of adaptability not previously attained by traditional curricula and a transmission model of pedagogy. This adaptability is critical in an age in which "knowledge is growing exponentially, [where] in many fields the life of knowledge is now measured in months and years" (Siemens, 2005). Society requires graduates who are articulate, critical, resourceful, and just as capable of working independently as they are of working collaboratively. In the twenty-first century, higher education needs to redefine graduate attributes as much as it needs to find ways to enable knowledge fluency. These new demands require a transformation in teaching methods.

Higher retention rates, a more personalised experience, and a clearer integration with the world of work are all challenges for post-compulsory education. Another challenge is the rapid emergence and consequential impact of digital technology. Our graduates, and therefore our teachers, need to understand how to harness this

technology to good effect. Information and digital literacy are inevitably key graduate attributes in a digital world. In terms of pedagogy, it is crucially important that education embraces the digital domain and learns how to exploit it effectively. Educational leadership has understood the significance of digital technology, but has been slow to apply its transformative potential to pedagogy and curriculum delivery. Not all academics have understood the revolutionary implications of digital technology; how it can offer more vibrant ways to engage the learner. If they have understood, then the existing organisational frameworks in education, such as timetabling, the physical environment and the existing technical infrastructure, can dampen their creativity. Technology-enhanced learning is still understood as being optional by many academics, or as a method for taking the curriculum online, or as a way of offering supplemental materials such as lecture notes and module handbooks. However, the new language of educational policy suggests there is a need for a more fundamental change. The idea of '*transforming the learner experience through technology*' expresses this goal (HEFCE, 2009).

The Digital Age and the democratisation of media

Digital media have emerged as educational tools in the Digital Age in parallel with society's broader interest in the production of user-generated content and education's drive for a more engaging learner-centred curriculum.

Attitude 2.0

In 'Web 2.0' the notion of 'site' as a static place is outmoded. The Web is now a platform for harnessing collective intelligence; where data is dynamic and abundant; where software is in perpetual beta and attitude is more important than technology (O'Reilly, 2005). It is a social, creative and collaborative space in which 'small pieces are loosely joined.' Its emergence signals a paradigm shift in the way we communicate and engage with ideas as both users and producers. Web 2.0 is as much about attitude and interpersonal connectivity as it is about technology. 'Attitude 2.0' may be an apt way of encapsulating a prevailing ethos, one with which our students and staff are increasingly familiar and which inevitably informs their expectations.

There is no reason why education should accommodate this new attitude *per se*. Andrew Keen, for example, raises concern over the 'cult of the amateur' (Keen, 2007), believing the democratisation of the media industry to be something that undermines professionalism. The Economist Intelligence Unit (2008) warns that, for all its benefits, technological innovation is disruptive and expensive, requiring buy-in from reluctant academic staff. The benefits of podcasting and digital media, as with any technology, need to be judged carefully.

Nevertheless, one of the arguments for embracing the Digital Age is simply that it can empower teachers and learners by extending the learning environments they

currently use. Such added flexibility is particularly important in an age where the traditional school leaver is no longer the typical student at UK universities and where diversity is the norm (Bradwell, 2009). In describing today's forward-looking 'edgeless university,' Bradwell highlights Web 2.0 as "both the cause of change for universities, and a tool with which they can respond" (*ibid*, p.8).

Digital technology for all and the advent of lo-fi media

The experience that most people have of audio and video comes from viewing or listening to professionally produced music, radio and television. That experience is of media that have been produced to high technical standards, have involved large budgets and are intended for transmission to a wide audience. In contrast, the popularity of YouTube, and similar Web 2.0 tools, indicates that ideas, information and social networks thrive around the distribution of quick, creative, responsive and imperfect productions. Such production is primarily driven by a desire to communicate ideas within a niche community, contributing to that community's identity and understanding. If the content is relevant and designed to be engaging for the specific audience, its lack of technical sheen need not deter user interest. Indeed, such simple lo-fi production has a valuable, authentic charm that promotes community engagement and discourse. Meng (2005, p.2) says,

Podcasts are rapidly increasing in popularity because they are simple to produce and very inexpensive to deliver. At its simplest, all that is required to create a podcast is a personal computer with a sound card, an inexpensive or built in microphone, sound editing freeware, and an internet connection with access to a Web site. Because of the low cost of entry, anyone can be a publisher, or more accurately a broadcaster with their own "radio" show.

This view of simple approaches to production coincided with the emergence of affordable audio and video recording devices such as mp3 recorders, *Flip* video cameras, web cams, and latterly smartphones and tablets. These devices put the means of simple production within the reach of anyone. Similarly, *Audacity* and *Garageband* for audio editing and *Windows Movie Maker* and *iMovie* for video editing are available to any user as part of their operating systems or as freely downloadable software. Student and staff owned smart technologies now put such powerful software, in the form of apps, into the bags and pockets of students and staff, even though it is not clear how long it will take for universities, staff or students to take full advantage of this (Traxler, 2010; Welsh *et al.*, 2011; Nortcliffe & Middleton, 2013).

Equally significant, in terms of access, is the usability of such affordable tools as characterised by their 'red button to record' design.

The institutional VLE as publishing platform

The advent of virtual learning environments (VLEs) at the turn of the century signalled an important change from the days of educational digital media production as the preserve of the technician, not least because they offered the academic a

publishing platform with a relatively accessible user interface. Similarly, the VLE offered a robust online base for the learner; a place where they could keep abreast of course developments, find materials and learn with their peers on asynchronous discussion boards.

Thus, the VLE continues to provide a versatile platform for students and tutors. In conjunction with other infrastructural developments, the VLE is now capable of supporting the integration of digital media, though more work is needed to streamline systems (see *Sound infrastructure for academic innovation*). Students can go to the VLE to use embedded digital media or, with the addition of podcasting tools, they can subscribe to podcast feeds that are automatically generated from within the VLE itself. From the academic producer's point of view, publishing audio and video files requires a similar skill-set to that needed for the publication of any other digital learning material.

Academic access to the means of production and distribution

The value of self-produced 'lo-fi' media is found in its capacity to simply and clearly capture and represent myriad voices and, in the case of learners, the demand for them to begin to articulate their thinking. The simplicity of the method is much more valuable than its presentational quality. Nevertheless, even simple media production presents a challenge to most academic staff and students. As much as developers might suggest that learning production skills is easy, convincing the digitally inexperienced to 'touch the technology' (Naisbitt, 1982) can be an uphill battle. Opportunities to try the technology and see examples of what others have done are critical if wider adoption is to happen. Workshops, special interest group meetings and mentoring can help this by establishing cascading networks that lead to greater insight and confidence.

Why would a reluctant academic with a full teaching load prioritise the risky business of, say, learning about editing audio files over other aspects of their professional development needs or scholarship? Why would a reluctant student, challenged by a fascinating module, encumbered by a part-time job, distracted by everything beyond the classroom, prioritise the risky business of learning about recording techniques, for example, over these more pressing demands? And as Bennett *et al.* (2008), Margaryan and Littlejohn (2008) and others have pointed out, just because young people have grown up around computers does not mean they know how to use them.

The benefits of using digital media must be clear, and expectations must be realistic: educational podcast production, for example, should not be compared to professional broadcasting. Academics must identify and focus on the learning opportunity and should not allow themselves or others to be distracted by the technology. Similarly, educational developers must identify and focus on good pedagogic practice and the establishment of suitable infrastructure and support.

Educational podcasting introduces the following benefits to the producer:

- access to production promotes democratisation and autonomy, empowering the learner-producer realistically;
- collaboration, creativity and fun, as a context for learning, are facilitated by having access to versatile and easy-to-use tools which can lead to more variety;
- the presentational format of podcasting suggests active, authentic and enquiry-based learning strategies;
- a focus on production can facilitate group organisation and decision-making towards the social construction of knowledge using media that is inherently social;
- learner-generated podcast production fits well with the Digital Age, typified by the advent of Web 2.0 as a social and interactive space and by increased familiarity in using and making Web-distributed media;
- the standardisation, ubiquity and simplicity of digital media formats and devices offer the learner producer a reasonable and engaging study environment;
- the development of institutional technical infrastructure, including VLEs, repositories and network capacity, contributes to simplified media publishing and distribution.

Promoting active learner engagement through media intervention

Technological transformation in pedagogy is not concerned with moving existing practice to the digital domain, but with changing the very nature of practice itself (Laurillard, 2008). The concept of media intervention is informed by this proposition. The idea of pedagogic intervention is that it should lead to the construction of knowledge. If communication technology is to be used in such intervention, it needs to be highly accessible.

Digital audio and video technology is cheap and can now be easily made by anyone: it has that required accessibility. 'Red button' technologies such as smartphones, MP3 recorders, *Flip* video cameras, and *Audacity* audio software enable anyone, anywhere, to 'press the red button' to instantly capture what is said, what is happening or what is thought. This recent change in the usability of such technology makes digital audio and video worthy of reappraisal. Audio and video media, despite their capacity to connect the classroom to the outside world, have never previously found widespread use in the post-compulsory curriculum because, in part, in-house productions have been so expensive. Furthermore, many teachers have been deterred from using off-air recordings in the classroom due to the practicalities of acquiring the media, setting up the technology, and locating and

running pertinent clips. These complications all conflict with the teacher's desire to engage their students meaningfully by entering into challenging, media-enhanced discourse with them around ideas, information, questions and activities.

Media intervention makes use of the need for highly accessible technology and media; communication that is provocative and that calls the learner to action or demands a response. As demonstrated in Section 3 of this book, media intervention may take many forms, but commonly audio or video media used in this way are likely to be short and highly focused. They might involve the presentation of:

- a question or proposition that orientates and motivates the learner;
- one or more illustrations that demonstrate an idea, behaviour or process;
- an assignment brief or task presented by the tutor, a fellow student or an expert in the professional domain, designed to challenge the learner and trigger their enquiry;
- opinions or contrasting perspectives on a topic that implicitly demand a response from the learner;
- timely assignment feedback designed to challenge the learner and help them reflect on their work.

Media used in this way will be open-ended, requiring a response of some form from the learner or learner group. Responses can be cognitive or active, independent or social, and they may happen in either the physical or the virtual environment. The role of the media intervention, therefore, is to briefly signal a pause for thought and initiate further learner engagement and response.

Media intervention, as much as it demands highly accessible digital technology, demands a shift in the expectations of academics and educational developers. Loveless (2002, pp.15-16), discussing the need for a shift in thinking about creativity in schools, attempts to reset the focus from the digital 'stuff' to the implications and opportunities of the digital world:

It is important to note that it is not the access to digital resources which 'delivers' creativity, but the opportunities such access affords for interaction, participation and the active demonstration of imagination, production, purpose, originality and value. Creative activities with new technologies can include developing ideas, making connections, creating and making, collaboration, communication and evaluation.

Similarly, access to digital media technology has not 'delivered' learner engagement, and will not; again, it is "the opportunities such access affords for interaction" in establishing direction, interesting the participants, and convincing them to respond to their curiosity.

Good design often begins by turning to principles. The essence of a well-designed, pedagogically rich mediated learning landscape is captured in the *Seven principles for good practice in undergraduate education* as proposed by Chickering and Gamson (1987). They suggest that good practice,

...encourages contact between students and faculty; develops reciprocity and co-operation among students; encourages active learning; gives prompt feedback; emphasizes time on task; communicates high expectations; and respects diverse talents and ways of learning.

Media interventions, we have argued, are now crucial components of such practice.

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Mirror and memory — benefits and challenges of using video for feedback and reflection

Lindsay Jordan

Introduction

This chapter sets out some of the benefits of user-generated video in education. Content-focused learning resources — created by lecturers and other ‘experts’ — can be a valuable use of audio and video technology as some of the case studies later in this book demonstrate; however, the focus of this chapter is on video where the learner is the subject. It discusses, for example, situations in which video recordings of peer feedback sessions, presentations and personal reflection have been made.

Relating very much to the notion of media intervention discussed in the previous chapter, this chapter draws on some of my own experiences of using video with teachers on professional development courses, and their own thoughts about the experience. I suggest some practical strategies for maximising the benefits of using video in this way and for addressing related challenges.

Video in practice

The embedded use of video in professional development courses has been strategic; the expectation is that if teachers have a positive experience of these methods from a learner’s perspective, they are more likely to introduce them into their own teaching practice.

In my own practice I have focused on using the simplest and most accessible tools available: experimenting with Flipcams and mobile phones (for both video and audio), and free video hosting tools like Vimeo. Initially, none of my videoing activity was supported by University services; we had a rather bulky digital video camera and tripod for loan that I used once with fairly disastrous results. As I write this our department now has a drawer of Flip cameras, mini-tripods and an iPod Touch available for staff to borrow, and we have a professional Vimeo account that gives us faster, unlimited weekly uploads. This has undoubtedly helped; what I can achieve with my students hasn’t changed significantly, although the process has been made easier.

Good enough

Given that an aspect of my role is to encourage teachers to try something new and to break out of their comfort zones, I am passionate about the 'good enough' philosophy which has been effectively explained by Martin Weller (2010) and, earlier, by Robert Capps in *Wired* magazine (2009) with specific reference to Pure Digital's Flipcam.

Essentially, 'Good Enough' philosophy is about sacrificing a little output quality for cost and convenience pay-offs. 'Good Enough' technologies are easier to set up and learn to use, cheap or free. The need for training courses, requests to central services and budget-holder authorisation presents barriers to innovation. In order to innovate, people need to have opportunities for casual experimentation. They also need to believe that the outcome they aspire to is achievable. When I am creating videos with my students, I spend the minimum amount of time on editing and consciously select the most basic titles and effects. I have to bear in mind that these videos are being produced not only for the purpose of the learners' own reflection and learning, but also to demonstrate how video can be useful for this purpose and to encourage them to try it with their own students. It is tempting to put in more effort than is absolutely necessary; however, if we want to encourage others to give this a go, it is best if we don't make our own videos too polished. There are enough barriers to people getting involved without pushing the perspective that these recordings need to be anything near professional quality.

Over the next few pages I have outlined some of the key benefits that my students and I have identified of using video for the mediation of learning.

Some benefits of using video

An alternative perspective of ourselves

Video offers an opportunity to view or review our actions and/or words from outside, allowing us to reflect on an experience or problem. As one of our PG Certificate participants states:

Revisiting... recordings is useful as I can continue to analyse what I said in that instance and assess its relevance as time passes and contexts change.

Watching ourselves on video is not necessarily a pleasant experience, but it provides a great deal of feedback. In fact, it is the richness of this feedback that can make for uncomfortable viewing, or cause people to be unwilling to be recorded in the first place. However, for those who tend to worry too much about their performance, the feedback from a video recording can be reassuring:

I have a tendency to worry about what I have said after the event, but recordings will either confirm that I have nothing to worry about or

*highlight points that need changing.
(PG Cert participant)*

A video recording is, in one way at least, less fallible than our own memories, which can distort events according to the aspects we choose to augment and diminish. A video recording presents a more reliable version of an event and can therefore mitigate against 'catastrophising' – and complacency.

An alternative perspective of others

I do feel that we always take something new from reviewing peer feedback after the event, however small. During a live interaction, our focus will be on a range of other things – noting down an idea that's just occurred to us, being conscious of being recorded; relief that our presentation worked okay; trying to get the ink to flow smoothly out of our biro: the list goes on. If we have the opportunity to watch a peer or colleague voicing their suggestions over again at our leisure, we might take away something completely new from it. As one of our participants points out:

Quality recorded material won't exclude anything. When I am watching a live presentation, I can switch off or mishear certain points or attach a skewed meaning. Revisiting recordings is useful in overcoming this.

Time travel

Watching ourselves on video is the next best thing to time travel. Try it. Watch a video of yourself recorded a year or two previously and you will be able to recall so much more than is directly represented through the video. This is potentially very useful, particularly if you are picking up on a project that has been on the backburner for a while. It can be a terrific aid to motivation; a shortcut back to the enthusiasm you felt at the time.

Watching ourselves talk can be powerful in many ways. I once invited a colleague from Northumbria to visit me in my office in London so that I could record him talking about a collaborative project he had been running with industry partners and universities overseas. As soon as I had set up the tripod and turned on the Flipcam, the colleague wanted to ask me all about my role at the Centre for Learning and Teaching in Art and Design. It was very enjoyable talking about my practice at length with someone who seemed genuinely interested. Whenever I feel low on motivation – for example if I've had a negative response to some assessment feedback, or a difficult tutorial – I watch a couple of minutes of that video and I feel refreshed. There is something incredibly effective in watching yourself talk about your passion. It re-ignites that passion instantly.

It can help to focus the mind

Being spontaneously recorded visually and/or aurally is always a useful exercise for me as I am forced to 'engage brain before opening mouth' in the same way I would in front of a group of strangers – hence I am more conscious about what I am saying. This in turn helps me remember

*what I've said and continue to mentally process it after the event.
(PG Cert participant)*

This was a benefit of video I hadn't completely appreciated before I spoke to this particular teacher about it. I had begun to feel this way myself once I became more accustomed to being recorded, but when recording other people I was working under the assumption that increased self-consciousness always has a negative impact on performance. This alternative perspective of fear as an emotion that will make the experience more memorable, and hone one's performance rather than hamper it, is helpful. The challenge is how to introduce this alternative perspective to those who only perceive a negative impact on their performance. One of the strategies I have found useful for this is to frame the recordings as a personal reflection tool for an individual rather than something shared and owned by the whole group. I offer to change the password on each video to one of the learner's choice. No-one has taken up the offer as yet, but it is apparent from the feedback I've received that the message has been effectively communicated:

*I am used to being recorded but there may still be an element of
embarrassment while doing this, however technology now enables us to
confront our "inner demons" in private!
(PG Cert participant)*

Freedom to focus on the here and now

When an oral feedback session or critique is being audio or video recorded, there is no need to note down the comments and suggestions that are being offered. We can focus instead on noting down any connections or further ideas that arise from what is being said. One of our PG Certificate participants who took copious notes during a peer feedback session that was being recorded – and whose scribbling was captured on video – told me:

*I went back and watched the video a few weeks later, and realised how
much was missing from my notes. Not only were there great suggestions
being given that I just hadn't registered at the time (I was too busy
writing!); there were also things I'd misinterpreted as I hadn't been able
to capture the nuances in what people were saying.*

Freedom to be elsewhere

The first time I attempted replacing my physical presence with a video recording was in 2009 when I was studying part-time for a Masters in Education and had to present an assignment plan to my group. I prepared some slides on Powerpoint, used Camtasia to record myself talking through my plan and left the group to watch the resulting video (<http://www.vimeo.com/12451337>) while I enjoyed après-ski in the Austrian Tirol. Had the entire group done the same, I would have been able to see and feedback on their assignment plans too; we could have exchanged feedback through our blogs, or via the comment threads on the video hosting sites. The dispersal of learners is one of the biggest challenges facing post-compulsory

education. Through the above example we can begin to see how this kind of activity could enhance the experience of an entire cohort of dispersed learners; even more so than if only some of the cohort are presenting remotely. Any event that only exists in the physical world is exclusive to those who are 'in the right place at the right time', which leads us to the next benefit.

An unlimited audience

As with audio recordings, videos are accessible to anyone with an internet connection, whereas participation in a physical event is restricted to available space and availability in people's schedules. For example, within our current PG Certificate model, participants are required to present a proposal for their teaching development projects to the other eight or nine members of their tutor group. It wouldn't be practicable for an entire cohort (35–50 participants) to engage with each presentation. However, if the sessions are video recorded, the potential is not only there for a wider audience, but a more selective one. Last year, a participant from a colleague's tutor group asked me to video his proposal as he couldn't attend on the day his group was presenting. I recorded his proposal, directed the rest of his tutor group to where I had linked to the video on the course area of the VLE, and invited them to comment. This participant told me later that not only had he received some useful feedback from his tutor group, he had also received feedback from those outside his tutor group who were doing related research.

A similar thing happened on a larger scale when I was putting together a video for a conference that was hosting a 'virtual poster' display. The videos were projected onto the wall of the foyer over lunch (with the sound turned down!) as delegates milled about, ate and networked. I would estimate the resulting audience figure for that particular showing at somewhere between zero and one. However, posting the video up to a blog and linking to it from Twitter resulted in several interesting conversations, many visits to the blog and even a couple of invitations to speak at other conferences. The link was passed around through Twitter by several people who knew me, and many more with whom I had no direct connection. As yet, there is no way of tagging the goings on in a physical room that compares to our ability to find, follow and amplify online memes.

Visual impact

It almost goes without saying that the visual stimulus of video offers added impact to a recording, but I think it's easy to underestimate how much it adds. Here's something to consider: Can you recall any amateur audio recordings that have 'gone viral'? What is it about video that draws people in? An important factor is the video thumbnail or viewer, which usually shows a single frame from the video. This acts as a 'teaser' to entice viewers in (and can, conversely, put them off). This 'teaser' also does double-duty as a 'taster' of what is to come. For the sceptical or wary, clicking 'play' does not require the same leap into the unknown as it would do on an audio

clip. It is worth bearing this in mind when using audio; an illustrative still image or short explanation can be a valuable accompaniment.

Having visual information in addition to audio also yields practical benefits:

At first I didn't see the point of having a video recording as opposed to just the audio. But using the video I realised how much easier it was to find the exact place I needed.
(PG Cert participant)

The visual dimension means that recordings can be scanned efficiently, as happens with diagrams, models and other visual aids and as another of our PG Certificate participants points out, "Seeing the expressions on people's faces really helps make sense of the conversations." In combination, these factors can make video more engaging than audio.

Making a connection

Our professional development programmes attract up to 150 teachers a year; the majority from across the six colleges of the University of the Arts London, and a number from other Arts institutions across the UK. Typically participants may already know one or two of their peers on the course from their discipline or their college, but the rest of the cohort will be strangers to them. Opportunities to network between tutor groups are limited, and opportunities for different cohorts to mingle are even fewer.

Many of our participants face similar challenges in their practice. Frequently one of my tutees will embark on a teaching development project to address a similar problem and/or with a similar method or intended outcomes as a participant in another group or a previous cohort. It can be terrifically useful to put these individuals in touch with each other through e-mail, but being able to direct them to a video recording of one another's project proposals (and the ensuing peer feedback discussion) can be even better, as one of our participants told me:

I hadn't met [x] before – he's in a different group and teaches at a different college. But our project ideas are very similar so it was really useful to see his ideas, and the feedback he got from his group. We got in touch and we're looking forward to helping each other with our projects.

Why it is very easy *not* to use video with your students

Involving participants

It has been my experience that negative responses to requests to record people are generally more vociferous than the positive responses. I've never had the response 'Oh, yes please – I find it so useful being videoed – thank you so much'. Although

I know some of my students do feel this way, as the feedback demonstrates, the usual response to the suggestion of being recorded is a non-committal shrug. I suspect that people don't like to seem too happy to be videoed as they don't want to appear narcissistic. It is therefore easy to conclude that this is not something learners want.

I have tried various strategies to address some of the concerns and questions participants have about being videoed. One strategy that appears to have been successful is the use of an FAQ handout that aims to answer the following questions honestly and in simple, informal language:

- Why do you want to record me?
- What are you going to do with the recording?
- Who is likely to see/hear this recording?
- Do I own any rights associated with these recordings?
- Will I have any say in what happens to this recording?

The full document template is available online under a Creative Commons attribution licence (Jordan, 2010).

Not all students find being videoed is useful. One of our participants told me:

I was happy to be videoed for ARP feedback. I haven't used the recordings myself as it's just not a method that I choose to use.

Experience

Another reason why it's easy not to use video — and this won't be the case with everyone — is that, as somebody with no filming experience and little visual intelligence, it took a little confidence and experience to get even a 'good enough' result. The first couple of times I videoed my students, I was so concerned about the intrusiveness of the camera that I was reluctant to interrupt the conversation to close a window, affix a tripod, or adjust the lighting, even if I knew I was capturing nothing but a shaky silhouette and the wail of an ambulance/fire engine/squad car from the street below. Dilemmas still arise: if the battery dies during a really in-depth conversation, is it better to ask people to pause and hold that thought while you change cameras, or to sacrifice the recording for an uninterrupted flow of dialogue? Making the right choice in a particular context demands a certain degree of experience.

Considerations

There are a number of hardware and software considerations that can delay getting a successful result.

I have used a range of different Flipcams and I still use them most of the time. However, I have also used my iPhone. Though its video quality is fine, it has no

tripod fixing and has to be held in the hand, which is impractical and likely to be more intrusive for the subject.

Videoining drains battery power fairly swiftly on a mobile phone, and a fully-charged Flipcam battery will only last for around an hour's recording. I would recommend carrying a spare battery if you want to record a lot of video in one go. Ideally, you should aim to only record what you really need.

Also bear in mind that, however much time you spend recording, you are likely to spend double that on transferring, editing and uploading the files. Be realistic about the time and inclination you will have to do this.

Having tried to emphasise that 'good enough' is good enough, it is still worth checking out the lighting and ambient noise before pressing the red button. Try not to record against a bright background, and try to get as far away as possible from other noise sources. Any device with an integral microphone will pick up quite a bit of ambient noise. The Kodak Zi8, with its external microphone, aimed to address this problem.

From Flips to phones

As mobile phone video quality improves, mobile phones gain an edge over dedicated video devices like the Flip and the Kodak Zi8, primarily because people tend to have their phones with them most of the time. Smartphones also offer the opportunity to capture video and upload directly to the web using services like Qik. As mobile connectivity increases, and it becomes easier to upload large files wirelessly, the benefit of an instant USB connection will become less relevant. The recent announcement that the Flipcam is to be taken out of production indicates the pace of this trend.

Conclusion

Audio and video can help us to connect with people and emotions, and there are practical benefits connected with the richness and reliability of information capture. In terms of the tools and techniques required to achieve a useful outcome, the predominant trends are changing rapidly and are likely to continue to do so. Therefore, it is vitally important that we use whatever is readily available, aim for nothing more than a 'good enough' result, and encourage our students and colleagues to do the same.

Further information and references

There is some excellent information and advice on the JISC Digital Media website which I found invaluable in identifying answers to questions about involving participants: <http://www.jiscdigitalmedia.ac.uk/crossmedia/advice/copyright-and-other-rights-for-creating-time-based-media-resources/>

Video sites referenced in this chapter:

- <http://www.Qik.com>
- <http://www.Vimeo.com>
- <http://www.YouTube.com>

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Learners take control —audio notes for promoting learner autonomy

Anne Nortcliffe, Andrew Middleton and Anthony Rossiter

Introduction — hearing myself think in the auditory mirror

Podcasting is frequently described as a mobile learning technology that exploits student ownership of MP3 players. This chapter highlights the practice of learners acting autonomously by using MP3 *recorders* and mobile phone voice memo technology in making audio notes. The notes made by students take many forms and have many applications, some of which are described here.

Earlier chapters have already suggested how digital audio can be used to mediate learning, where its capacity is as much about creating an opportunity for deep engagement as it about conveying knowledge itself. This chapter takes this idea one step further by considering how the student ownership of recording devices can be used to affect their engagement by providing an auditory mirror in which recording captures the familiar, but conveys the unfamiliar (Ihde, 2003). Like photography, audio recording allows us to view ourselves as other people view us as well as offering us something of the essence of what happened. Potentially audio allows the listener to recollect, reconnect and redirect ideas and thinking; points that were made at the time can be picked up and pursued, and ideas that may have been more fleeting can be rediscovered. As Ree has pointed out, sound is “as close to us as our thoughts” (1999, p.36, attributed to Bishop Berkeley).

The chapter focuses on note making as an important academic skill and then describes two complementary projects run at Sheffield Hallam University (SHU) and the University of Sheffield (UoS). This chapter gives an account of these projects, which involved students being given MP3 recorders for personal audio note making, drawing on comments from student participants. The chapter concludes by arguing for the active development and encouragement of autonomous student recording.

On note making

Note making is an academic skill used to create records of events, readings, conversations and activity. The process of note making should also mediate learning by demanding the learner to synthesise selected information. Notes can be made and distributed by the academic (e.g. handouts and PowerPoint lecture notes), by fellow

students (e.g. shared through self-organised study circles), or by publishers or professional bodies. Note *making* as an academic practice, however, is more than this and is ultimately the responsibility of the learner. In a handbook for students, Race (2003, p.33) says,

The notes you make... are among the most important resources you build up during your studies. However, many people just take notes and this is not nearly as valuable as making notes.

In making notes, the learner is continuously engaged in a process of selection, reflection and interpretation; summarising in a few words what has been heard, observed or read. This process is regarded as a “wise” rather than a “busy” process in which the essence of a situation is captured (Race, 2003, p.33). Northedge (2001) describes making notes from readings as an active process that forces the reader to grapple with the text, so revealing much more about the meaning.

Effective note making, as in the Cornell system (Pauk, 1989), requires the learner to review their notes by correcting, refining and possibly extending them while the subject matter is still fresh. This review process may, for example, involve making the notes legible, checking for omissions, expanding or clarifying abbreviations, checking references, and identifying action points. This act of making and reviewing notes aids knowledge retention and revision. Pauk (1989) proposes a ‘5R system’ for making and using notes:

1. **Recording** the key ideas and facts;
2. **Reducing** information to create an essential summary;
3. **Reciting** – putting ideas into your own words;
4. **Reflecting** – the making of notes and their subsequent review provide an important opportunity for the learner to think about the ideas and information;
5. **Reviewing** or evaluating what is important.

This understanding of traditional academic note making provides a benchmark for evaluating audio notes. The main similarity between audio and written notes is that they are mostly created by the learner in formal academic situations such as lectures, while reading, during assignment research, and managing group work.

However, the introduction of audio as a medium for note making inevitably changes the likely applications, outputs and benefits.

Summary of two audio notes projects

The primary purpose of recording conversations in the projects discussed here was to maximise their formative potential. Following earlier studies on the recording and

distribution of audio feedback conversations (Nortcliffe and Middleton, 2008), which demonstrated the benefits of recording tutor-learner conversations, we decided that the model would be improved if the students took responsibility for making and managing their own recordings. By giving the students responsibility, we hoped that they would reveal audio note applications that were more meaningful to them and which could be shared with fellow participants during the project and then disseminated more widely later.

These projects mostly involved disabled or international students for whom the mechanics of creating written notes is particularly difficult. It was hoped that audio could support their learning without being intrusive. At SHU the Centre for Excellence in Teaching and Learning (CETL) for Promoting Learner Autonomy funded the project, with the Higher Education Subject Centre for Engineering supporting the parallel project at UoS. This funding enabled both projects to provide students with MP3 recorders.

At SHU, 52 students from across the faculties responded to a call that was primarily targeted at dyslexic students. Earlier work (Fidler *et al.*, 2006) had shown how audio notes could benefit dyslexic students because of the difficulty they can have in creating and using written notes effectively. Each SHU participant went through a project induction in which they were given an MP3 recorder, ethical guidelines relating to the recording of other people, and a list of about 20 ideas for how the recorders might be used. Students were encouraged to think creatively about what they might do with the devices, though interviews conducted during the induction sessions revealed that most students intended to record their lectures. Subsequently, following periodic surveying and focus group reviews, it became evident that the students had found many other applications.

At UoS the project was motivated by the need to develop independent learning skills, especially in international students. Fifty students from a first year degree programme in the Department of Automatic Control and Systems Engineering took part. The project aimed to develop and evaluate methods for using audio pedagogically and to assess the associated implications for support and services. It also sought to highlight any difference in the use and effect of audio recording on home and international students and aimed to produce a protocol for reviewing conversations.

Other papers about the projects have reflected on the equipment, support, the making of recordings, and the international and disabled student aspects of the project (Rossiter *et al.*, 2009; Nortcliffe *et al.*, 2009). However, this chapter's focus is the versatility of the medium, the student's creativity, the relationship between the autonomous making of written and audio notes and their eventual application.

Students' expectations

Recording lectures

Most students at both universities came to the project expecting to use the devices for recording their lectures. Students at the UoS suggested it would make sense for the institution to take responsibility for making a single high-quality recording of each lecture; however, systematic lecture recording was not in place at either institution at the time of the study. Though lecture recording offers some benefits in terms of convenience for learner review and revision (Parson *et al.*, 2009; Cooper *et al.*, 2009; Evans, 2008), especially where the learners find the content difficult (Guertin, 2010), there is a danger that, in terms of academic literacy, it can deflect learners' responsibility and engagement. So while it may seem sensible logistically, it can inadvertently promote learners' passivity.

A second concern over lecture recording became apparent from the rationale for lecture recording itself. Several students described the burden of having "loads of lectures full of information" where they felt too busy to take notes and pay attention at the same time. The task of listening back to lectures, however, introduces a new burden. If lecture recording becomes an accepted part of institutional practice, the institution needs to have a joined-up approach that develops the students so that they are clear about using the recordings effectively, especially in situations where the learner becomes dependent on the recordings. Where the students take responsibility for producing their own recordings, they are more likely to consider their use more strategically. However, in this project and in other accounts of lecture recording, it is evident that most students do not think enough about the eventual management and use of the recordings. Ironically, there is a danger that recording lectures can, in effect, leave students without any useful notes if they do not have a personal system for analysing and synthesising the recordings in the way that, for example, the Cornell 5R system suggests. Students need to be advised about the best way to use lecture recordings, especially if it causes them to stop making written notes altogether.

Quality review

Many students at SHU explained that audio would allow them to improve the quality of the written notes they were already making. A student who uses a hearing aid explained that "lectures are not the quietest place to be ...I am sometimes missing half the lectures," while others explained they found it difficult to concentrate throughout a lecture. One student said she could concentrate for longer when she had *chosen* to listen to a recording at a time that suited her. Some said that, even though they made written notes, they often struggled to make sense of these later, so reviewing lectures and conversations would be helpful.

While some commentators (e.g. Brittain *et al.*, 2006; Evans, 2008; Parson *et al.*, 2009) have discussed whether recording lectures is able to support exam revision, others have discussed alternative techniques such as audio summaries (Copley *et al.*, 2007;

Guertin, 2010; Middleton, 2011) which involve students, either formally or informally, taking responsibility for summarising significant events or readings for themselves or for each other. The audio notes projects found students to be open to different approaches too.

Versatility and creativity across the formal–informal learning continuum

A review of the audio noting applications gives a sense of what students value about academic engagement in general. Beyond lecture recording, students appreciate the diverse formal and informal situations around them. They wanted to record group conversations *about* lectures; “chats” with tutors; crit sessions; interviews; student meetings; supervision meetings; their own “light bulb moments” and other people’s ideas; and some spoke of creating a general resource for sharing with their peers.

The projects were interested in finding out if the presence of a discreet audio device would encourage learner autonomy through note making across the formal–informal learning continuum. Eraut and Hirsh (2007) have highlighted the benefits of a more holistic and flexible view of learning processes. In the study discussed here formal usage relates to applications associated with the planned curriculum, while informal learning relates to engagement, motivation and processes beyond this. Over the years there have been debates about what constitutes informal learning (Kahr-Højland, 2005). It is clear that the learner and the academic have roles that cross many supposed divides, affecting their respective authority and autonomy.

It became clear in this work that the audio device in the student’s pocket traverses convenient spatial and temporal divides and is available to them at moments that they determine to be valuable, as both a recording and listening device. In some situations it also became a mediating device in which its very presence caused exchanges to happen. It is important, therefore, to highlight the idea of semi-formal learning: those often unplanned moments of independent and social learner engagement in which something is said or thought that results in inspiration or insight.

Once inducted, students from both universities showed how versatile audio note making can be. Table 1 lists the approaches reported by the students.

Formal learning — notes from the planned curriculum

- Lectures, including guest lectures, in whole or in part;
- Group work, including decisions captured as ‘audio minutes’, assigned actions, records of group contributions, and brainstorming discussions;
- Lab and studio sessions, including procedural notes;
- Formal feedback with tutors and peer;
- Dissertation supervision;
- Small group tutorial discussions;
- Assignment briefings and later clarification;
- Role plays;
- Placement meetings.

Semi-formal learning — opportunistic or unplanned notes from encounters with the formal curriculum*Social:*

- Feedback, including non-formal conversations with tutors and peer;
- ‘Corridor conversations’, e.g. clarification of complex concepts, non-formal feedback;
- Peer ‘after class’ conversations (e.g. study groups);
- Checking collective decisions.

Personal:

- Procedural records enabling the retracing of steps;
- Revision notes;
- Audio blogging;
- Annotations for written notes;
- Presentation preparation as a way to refine ideas and for rehearsal.

Informal learning — notes from beyond the formal curriculum

- Examples of themselves speaking to develop confidence;
- Preparing for interviews by using previous question sets to practice and review;
- Personal audio notes as ideas occurred;
- Brain dumping — described as “collecting thoughts” or noting “random thoughts that pop into your head”;
- Feedback from ‘friends’;
- Placement diaries;
- Personal reminders;
- As a tool for initiating feedback conversations;
- Self-feedback and personal reflection on feedback received.

Table 1: A list of audio note applications as used by student participants in

The benefits of audio notes

It might be argued that anywhere a small recording device can go a pen and paper can go, but the students identified several benefits with using audio devices. They reported that the recorder allowed them to make notes in situations where they would not have made notes before:

With the creative process there are so many little things that you think 'that's brilliant' ... you forget about it. Obviously if it's recorded you [have it].

It's quite good ... brainstorming with someone or doing things like that it's really good to be able to record it and then look back.

Similarly, having a discreet recorder was useful in situations where making written notes would distract either themselves or others:

It's useful with your supervisor because your supervisor will tell you stuff and you're not having to write stuff down all the time. You've actually got a record of it without having to [interrupt the conversation].

Another student described how they did not feel able to give enough attention to conversations if they were trying to make usable notes at the same time, explaining "I can't write and learn at the same time."

As expected, the opportunity was particularly useful for disabled and international students:

It's tiring ... No-one else is deaf and I get the feeling that everyone else can sit there and be doodling but still take it all in.

The presence of the recorder initiated some conversations. One student explained how he valued feedback from his friend. He explained, "I just think it's easier to get them to talk than it is to say, 'Will you write what you think about this?'"

It enabled many participants to make personal notes and record ideas, sometimes in the middle of the night, due to the simplicity and usability of the device. One student used it "for just little things when I'm walking around," and another used it more systematically for capturing ideas by putting it beside his bed while writing his dissertation. The device also helped some students to manage and organise their ideas. One found it easier to "just speak out loud... without having to sit at the computer typing."

Again, while all students noted benefits, sometimes unexpected, it can create another organisational problem:

It kind of gets to the point where I haven't uploaded it to the computer for a while and it's like anything; it just gets to be quite a daunting task.

Comparing written and audio notes

Inevitably, written and audio note making will be useful in different ways. As has already been discussed, there are two main aspects to making notes, whatever the medium: recording and reviewing.

Drew and Bingham (2004) point out that effective written notes can be very brief; just keywords or phrases. Audio notes, on the other hand, capture every detail, though some students are selective in what they record from a particular session. In general, the audio note maker is still left with the task of reducing information, with the audio method introducing a delay in processing the information, as shown in Table 2. This delay may be important to some learners: the expression, “It’s so loud I can’t hear myself think” describes the lack of control some feel when bombarded with new ideas. The benefit of this delay was evident in the students’ testimony:

I can pause the lectures when I play them back. I can pause it, stop it, write notes. Do something. Carry on listening.

I can just listen and I can start to work it around in my mind, rather than just trying to write as many notes as I can, trying to not miss anything they say.

Many of the students interviewed at SHU explained that they experienced the delay and found it beneficial despite adding to their workload:

I can reflect more on what has been said, replay it.

It just gives you more time to listen ... you can go home and register it in your head later and write it down.

By separating out the reduction process, audio noting requires the learner to actively reflect, at a pace that suits them, on what has been captured. This allows learners to usefully filter out and embellish the significant ideas. However, most students involved in this study did not show any sign of using a recognised noting system. Northedge (2001) warns that the learners must be selective. The audio note making this means: learning when it is useful to make audio recordings, when it is useful to make written notes, and when it is best to just pay attention or become involved in what is happening.

Several respondents described how they continued to make written notes while recording, and how this enabled them to be more selective. The recording created a sense of security while aiding students’ engagement. One student explained how the recording of the lecturer’s voice freed them up to make written notes of their own ideas and points to be followed up.

Action and engagement	Audio notes	Written notes

Recording	Listening, reading, writing down ideas and selective notes, taking part or observing and recording	Listening, reading or observing and selective recording
Reducing 1	-- delay -- (Clarifying additional written notes)	Reducing and clarifying information to create an essential summary
Organisation 1		Managing the written notes
Reducing 2	Reducing all information	
Organisation 2	Managing the written notes	
Reciting	Putting ideas into their own words and making, extending, refining written notes produced by themselves, their peers or tutors	
Reflecting	Thinking about the ideas and information	
Reviewing	Evaluating what is important and using the notes as revision aids or to support assignments	
Table 2: Generalised action and engagement paths comparing audio and written note making, based on the Cornell system (Pauk, 1989)		

The engagement path presented in Table 2 represents generalised views of both audio and written note making. It shows, on the one hand, a rigorous approach, and on the other, a gulf between reality and an idealised view of academic note making, whatever the medium. Many students simply talked of the opportunity to listen again as a method of exam revision. Potentially this is a more time-consuming task than the reduction, recitation, reflection and reviewing process.

I listen back to it again and again and again.

I listened to that as I was walking around as a way of trying to revise the subject.

[I] just play them back. Just to listen to them. But I prefer short ones than long ones because with long ones you end up getting a bit more bored.

Some students on the other hand reported that they had engaged by editing the files. This had not been recommended, but they found it useful nonetheless:

I usually chop and change things about [in Audacity and] listen to it a bit again then, which sort of hammers things home again later that night.

In both cases, however, the learner should be supported in developing a systematic approach.

The table also describes a shift from audio to writing in the Audio notes column. As the previous quote suggested, this shift may not be necessary, though several students reported having done this. Transferring from one medium to another is a demanding, though beneficial skill.

Some students reported that they listened back to recordings several times, to clarify or review difficult concepts:

I might not have understood it the first time round ... listen to it again and all of a sudden it fits into place.

By hearing it and listening to it again and then writing it, all those three different things, they all sort of complement each other in taking in what is being said an awful lot more.

At the same time it should be pointed out that both projects sat outside the formal curriculum and study skill provision, so the proper integration of techniques was not supported. Similarly, there was no attempt to directly compare audio with written note making during the projects; they have always been assumed to be different, complementary and a matter of preference.

Articulation and note making as reflective academic practice

Audio recording can promote learner articulation especially where it is used to capture tentative and formative statements and conversations. Vygotsky and Kozulin (1992, p.219) say, "Thought undergoes many changes as it turns into speech. It does not merely find expression in speech; it finds reality and form." This sentiment is echoed by Herrington and Herrington (2006, p.7) who discuss the value of articulation in authentic learning. They suggest, "the very process of articulating enables formation, awareness, development, and refinement of thought."

Similarly, reflection through listening back to recordings can result in a renewed immersion as noted by Fidler *et al.* (2006); the listener is able to reconnect to their original train of thought. Several students in this study repeated that suggestion; for example:

Mostly I just listen to it and remember where I was and what I was doing at the time ... I can actually continue with a train of thought.

What I find is that, when I listen to it again, I think, 'Oh I remember thinking this at that time.' Yes, it is like a memory jogger.

Reflection, however, requires the listener to 'think about', not just 'listen to', to avoid the recording washing over them in an unchallenging way. The quality of listening can be enhanced if:

- listening sessions are kept short;
- the playback is regularly paused while written notes are made;
- listening involves annotating written handouts;
- listening takes place within a study circle who pause playback to discuss and clarify points;
- listening is scaffolded by a quiz sheet provided as a handout by the tutor.

Finally, several respondents noted how they enjoyed reviewing their recordings and how it refreshed their memory and instilled confidence:

I would say it's made me feel more confident in the exams that I have taken where I've used that in the lectures.

If I have recorded it I am going to be much more relaxed.

[It's given me] more control of my ability to learn.

Conclusions

This chapter has focused on the autonomous production of audio notes by students and the versatility of the medium in supporting effective note making.

Though many of the participants in the two projects were motivated enough to take part, they generally had little understanding of, nor strategy for, how they could learn *through* note making. This is not peculiar to audio note making: some participants commented on the lack of consistency in academic handouts, for example, and how this affected them in devising their own strategies for using notes. Similarly the literature on lecture recording pays little attention to how recordings should be used, the implication being that just listening again is valuable. We suggest more work is needed, but that a system of recording, organisation, reduction, reciting, reflecting and reviewing will provide a useful approach for any kind of note making.

The use of discreet MP3 recorders encouraged greater learner autonomy by providing students with more options to engage in diverse situations which they determined to be beneficial. The presence of the audio device is, for some, motivational; an enquirer's tool, designed for gathering ideas and knowledge in its many forms. But caution is needed, as highlighted by Burkdall (2009): written communication demands different intellectual skills to speech and multimedia. Ong (1982) describes writing as an act of sharpening analysis and the crafting of words;

where the words are required “to do more,” contrasting with the gesture, expression and intonation that often accompany the spoken word. It would be dangerous to create a false dichotomy in which audio is seen to somehow threaten written practice. Audio notes should be understood as a way of *extending* the ways that learners have to engage with their academic work in formal, semi-formal and informal situations. We argue that the value of tentative exploration and articulation through the spoken voice is just as important as crafting the final, written word.

The participants in the projects discussed here found great value in using the audio devices in the many ways reported, frequently saying they would pay to replace the device if they lost it. Institutions, therefore, need to ensure that its policies and infrastructure do not deter the academic use of such devices and that guidance is developed for both staff and students for their appropriate and effective use.

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Valuing podcasting — students talk about their experience of educational podcasting

Graham McElearney and Andrew Middleton

Introduction

Podcasting, in its many forms, is as new to students as it is to academic staff. This chapter presents the student view of educational podcasting and draws on a series of conversations conducted at two universities where podcasting has been used to actively engage learners as producers and listeners.

Methodology

A qualitative approach was taken in this study which aimed to find out the extent to which students in higher education value academic tasks and assignments which require them to produce and listen to digital audio.

The students who took part came from five courses at two universities. Their experience of educational podcasting on these courses was diverse. At one extreme one of the groups had spent less than 15 minutes planning and making a reflective audio presentation, while at the other, students had been part of a large cohort involved in a module-long podcasting project. Most of the students were interviewed at the end of their respective courses using a semi-structured approach designed to accommodate their different situations. One of the five groups produced individual written accounts of their experiences. The resultant data were analysed against a set of hypotheses designed to address the aim of the study:

Hypotheses

Students value:

1. listening to a range of voices in audio format;
2. the viability of podcast production as an academic activity;
3. the opportunity to work with digital media;
4. variety in the ways they are engaged;
5. the opportunity to develop their academic literacy;
6. the creative demand of the audio format;
7. the academic challenge of working with audio at university level.

About the students

At the University of Sheffield a group of third-year students studying Health and Human Sciences [UoS1] worked in pairs to produce a five-minute podcast addressing issues raised by the recent Human Fertility and Embryology Bill, debated in Parliament in 2008. These students received a formal two-and-a-half-hour teaching session in which they were given guidance on how to plan their podcast, as well as hands-on training in producing the podcast. Each of these students produced an assessed written piece reflecting on their experience of the activity.

A second group of University of Sheffield students, studying English Language and Linguistics in their third year [UoS2], worked in groups of four or five on a research assignment that required them to present their findings in a 20-minute podcast. The students had no formal training in how to produce the podcast.

The experience of the University of Sheffield students was captured in two focus groups involving 12 students in all.

At Sheffield Hallam University there were three sets of students. A focus group of six trainee teachers [SHU1] who had considered the educational use of audio and video during their course and who had also created 'audio reflections' in a class-based activity to summarise their personal experiences of their year-long Post-Graduate Certificate in Education course. These audio pieces were intended primarily to provide insight for students who would do the course in the following year, though they also served as personal reflective pieces for their own portfolios. These students, who had no technical training, were handed MP3 recorders in class and were not required to edit their recordings. They were interviewed as a group immediately after making the recordings in the session.

Four first-year students from a broadcast journalism module [SHU2a-d] were interviewed individually about their various experiences of audio in their first-year module. As members of a large cohort of 230, they had undertaken group projects which required them to plan, research and produce podcasts of five minutes' duration. They had received two hours of training on recording and editing techniques. Audio had been used throughout the module in many ways: tutors had shared summary conversations reflecting on lectures; students had received audio feedback on their draft project plans; seminar groups had been engaged in discussions that were recorded, aggregated and distributed through the module podcast feed; audio FAQs had been produced as assignment questions emerged featuring tutor and student voices, and distributed in a similar way; and finally, a student podcast 'gallery' was created for displaying the student work, again using the module podcast feed.

One undergraduate Computing student [SHU3] was interviewed about his decision to produce an audio tour for a final year assignment about e-learning tools. Working in a team of three, his idea was to produce an 'audio talk-through' for photography

students. The audio piece directed students in how to reconstruct photographs at specific locations. The Computing student was expected to develop his own skills as part of his technology-focused assignment.

The next section draws heavily on the words of the students themselves, organised according to the hypotheses, while the conclusion reflects on the validity of the hypotheses.

The student view of podcasting

The value of listening to educational podcasts

Where students had been provided with podcasts to listen to, as in the case of the Journalism students, some appreciated being able to revisit conversations in which they may have been involved. While not all students listened to the podcast feed, those who did were generally enthusiastic.

Tutor podcasts, conversations in seminars, I think they're all really, really useful. It's nice to have that recorded so we can go back and listen and reflect on our ideas. Sometimes when you're in that situation you're more bothered about your ideas and though you listen to other people's ideas you don't always take them on first time. So it's an opportunity to ignore what you've said and just concentrate on what other people have said. [SHU2a]

This student, having listened back to discussion recordings, realised that contributing to discussions in class was distracting for her. Her adrenalin was flowing and this feeling led to her remembering little of what had been said at the time. The recording of class discussions helped her to reflect both on her own performance and on what was said by others. This was something she particularly appreciated following breakout sessions as it gave her the opportunity to consider what other groups had discussed. Some of the students who had listened to class discussions were bemused that more in-class recording is not carried out.

The teacher trainees appreciated being able to access recordings of interviews with professionals as an alternative to inviting guest speakers to talk to them in person. One said, "You never really know whether they're picking the best person to come in and talk," and suggested that podcast interviews were more selective and therefore more valuable. As "mentor producers" themselves they saw their role as being external contributors creating audio for those that followed them; they had become experts and this affected the way they thought about their experience as they made their contributions. They were able to imagine themselves in the role of listener, responding in a real and empathetic way, saying the things that they had wanted to hear when they were starting out on the course. "I told people what it was like when we got to schools and talked about the classes we had because they were all worries I had before I started." [SHU1]

This is an example of the connectivity that audio affords; a phenomenon that is evident in other student accounts. Sometimes the connection is concerned with bridging time as much as it is about connecting to people. Some students, for example, valued listening again to the elaboration of an assignment brief, noting how audio had “literally brought the original brief to life.” [SHU2c]

Connectivity was an important factor among those who had received audio feedback too, though one student [SHU2a] explained how audio does more than just establish a connection; it seemed to require their tutor to, “think a little bit more about what they’re saying rather than just putting something generic on a piece of paper.” Audio feedback is said to be a more meaningful way of providing feedback, though it can be difficult to understand what ‘meaningful’ means. This student explained that, “It’s kind of tangible ... To have something that triggers other senses is far more personal and meaningful.” [SHU2a] When those writing about audio feedback talk about how they are able to personally engage their students, there are several aspects to this: some note that they are able to use their tone of voice, and others mention the direct connection they feel they are able to make with individuals. To these students connection was about a sense of presence and intimacy.

Several students explained how recordings featuring student voices had helped them to appreciate their role as a member of a learning group, and how this can be beneficial. For one, listening to other student’s enthusiasm was infectious, making her “upbeat as well.”

The Journalism students were required to put their work ‘on show’ in a collective ‘gallery’ in the VLE. Even though they could listen to the audio pieces produced by their peers, not everyone did because the ‘exhibition’ was at the end of the module. When asked about this, the value of the gallery became clear to them, albeit belatedly. They appreciated how this could have helped them to think about the ground they had covered during the podcast enquiry; how it could have built up their confidence; and how it could have given them “more ideas” for subsequent assignments. In retrospect the podcast gallery exercise, inspired by the notion of Fine Art degree shows, may have been better placed earlier in the module as a tool to mediate self-reflection, rather than as an end-point celebration of the work. Recordings from podcast assignments become artefacts that, on a superficial level, present what has been found out but, more profoundly, connect the learner back to the enquiry that had been undertaken.

Not only does the process of preparing a podcast and collating information provide insight, but also after recording you can replay the debate and reflect further on the issue. [UoS1]

Though some students are able to recognise the value of listening to the module podcasts, in practice many are often more strategically driven, choosing not to spend more time with module content than is necessary. In situations where seminar discussions had been recorded, for example, a common response was that they had

attended the class, so why would they want to listen again? Others said reviewing recordings of classroom discussions is time-consuming and not realistic unless listening is directly associated with assessment.

If a student gets behind with reading it is possible to skim read and be more selective in order to catch up. However, listening to audio takes time and can compound the problem for those not keeping pace:

I did look about two thirds of the way through the module and by that time you must have had about 15 or 16 on there and I thought 'No, there's far too many up there.' [SHU2c]

In cases where audio is used to convey content, some students appreciated being able to tune in at a time and place that suits them because it gives them more control. One mature student [SHU2d] described being distracted by being “stuffed in a lecture with 200 people, you know, 80% of whom weren’t listening anyway.” He resented, as a mature student, listening to a lecture in these conditions when he felt more could have been achieved in a 20-minute podcast.

In an audio-rich course like the Journalism module, students said they valued the voices and the content, and appreciated the modelling they find in tutor summary conversations.

I listened to [the tutor summaries and] made notes about what I need to learn, what I need to change, that sort of thing. It was more a case of what are the lecturers actually talking about? What is important to them for us to know? [SHU2d]

The viability of podcast production as an academic activity

Audio can be very simple to produce. In many cases it is valuable without the need for any post-production. Indeed, the *act* of making the recording can be rewarding for many, requiring just “a quick chat” before they discover they are able to present what is needed “straight off,” as in the case of the trainee teachers.

However, sometimes post-production is an important aspect of the group task. As with writing, editing is not necessarily that easy. Students need to negotiate what to look out for, what to include and what to leave out, before getting “it to flow well.” [SHU2b] If this decision-making is an important part of the assignment, tutors need to be clear about this when establishing and briefing student ‘production teams’. Students undertaking podcast assignments at the two universities said they needed more guidance. Some were unclear of the expected format, explaining, “It’s such a different thing and we’ve never done anything like this before.” [UOS2] The introduction of the novel audio format raised uncertainty over style in particular. Some students felt stranded, saying “It was left totally up to us ... we weren’t really sure if we were doing the right thing or not.” [UOS2]

As a group task there can be benefits to either working closely together or separately, assigning specific duties to each other. Some students in this study shared out the roles so well that they spent little time working together at all. The task of editing, for example, seemed to consistently fall to individuals:

The problem with the podcast as an assessment is that once you've done it, there's still a lot to do by one person like the editing — it can't really be split up ... and so it ends up with one person having a lot to end up doing to get it ready. [UoS2]

Others appreciated the need to manage themselves well and enjoyed being part of a functioning team.

Our group work worked really well ... We didn't work more hours than anyone else, we just worked better. [SHU2d]

Teamwork can be challenging, but the rewards can be great:

Seeing the final piece put together, it was like a good team morale booster — you've got that finished product and it was good. It was nice to work with other people on something. [SHU2b]

Others enjoyed the editing as an individual process and the responsibility this gave them. They enjoyed being 'in the zone' and finding out that audio editing came naturally to them. "I could quite easily see how we could take this idea and this idea and put them together. Nothing seemed too difficult." [SHU2a] This in turn helped to develop this student's confidence in editing other aspects of her academic work. She highlighted how being 'in the zone' meant enjoying being trusted and trusting in others:

It was good to be just left to do [the editing] and be trusted that it was OK. Then other people would take on other responsibilities and you would trust them that it would be OK. All of us were driven and wanted it to be a good thing. [SHU2b]

Making decisions together about content, at each stage of the project, would seem to be the minimum expectation of a collaborative assignment like this. The benefits of working in pairs, for example, can lead to fundamental and influential conversations around the substantive topic during the research phase of the podcast assignments.

My podcasting partner ... often made me realise something that I had not contemplated and made me reflect on what I had learned. [UOS1]

The opportunity to produce podcasts

The case for podcasting in learning and teaching needs to be spelled out. Setting a podcast assignment therefore demands clarifying why and how learning this way is useful; and this can be difficult when everyone is preoccupied with unfamiliar

technology. Even then the idea will be received differently. Some students in this study were quite excited about being asked to make a podcast:

I love it. I love it [the podcast assignment]. It was really enjoyable and really useful ... [It is] a really great way to assess someone on what they've done in a module because... why just do exams and written work when you can produce media? [SHU2a]

When I was told I had to produce a podcast... I was pleasantly surprised. This was because I had never associated making a podcast with learning and I looked forward to trying something new. [UoS1]

Others were anxious as they doubted their own technical competence:

When I found out I would have to co-produce a podcast with a fellow student, I was initially a little concerned because I am not very technologically minded at the best of times. [UoS1]

The initial apprehensions disappeared for this student with practice:

By the end of the session I had become more comfortable with using the software and recording my voice ... I became more relaxed and confident when I was talking so I did not sound as boring as I first did. [UOS1]

Training in using the technology allowed the students to focus on the work in hand:

After training my confidence grew with using the technology and I realised how important using technology is for expanding my personal knowledge and helping me to understand different issues. [UOS2]

It is not surprising to find, as with any academic assignment, that some students like some media more than others and that, for many, anxiety about the form is generally addressed by clear guidance and practice. This was evident in the students' responses to questions about the importance of variety in their studies.

The value of variety in the ways students are engaged

Beyond the specific demands and qualities of the medium, students from all groups appreciated the variety that learning with audio brought to their experience. Student comments from across the study explain why:

I would hate it [if I was only ever asked to write essays] ... It's nice to have a variety of things to do. [SHU2d]

I think it's helped [my learning]. Even though it's something I've done before outside of university, it was something new to be tested on and assessed. [SHU3]

I've only done my first year and already I'm fed up of writing essays. Mixing it up with putting some audio files in there ... It just gives you a different view. [SHU2c]

I think podcasting should be taught to more students as the process is really helpful for a refreshed insight into an issue or debate. [UoS1]

I'm more used to essay writing, but I feel a lot happier doing practical things. It's more spontaneous. It's just so much more interesting. You have to be able to work with other people. I love being part of a team. [An essay assignment can be daunting] whereas with audio and video you can always find a way round it. I just think there are more opportunities. [SHU2b]

I didn't think that I would want to do a practical course, but the more I got into it, the more working with a team, it was just more exciting and more fun than sitting with books. It's 'right there' — the material's right there for you ... as it is conversations it's not so hard trying to understand what they're trying to say. [SHU2b]

It makes things more interesting than just writing something down or just having a discussion where there's no log of what you've talked about really. [SHU1]

Changing the assignment media can help to re-establish the learning challenge, even among those who usually feel comfortable academically:

Everywhere you look there's writing. It's on your laptop, in your room. To have something that snaps you away from that is helpful. [SHU2a]

My secure and successful skills of traditional classroom learning have been challenged and allowed me to develop my confidence of different styles of learning. [UoS1]

Some students felt they were able to surprise their tutors and peers with the creative opportunities that the medium afforded:

I think they quite enjoyed the idea... The lecturers were quite surprised we'd gone for [audio]. They're quite impressed with how we've gone about it. [SHU3]

While variety is valued, it can be difficult to equate podcast assignments with other types of academic work. One of the challenges of setting a podcast assignment is ensuring students understand how to prioritise the different aspects of such a rich activity. Guidance on how much time is needed at each stage of the assignment would have helped to set expectations, clarifying the balance between research and production. Some students enjoyed the production side of the work so much it was difficult to get them to stop, and as a result they resented the fact that more time and marks were not available in the module. On the other hand, some were disappointed that they were unable to produce a piece of work in which they could feel proud in the time available. The following comments suggest an appreciation of the dilemma by the students, and help academics to realise how important expectation management is in setting a podcast assignment:

In the back of our minds we knew we had other essays for other modules that were worth 50% that we've got to be working on so we can't give up the time. [UOS2]

The time spent preparing an impressive podcast would not justify any gains in understanding the subject matter but would instead compromise assignments for other modules that carried higher marks. [UOS1]

Podcasting assignments and the development of academic literacies

It is a great way for people to learn how to speak and put themselves across. [SHU2a]

The term academic literacy has much in common with the notion of multiliteracies (Kress, 2010) and multiple intelligences (Gardner, 1983) in which it is understood that all individuals have “an array of intellectual capacities” (Robinson, 2001, p.107). Academically literate students are those who are confident, creative and critical; they are students who are able to learn and develop ideas independently and socially; they are conversant with using a range of sources and adept at maintaining their knowledge base; they are good communicators.

Learning to produce a podcast was seen by some students as benefiting their potential employability. Podcasting has an obvious connection for the Journalists and English students in this study:

For me personally I'm quite interested in broadcast, so this is an ideal thing for me to have learned as now I can actually say 'I know how to do it.' [UoS2]

Podcast assignments make a range of demands on students that can contribute to their employability, including decision-making in a team context, project management and working to a series of milestones, conducting research, and finding and expressing one's creative capacity. This student notes the value of other demands:

Developing new technical skills is paramount in the advanced employment sector evident in today's society, and by developing these along with interpersonal communication skills, employers will recognise a flexible learner. [UoS1]

Many of the students here discussed how a podcast assignment is a suitable framework for enquiry and how it works as a platform for them to express what they know:

Engaging in the process of producing a podcast facilitated an active exploration and investigation into the topic area ... and in particular provided an effective medium to put my arguments across ... The process

of simplifying concepts and briefly summarising them helped me to grasp the complexity of the issue. [UoS1]

Processing evidence and re-presenting it orally requires a deep level of engagement with the subject. This is more than just developing communication skills; many of the students here understood how the assignments required them to have, “a greater depth of understanding of the material in order to present it with sufficient clarity.” [UoS1]

Podcast assignments create a framework for learner enquiry, and students need to understand what this means. While the making of a shared artefact is a driver for the students, it is important for them to appreciate the value of the research process and working together to form and test their emerging arguments. By listening to their debate with their partners, some students remarked on how they had changed their own minds about the substantive issues being discussed:

By using a debate [format], I started the podcast [project] with a definite opinion on the abortion time limit, but as the recording progressed, I found myself re-evaluating my own opinion surrounding the ethical issues of reducing the abortion time limits from twenty-four weeks. [UoS1]

The podcast approach reclaims the use of academic rhetoric as an authentic domain in which students are challenged to persuade their partners and their audience on the basis of evidence, argument and presentation. The best academic work shows evidence of critical thinking and fluency and this is evident in the selection and construction of student podcasts. One of the Journalism teams, for example, explained how they had collectively decided to start again, having been disappointed by their first attempt: “We did all of the interviews again because we felt that it didn’t kind of flow properly. And the second time... it was really good.” [SHU2d]

The process of interviewing people for podcast assignments is challenging for some. Reflecting on the experience, most students realised that relying too much on a list of questions doesn’t result in an engaging interview. This Journalism student learnt that, “You can have all the ideas about what you want to say [written down] but if the conversation doesn’t go that way [you have to be responsive and flexible].” [SHU2b] This requires confidence and knowledge about the subject.

The audio format is a creative space

The requirement to engage a listener, rather than a reader, is challenging and demands creativity. The novelty of the audio medium means students have plenty of room to express themselves and surprise others. While this introduces problems for some, as discussed earlier, others, like this Health student, explained how it pushed them further than a traditional assignment. He explained, “I felt that the finished

product could be very dry unless the content was presented in a very creative way.” [UOS1]

Another student explained that, “It makes you engage with it differently because you’re aware you’ve got to speak about it rather than write about it, so you’re talking about the material and ... rather than discussing the positives or negatives you’re trying to make it more interesting to the listener.” [UOS2] The Computing student [SHU3] also felt that audio was a useful medium because of the creative challenge it presented. But he was concerned that he may have been taking too great a risk. “I knew what I was trying to do, but whether what I wanted to do fitted in with the marking scheme was a completely different thing.”

The academic challenge of working with audio at university level

Academically there are important similarities between a written and an audio assignment. Both require a research methodology and methods. They require planning, structure and organisation. Both also benefit from imagination, some confidence and a degree of fluency. This is evident in these accounts from a Journalism student and an English Language and Linguistics student:

I could hear it and hear how I wanted it to sound. I could see it, but in an audible way. [SHU2a]

You have to really think about the research that you’re using and you really have to break it up effectively and put it in the right places... With the podcast it’s very straight and to the point and your structuring has to be a lot clearer. [UOS2]

The podcast assignment, as has been discussed, creates a framework for enquiry and one that helps to develop core literacies as well as epistemic knowledge. Its main challenge as an academic form in part stems from its novelty, its technical context, and associations that may be made between academic practice and popular media. Each of these areas of challenge creates a tension that sets the appeal of the approach against the need for rigorous learner engagement. With more experience the right balance will be found, but in the meantime academics and their students need to be clear about the pedagogic purpose of the podcast assignment and where to focus their efforts and thinking. This can be set out in written assignment criteria, emphasised during assignment briefing, reiterated through continual project feedback, and in the setting of complementary tasks such as the written project reports that accompanied all of the podcast assignments in this study.

Conclusion

The students in this study have mostly been enthusiastic about the use of podcasting in its various forms, though they have been critical of some aspects of its use. In many cases they have been surprised by their experience.

Where there has been criticism it has come down to a lack of clarity in the way assignments have been briefed and in the ways that podcasts have been integrated pedagogically. In many cases accounts suggested students were either *expected* to do too much or *wanted* to do too much. Others reported that they hadn't always listened to recordings that were made. This is not surprising in an emerging pedagogic medium that is relatively untested.

Nevertheless, academic audio designers should heed the essential message that students, in general, relish the opportunity to work in different and more creative ways as long as they are clear about why and how they are to do so. In terms of the hypotheses set out in this chapter,

- **The students valued the greater access podcasting provides to the voices of peers, tutors and others.** Though there were concerns about the time it can take to listen to audio, students highlighted the following attributes of podcasting as useful:
 - Asynchronicity – how audio allows them to listen at times they determined;
 - Connectivity – how it can reach 'visitors' and across time in ways that would otherwise not be possible;
 - Representation – the capacity of students to record and reflect on their own ideas and those of others so that they can be reconsidered later;
 - Demonstration – the access it provides to tutor modelling and guidance.
- **The viability of podcast production as an academic activity was valued.** However, it is clear that while some appreciate the challenge and support of their peers in both the research enquiry and in the more technical side of the task, others preferred taking sole responsibility for specific aspects of the work. Some students appeared to have focused too much on the resultant artefact and had not appreciated the value of the underpinning enquiry.
- **The opportunity to work with digital media, in the main, was welcomed by the students,** with several being extremely enthusiastic. Others were reticent initially due to their lack of familiarity with the medium, especially in regard to their technical competence. These doubts could be allayed by good guidance and the opportunity to practice.
- **Variety in the ways students are engaged was widely appreciated** across the study. For some it made a welcome change; for others, it presented welcome challenges.
- **Podcasting helps to develop academic literacy.** Students spoke about confidence, creativity, and being critical. They talked about independent working and collaboration. They used a range of primary and secondary sources in their productions and appreciated the particular demands of the medium to communicate effectively.

- **Podcasting demands creativity.** Engaging a listener, rather than a reader, introduces new challenges, while the medium has a different set of constraints when compared to more familiar academic media.
- **The academic challenge of working with audio at university level was recognised by students.** The need for appropriate research methods, planning, group organisation, critical debate, structured and coherent argument, and reflection were noted by students as being fundamental to their assignments.

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Student-generated podcasting — perceptions, challenges and facilitating innovation

Carol Beattie and Andrew Middleton

Introduction

Introducing student podcast activities into the curriculum need not be difficult and has the potential to benefit student engagement and learning. But it is likely to present some new practical challenges, raise some concerns and involve several different areas of expertise. Such innovation, therefore, requires careful thought and good planning institutionally and locally. This chapter considers findings from a Media-Enhanced Learning Special Interest Group (MELSIG) role play activity and a student panel presentation. It discusses the benefits and challenges of using digital media-enhanced pedagogy in situations where students are involved in the production of digital media. In part, the aim here is to recognise the range of reactions that different stakeholders will have to the idea of student-generated podcast assignments and to encourage innovators to work together in establishing new practice, whether they are academic staff, educational and technical developers, students or management.

The chapter begins by explaining how the role play, as a communal investigative tool, and a student panel session were run and how the data they generated have informed thinking. The outcomes of the activities are then presented and discussed. Finally, observations are made about the use of role play for supporting innovation alongside a summary of the key points raised by those who took part in the events.

About using role play and the student panels

The chapter draws on the outcomes of two MELSIG events. The first, at Thames Valley University (TVU) in October 2008, included a role play which was designed to actively engage those attending the SIG meeting in the idea of student-generated podcasting assignments. It was used to develop and present three perspectives from higher education: the academic, the student, and a third group referred to here as 'the developers' (representing Learning Technologists, Educational Developers and Administrators). The second activity referred to here was a student panel session from a SIG meeting that was run at Glasgow Caledonian University in May 2009 in which a group of students from the University of Chester and Sheffield Hallam

University discussed their experience of student-generated podcast assignments and audio feedback.

Recordings of the two sessions were transcribed, with data organised here according to the following questions:

1. What are the benefits in students making podcasts?
2. How important is student training in underpinning podcast assignments?
3. Is it appropriate to publish students' podcasts?

Other issues relating to student-generated podcast assignments were raised and some of these are also discussed here.

Role play design

Part of the ethos of the SIG is to take an inclusive approach to the investigation of emerging ideas on the basis that the SIG's strength lies in the size, diversity, and the common interest of its membership.

The MELSIG steering group decided that role play could be used to engage the large number of people (50) attending the event at TVU. Blatner (2009) describes role playing as a rehearsal technique useful in problem-solving, communications and developing self-awareness. It uses a mix of flexible, creative, and rational thinking through a process of interaction, risk-taking, self-expression, feedback and encouragement. Blatner argues that it helps to intensify and accelerate learning and is ideal for fostering "spontaneous exploration of various situations."

The participants, who between them had many different roles in their institutions, came from across the further and higher education sectors and had diverse experience in using podcasting educationally. Despite this diversity, the role play aimed to draw out concerns and ideas from a generally recognisable situation: the plan to introduce a new technology-enhanced pedagogy that, on the face of it, was inherently risky in many ways.

The role play was designed, therefore, to develop and capture those ideas in a structured way. It was primed by arbitrarily assigning the 50 people who attended the session to three groups representing academic staff, developers and students. Each group was asked to look at the agenda for a fictitious University Advisory Group meeting. Before the role-played meeting was run, those attending the session were asked to generate from the perspective of their assumed role as many ideas as possible in their groups in response to the small set of agenda items. These initial ideas were captured on Post-It notes. Following this preparation activity, one representative from each of the three groups was called to the 'meeting' around a table in the centre of the room where they were joined by a 'member of senior management' who chaired the meeting.

The role play was first introduced:

The role-play takes place at an Extraordinary Meeting of the University's Advisory Group. There is an emergency in the institution sparked by a situation that the Chair will introduce in a minute. The Chair has put down three questions that the Advisory Group needs to address. There is just 20 minutes to get through the whole agenda.

Everyone here needs to keep writing Post-It notes and needs to forward these to their rep so they are never short of something to say.

The meeting will be conducted in a very orderly fashion. The Chair will ask each attendee to quickly respond to each item with as many points as they can coherently make in two minutes.

The role play was started, therefore, by the person playing the senior manager who went on to explain that the aim of the meeting was to establish the key issues associated with an academic member of staff's proposal to run a student-generated podcasting assignment in which student work would be made public.

As the meeting commenced the representatives of the three groups were armed with the ideas on Post-It notes produced by their respective group members, enabling them to present their position on the agenda. Group members who were not actively engaged at the table were encouraged to feed in new ideas as they occurred to them during the meeting.

The nominated representative at the table was replaced by another member of each group each time the agenda moved on in order to spread out involvement and to introduce new energy.

Those playing the parts of academics, developers and students were not necessarily familiar with those roles from their own first-hand experience. The student views, in particular, were represented by the real-life academics and educational developers attending the SIG event. The role play, therefore, not only raised genuinely important issues around the integration of student-generated podcasting in the curriculum, but also surfaced assumptions about the different roles. The method was also intended to show the difficulty of making policy in relation to innovation based on generalised and subjective understandings of issues.

Representation

It is important to stress that the account of the role play, like the role play itself, captures the views of imagined characters, not real people. However, the role play was run as a relatively secure, abstracted situation which allowed participants to express ideas and concerns that may not have otherwise been possible for them in real life. The method asked them to temporarily develop and hold views that may conflict with their own real-life positions. In this way it is hoped the method, while distorting reality in an obvious way, also allowed for a truth to emerge.

The student panel

At the Glasgow event a panel involving five real students was run which addressed many of the issues that had arisen during the role play at the previous event. The experience and views of these students was naturally limited by their own particular experience, so they do not represent a general student view. Nevertheless, when planning the event, SIG members appreciated that the student voice had been under-represented at previous meetings and were keen to hear about the experience of students in making and using podcasts. However, the particularity of their experiences and views demonstrates the difficulty of relying on the experience or views of any stakeholder; it is impossible for any single stakeholder to have a full grasp of an innovative situation, even after they have experienced it. These accounts are excerpts of particular stories generated as perspectives on a complex experience.

A summary of the student panel discussions on the running of student-generated podcasting assignments follows the summary of the role play meeting.

Analysis

The recordings of the events were transcribed, and along with all of the Post-It notes that were generated, have been analysed to identify some of the main ideas that emerged in response to the benefits of using podcast assignments; the need to support students in such assignments; and the appropriateness of publishing such student work and the role of audience in setting such assignments.

Student-generating podcasting assignments — an account from a role play of a University Advisory Group meeting

The benefits of students making podcasts

Academic

To the academic, student podcasting is part of a portfolio of skills: it can widen the students' range of presentation skills; in developing a podcast, students have to engage with the content, helping them to embed the knowledge they are researching; it allows the student to develop key points, and the constraints of the medium require them to be succinct in presenting their findings.

Both the academic and the developer felt that group podcasting could be used to help students increase their confidence and self-esteem. Group work, however, introduces difficulties in determining which students have contributed and it wasn't clear to the academic whether a podcasting activity would simplify or further complicate the assessment.

There were also some reservations about the rationale for the proposal: podcasting should be introduced for pedagogic reasons rather than as a novel bolt-on activity. It

was suggested, therefore, that the Advisory Group could take a look at the broader curriculum design in its review of this proposal.

The issue of setting a precedent and raising expectations among students was also identified as an issue by the academic: when one module uses these techniques, students may be disappointed if other modules do not follow suit. This in turn raises the question of introducing the technology into whole programmes rather than individual modules. Care should be taken in raising expectations that might be difficult to meet.

Developer

From a developer's point of view, a key issue is the relevancy of making podcasts in relation to the learning outcome: is it a valid activity to be undertaken? Will the students learn what they are meant to be learning? Assuming that the activity is going to be assessed, what would the marking criteria be? For example, would production quality be a marking criterion? If so, it would only be fair that students were taught how to produce a high-quality podcast.

The developer felt that the activity would be attractive to students who are not confident writers or have different learning preferences. The developer agreed with the academic that it could be advantageous if the opportunity enabled each student to produce a piece of well-edited work of which they could be proud. According to the developer, students would be generally keen to engage because it is a new activity for them, but one should ensure that the enthusiasm doesn't wear off and the activity doesn't get overused.

One of the great strengths of student podcasting is that it can produce a rich media evidence base that can be easily shared and is permanent.

Student

The Advisory Group was reminded that many students have been used to this technology since school. According to the student representative, students felt that it was more fun than writing an assignment and allowed them to develop their own learning styles, something that was especially important for those students with dyslexia. It is viewed as being a more social way of learning and there is a valued sense of creating something instead of just receiving instruction. The student representative also suggested that it was difficult to plagiarise a podcast.

However, there were some negative views from the student rep too. For example, it might take more time to create a podcast than write an equivalent assignment. The student was concerned that the time spent on the creation of podcasts may detract from time spent on other assessed assignments. The student representative also pointed out that not all students were happy with technology: "What if I'm not confident with technology? I would be concerned that I should be spending less time on this rather than on a written assignment and would hope I could access technical

help easily; I'll waste time learning how to podcast rather than how to do my subject."

The student also reported ethical concerns: students should have the right not to appear in podcasts, perhaps for religious reasons. What were the implications of this for assessment, for example?

The need for training

Academic

The academic raised concern about the time it would take to train both the tutor and the students, especially as it was felt that teaching staff are already stretched. The academic was anxious that the time needed would have to come from an already full curriculum. Therefore, the benefits would have to be made apparent to the tutor. The main issues here were "who would be training the students?", and "how and where would they be trained?" If someone else is going to provide that training, then who are these people? Where does the expertise lie? One has to include the need to train the students in the module in which podcasting is to take place. On the other hand, perhaps a broader view should consider the needs of the whole programme: one could end up repeating the same training across modules which could be a waste of the University's resources and a waste of the student's time.

There was an understanding in the meeting that many students have relevant skills that they can deploy. Perhaps if the tutors work with them on that basis there is potential for some sharing of skills among groups, rather than the University or the module devoting specific resources to training students.

The academic raised other concerns about resources and support: students would need equipment, e-portfolios, etc; staff would need technical support, which may not always be available. Above all there was concern about the initial investment of time and energy required to become familiar with new technologies.

Developer

The developer made the point that there will be different training requirements depending on what kind of podcasts are being produced and expectations about technical quality.

The developer also introduced the issue of copyright: that students needed to be trained on how to avoid breaking copyright law.

Student

The student rep presented a mixed response to this question but concluded that, in the long term, the skills would contribute to their employability and that podcast production encompassed a range of skills that may be useful in a number of careers.

The student wanted to know if it is realistic to expect the lecturer to be a technological guru as well as an academic. If they were going to turn to the IT staff

instead, was this realistic given that IT staff are thinly spread over the whole University and across a number of campuses? The rep warned that one person may well get an enquiry from a whole year group of 100 students! The rep reported that students without the necessary skills were concerned that they could be grouped with people who do not understand the technology.

Publishing podcasts

The chair developed the question. Is it necessary or desirable to publish podcasts so that people other than those who are directly involved in the assignment can hear them? Podcasts feeds and synchronisation, for example, only work if they are generally accessible across the internet. What options do we have? And what are the legal implications?

Academic

This was a difficult question for the academic, who certainly didn't know what the legal implications were. If the students produced a podcast, then it was felt that the students should own it and they should have a means of making it available to whoever they wish. But the academic didn't really know. "Whose material is it? Isn't there an issue of where they have chosen to put it? If they have produced it they can put it on YouTube, they can put it where they damn well please!"

The academic felt that staff would have no control over where students puts their podcasts, but there was a view that the University should not be using its platforms to share content with a wider public.

There were others concerns from the academic: if it was desirable, did this further complicate the use of technology? File outputs, for example, might not be transferable and standardised.

Developer

The developer again signalled the need to pay attention to the issues of copyright: there is a need for the University to protect itself from putting materials on its own systems that blatantly breach copyright, such as music that hasn't been cleared.

Other issues here include students' Intellectual Property Rights, students' data protection, and plagiarism, especially when plagiarism is possibly difficult to detect. However, the developer pointed out that all students at *this* university, as with others, sign up to a student charter in which there is a clause that work produced during their studies is owned by the University, although authorship remains with the student. It was therefore felt that existing policies would accommodate most concerns though may need to be reviewed.

The developer also highlighted the diversity of podcasts that would be produced and that some can be used in a more reflective way, and perhaps among peers in a supportive role. In such cases these might not be appropriate to share outside the group. Similarly, there may be podcasts in which the subject matter could be

misinterpreted, and so not appropriate for general publication. Publication should be purposeful, rather than a default.

Student

It was reported that students held a range of views about the publication of their work: if the work is made public there was some concern that it could be copied by someone else; IPR issues will need to be examined; there may be issues of plagiarism. The issue of the monitoring of the quality of the work was also raised: who would monitor what was placed on an 'external' site?

The student picked up on the point raised by the developer, agreeing that there are questions to consider about putting students in the public eye, especially if the podcasts used video. It was felt that video podcasting introduced new issues: how many people would actually like to be in front of the camera? Some students had said they would only feel comfortable if it was limited to their peers viewing their work.

The student rep suggested that the legal implications should be left to others, the academics or 'the University' to some extent, and that they expect a certain amount of protection. The University has to take that responsibility.

Any Other Business — other questions and ideas

What institutional policies and procedures do we need to pay attention to?

It was felt that clarification, perhaps through the review of policies and procedures, was needed and that it might be useful or necessary to build these into curriculum development processes in some cases. Issues that required particular scrutiny included: copyright (especially if distributing beyond the university); long-term storage; quality assurance; enhancement; student code of conduct and expected behaviour; ethics; plagiarism; security and access to students' work; the public image of the university and the danger of bad PR; abuse of facilities; cyber bullying; data protection; and design of assessment criteria.

What equipment will be needed? Will students be expected to provide their own?

The academic felt that provision of equipment should allow for flexibility. The University should be able to resource *all* students if necessary and the equipment should conform to a certain standard.

The student's view was that, even though many students have their own equipment, there shouldn't be an expectation for them to buy their own. They would expect access to a recorder of some kind and some way to download recordings onto the PC.

The student panel

Following the role play a panel session was run at the next SIG event involving five real students, referred to here as SHU01 and UoC01-04. SHU01 had recently completed a module-long group podcast assignment in the first year of a Journalism degree at Sheffield Hallam University. He came to the assignment with some prior experience of producing digital media on a BTEC course at college. UoC01 had completed a podcast assignment in the first year of studying for a degree in Geography at the University of Chester. UoC02-04 had received audio feedback on their work at the University of Chester.

The benefits of podcast assignments

When actual students were asked about the benefits of student-generated podcast assignments at the SIG's Glasgow event, they felt that podcasting was a useful skill to have in terms of employability and that their use as student assignments added variety to their assessment mix. However, the panel were concerned that they could spend more time working on a podcast assignment than is needed to write an essay.

One said that, "Employers want to see you have a range of skills" [UoC02] and another suggested, "It's more of a sense of achievement [to produce a podcast] than to write an essay as you have used more skills." [UoC03]

Training and support

The students said they were concerned about the amount of time they spent learning how to make the podcasts and then recording and editing their work.

"I knew how to use the equipment, but other people on the course didn't." [SH01] This was acknowledged by a University of Chester student who said, "It can be quite complicated to use, particularly if you don't know how to record." [UoC01]

One student suggested it would be useful to develop production skills in the first year and then build on these in the third year. [UoC04]

All students felt that it was crucial to have IT support throughout the assignment.

Facilities and equipment

Students had differing experiences in terms of facilities and equipment. At Sheffield Hallam students on the Journalism course had been given state-of-the-art recorders, whereas at Chester they, "had to provide our own kit. You could borrow stuff but you had to record it in the Geography building... [where it was] impossible to get complete silence. It needs a sound-proof room. I lived in halls of residence [and]... recorded in the morning when it was slightly quieter." [UoC01]

Audience

The Sheffield Hallam student [SHU01] had given some thought to the question of audience.

I think [having a real public] can be initially quite daunting, but I think it encourages you to make it better. If you just think your tutor's going to hear it then it doesn't encourage you as much... knowing that other people are going to hear it, knowing [who] your audience [are] changes your podcast completely. It makes it have a focus. That helped us a lot to actually make it relatable and suitable to everybody. [SHU01]

This student's podcast had been distributed on a public feed, primarily so that the students could subscribe to the podcast channel at home where they could listen to their peers more easily. Nevertheless, publishing the feed in this way meant that anyone, in theory, could have accessed the recordings. The tutor had alerted them to this.

[Having a global audience] added a bit of enthusiasm to make it a good podcast. It could be quite embarrassing if it was a load of drivel. It's not just your tutor, so it encourages you to make it as good as possible and not just rest on being OK... [SHU01]

Assessment

One student was concerned that a lack of technical ability might unfairly affect their mark.

It counts towards something as well, and if you aren't very technical... it may be only a certain percent, then that percent would be valuable to you... How are you going to distinguish between what's the IT and what's for the Geography? [UoC03]

Conclusion

The range of issues generated in the role play, and then later in the student panel, highlighted the complexity for an organisation in accepting innovation. This helps to demonstrate why a culture of managing risk effectively is critical for organisations that seek to innovate.

The role play and the student panel are themselves indicative of the creative ways we can engage each other through discussion. The role play's simple scenario highlighted how difficult it is, however, to have a general, hypothetical discussion – something that might occur at the outset of any innovative proposal between colleagues. Though the participants did well to immerse themselves in this unlikely make-believe 'Advisory Group' meeting, the role play demonstrated how the various concerns raised would, in reality, need to be addressed by various stakeholders working both locally and institutionally. In the main the participants discussed student-generated podcasting as a general technique and perhaps this is indicative of

how any group might understand it initially. However, discussing podcasting in a general way hides the nuances of real-world embedded podcasting activities in their various instantiations. Arguably, real benefits and concerns are revealed through actual implementation. The use of the student panel testimony, therefore, provides useful insight. However, the individual student accounts are not generalisable.

There was agreement between the role playing 'students' and the students on the panel. Both groups raised issues about the time it takes to produce a podcast, the importance of support needed by students in the production and publication of the podcast, and the concern that the assessment would be of the finished artefact rather than of the thinking that went into the development of the artefact's content.

The two approaches have generated a sense of the opportunity, challenges and the perspectives that might be expected. We hope that some of this thinking provides a starting point for others, on the implications of running podcast assignments.

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Academics as audio designers — approaches to the design of educational podcasting

Graham McElearney and Andrew Middleton

Introduction — designed interventions

Digital media technologies have been shown to be highly accessible and adaptable; however, the design of effective and manageable media may still present a challenge for the academic podcaster.

If one of the main opportunities provided by educational podcasting is found in the presentation of conversational voices, then it is important that the production is realistic, confident and results in engaging and provocative learner interaction, in class, online, or beyond formal educational spaces. Educational podcasting needs to be about more than just switching on an MP3 recorder to capture interesting and useful voices. It needs to be used decisively to change and enhance learner engagement. To this end this chapter proposes a set of design principles and a flexible design process.

Flexible media

The examination of audio podcasting in the chapter *Educational podcasting – understanding the opportunity* revealed it to be a flexible medium, well-suited to a learner-centred and democratised view of education for the 21st century. At the same time, the medium was seen to be versatile, equally suited to being a discreet quiet and personal tool, as it is to being energetic, loud and socially inclusive. Earlier, an analysis of podcasting technology revealed a palette of characteristics available to the designer. While audio capture and distribution can be impulsive, spontaneous and opportunistic, its general or specific use in the curriculum needs to be thought through.

Contextual factors

There are many factors that affect the design of educational audio applications and not all of these can be controlled by the producer. The needs of the learner, access to people and situations, the technological context, and the interest, competence and

confidence levels of producers and listeners, are some of the factors that will determine what is possible.

Access to people and situations

Where possible, audio design should take advantage of existing possibilities to avoid adding a layer of complexity and expense to productions. Extra costs can deter autonomous and creative innovation. Therefore, the designer should tap into existing expertise, as found in the following, for example:

- fellow teachers who can challenge or support ideas and model behaviour;
- employers who can provide access to experience and real world views;
- representatives from professional associations who can demonstrate the rigorous application of theory and ideas;
- networks who can discuss leading edge thinking and current affairs;
- the media who can highlight contentious debates;
- student mentors who can lead and support learners' reflection;
- peer groups who can offer views, feedback and a social context;
- public opinion;
- the questions, views and findings of the active learning community itself.

Some examples where available expertise and opportunities can be exploited include:

- the tutor team discussing and providing an assignment brief;
- a student group presenting knowledge for assessment;
- a lecturer illustrating concepts through an 'audio commentary' to inform discussion;
- members of the public offering a range of beliefs for comparison to be used in an essay assignment;
- individual students articulating their understanding for personal reflection;
- tutors or peers offering feedback;
- tutors or students sharing real world or simulated experience through a 'fly on the wall' technique;
- individual students reflecting on what has been done and learnt.

Further ideas can be found in Section 3 of *Digital Voices*, but this short list of ideas demonstrates the range of applications that are possible with a little thought.

Environmental and circumstantial design factors

Brown *et al.* (1989, p.33), talking about situatedness in learning, suggest that learning how to use a tool comes from understanding its application and its intended benefits within the context of the end-user, and therefore explicit rules for how to use technology are unhelpful without an understanding of context. Indeed, they go as far as to say, "It is not possible to use a tool appropriately without understanding the community or culture in which it is used."

Middleton and Nortcliffe (2010) list and categorise factors that may affect the design of audio feedback. Most of these factors apply to the design of other audio applications. For example:

- voices: the number, roles, tone and intent of the available voices;
- pedagogic requirement, including: the scope, detail, associated resources and methods of engagement, timeliness, application, urgency, method of access, subject/discipline, topic, teaching culture, action required;
- technical context: production quality, duration, timing of recording, location of recording, location of access, method of distribution, repeatability, size of audience;
- access and usability: the ICT literacy of tutors and students, accessibility requirements, cognitive and learning style preferences, cohort size, workload and study load, student readiness and expectations, signposting, and structure of the recording;
- institutional context, including: policies and procedures, tools, technical infrastructure, reliability of systems, and technical and academic support to tutors and students.

The factors identified from the cases of audio feedback presented in the above paper came from a retrospective analysis of what academics had done. This indicates that even though a designed approach is often needed, it is usually quite intuitive once the key constraints and opportunities have been highlighted.

Intuition, in a professional context, however, is best guided by design principles.

Design principles

Given a broadly defined notion of educational podcasting, it is useful to develop a sense of what a well-designed podcast looks like. An analysis of 90 responses to the question, “What makes a good educational podcast?” from educational developers and learning technologists taking part in several national podcasting workshops, resulted in the following guiding design principles:

- The podcast should be short and well-paced;
- The intention of the podcast should be clear;
- A well-signposted and structured approach should be used;
- A hook to engage the listener should be used in the first minute or so;
- A conversational approach should be used in preference to monologue;
- The role and level of expertise of participants should be established;
- The content and style should be appropriate for the learning context;

- The ideas and discussion should be focused, relevant and thought provoking;
- Listeners should be empowered to take specific action;
- Acknowledgements and references to sources and follow-up information should be available;
- The strengths and weaknesses of the audio medium should be taken into account;
- The production quality should be appropriate for the intended audience.

These are informing principles, not rules, and are intended to provide a starting point for developing approaches or for use in evaluating ideas and work.

Design process

The starting point in the educational audio design process is an examination of the learning outcomes to ensure constructive alignment in the curriculum, the teaching and assessment methods, and the learning environment (Biggs, 1999). Beyond that though, how should the academic proceed? Typically the process involves identifying the need, checking constraints, specifying a solution, implementing it, then evaluating and modifying it. Depending on the scale of the innovation, the process in reality may be quite informal, involving a tutor team conversation based around a number of questions.

Requirements analysis — what do we need?

Most design processes begin by establishing a design problem. The problem needs to be specified exactly by asking questions like, “What isn’t working well?” or “What would we like to change?”, and “Why?” In the case of a new module the designer would ask, “What are the intended outcomes for this unit of study and how can I best engage my students in achieving these?” It is important to be quite clear about the need before planning to use *any* learning technology, but this is especially the case when thinking about using audio: too ambitious or vague a response will blur the design focus, whereas the best audio design is likely to be highly granular and interventionary. Keep asking yourself “Why?” until your rationale is quite clear.

Identifying constraints — what can we manage to do?

A major design factor is cost. Cost in this case is likely to equate to production time and possibly assessment time, depending on the nature of the idea. That time, more likely than not, will be the academic’s own time in this age of user-production., though the time it will take students to produce or listen to podcasts is also a factor in some approaches. Thinking about cost in this way should result in a *change* to pedagogy rather than just an *addition* to it. Thankfully many audio techniques require very little time to execute: for example, an audio announcement each week

posted to the VLE is not only a good starting point for introducing audio into the learning environment, it should also be relatively quick, taking only a short time to draft the announcement, record it, and post it. On the other hand, personal audio feedback commentaries to students in a large cohort can be relatively time-consuming, although they should bring significant benefits.

Other constraints in education are the time of people needed to support or train the academic or their students, access to hardware and software, and the technical infrastructure for storing and distributing the media.

Design specification — what exactly shall we do and what is involved?

The design specification is a succinct statement of what will be done and how. In some cases more detail may be needed in the form of a script or an interview outline. Having precisely specified the requirement and the constraints, the designer needs to ask, “How can asynchronous voices help?” It is probable that the designer already has had some thoughts about this, indeed it is likely that a particular idea led to the original change process. However, it is useful to challenge initial ideas; design is often an iterative process as the designer learns more about what is possible and what has been done before.

Based on a good understanding of their specific context, the academic audio designer needs to be quite clear about how their proposed use of audio will help. For example, the requirements analysis may have identified that the students have no personal experience of how a key theory is applied in practice; however, the designer knows that there are people ‘in industry’ who could help to make this connection for them. The audio designer, therefore, needs to decide how to tap into this expertise: who should be involved, where, what level of detail will be useful, and what else could be gained from the same source or sources?

In terms of audio design, a useful question to begin with is, “Whose voice or voices will best engage the learner at this point?” As discussed earlier, it might be the voices of academics, professionals, experts, publics, mentors, peers or the students themselves. Would it be best to interview managers or the people on the ground? Or the people who use the product or service? Perhaps postgraduate students or students who have been on placement might offer the most useful insight? A mixture of voices and perspectives can reveal some weakness in the way theory is applied or the pragmatism in the approaches that are actually taken in practice.

The development of a design specification, therefore, should enable the audio designer to think around the options before precisely specifying what they will do. The design specification should describe one or more objectives in response to one or more requirement statements. For example:

In order to demonstrate how theory X is applied in professional practice, students will listen to the experience of three final year students who

have recently returned from placement, recorded as a group discussion. Following an introduction to the respondents, each will answer the question, "How, in your experience, was theory X applied at your host organisation?" The recording, lasting less than 10 minutes, will be used as 'prevision' material to the week 3 task on Professionalisation.

Thinking about designing with a 'small pieces loosely joined' philosophy (O'Reilly, 2005) may be realistic. This means keeping things small and granular and avoiding over-production, especially where the audio will be introduced in the lecture theatre, seminar room, VLE, or course document. In most cases learning technology and media can work best when they do not dominate the student's experience of learning; when they add variety, richness and insight. Audio, therefore, is best used selectively and powerfully, as in the case of media interventions, audio notes or digital audio learning objects as discussed elsewhere in *Digital Voices*.

Implementation, evaluation and revision

As with any design, it is important to evaluate the implementation of a new or revised approach. This involves returning to the original requirements and objective statements and reviewing the extent to which these have been addressed. This can be done by looking at evidence for what has been learnt and how, or by directly asking the target audience about their use of the audio and what might have made it even better. A decision can then be made as to whether more needs to be done.

In the same way that guidelines and principles, rather than rules, are more useful to the designer, it is often more realistic to look for rich qualitative data in evaluating the use of learning technology rather than quantitative data. In the case of audio, it is the effect of asynchronous voices that is important and this can be obscured if the analysis is superficial.

Typically, the exact method used in the first iteration of a learning technology will need to be modified. At the same time it would be unusual for a new approach to be a total disaster. Therefore it is important to find out what was good, as much as it is important to hear about what was not received well. Asking students for their ideas about how something could be improved is likely to be a lot more helpful than asking them if they liked it or not.

It is often difficult to make revisions and to seek feedback on the proposed changes before it is time to implement them again. Introducing new technology-enhanced methods therefore needs to be done by making incremental adjustments year-on-year. Starting small and keeping techniques well focused, therefore, is helpful when it comes to improving them or extending them later. Evaluating an approach mid-module can be useful too: the students can benefit from any immediate improvements and may be more forthcoming.

Designing in reusability

It is also worth thinking about reusability (Salmon and Edirisingha, 2008). This is not always possible as often digital audio is most effective when it is contextually specific, immediate and current. However, the development of a library of expert voices, for example, might be useful year-on-year or across modules. In this case reusability needs to be ‘designed in’ by avoiding or removing references to details that will limit its reuse later or elsewhere (e.g. dates, names, modules, levels, events, etc). Again, keeping pieces of audio short and highly granular is helpful.

Framing a discussion

Design often benefits from collaboration. This outline for a one hour conversation with a colleague offers a practical way to explore the possibilities of what can be done with digital voices. If you use it, write down your responses and feel free to deviate. You can begin by coming up with obvious answers and then challenge yourselves to find alternative answers: ask “What else...?” and “What if...?” Later review and revise your notes into a design specification.

Outline for a one hour conversation with a colleague	
Prompt	Things to think about
What do we need to do?	What <i>must</i> we improve? What would we like to make better or different?
How can we make this work for <i>us</i> ?	What is special or different about, <ul style="list-style-type: none"> • Us • Our students? • Our subject? • Our institution? • Where or when we teach or learn?
Who could help? List three people you could call on to contribute and think about the different ways their voices could help.	<ul style="list-style-type: none"> • How important are authoritative voices? • How useful is authenticity? • How useful are diverse voices? Could the useful voices be, for example: <ul style="list-style-type: none"> • You doing things differently? • Your students undertaking or reflecting on assignments? • Your students becoming more responsible or engaged with the course? • Other students as mentors? • Other students in an inter-professional dialogue? • Experts within the university or beyond? • People with stories to tell? • People from organisations with experience or questions to share? • People role playing? • The media? • The general public? • Special interest groups?

When and how?	<p>How would these recorded voices be integrated?</p> <p>How critical would they be? Would they augment, complement, or supplement other methods?</p> <p>How frequently would these voices be used or at what points specifically would these voices make useful interventions?</p>
What are the constraints you face?	<p>Would this need any money?</p> <p>Would you, or others, need any training?</p> <p>How much time would this take? And if you don't know yet, who could give you some idea about this? And have you, or others, got this time?</p> <p>What could you stop doing so that you are able to accommodate this?</p> <p>Does this need to be sustainable? And is it?</p>
Picture the listener	<p>Who would listen?</p> <p>Why are they listening?</p> <p>Are they alone or together?</p> <p>Where are they?</p> <p>What else are they doing?</p> <p>How are they reacting?</p> <p>What will they do next?</p> <p>Will they listen again? Why?</p> <p>How will this change them?</p>
Who is making the recording and where is it made?	<p>One person or a group?</p> <p>You?</p> <p>Different people each time?</p> <p>Students?</p> <p>Do they need to edit the recording? Why?</p> <p>Where is the recording made? For example,</p> <ul style="list-style-type: none"> • Studio • Office • Workshop • Lab • Workplace • Shop • Sport or health facility • On transport • Inside or out • Static or on the move • Several places over time

Conclusion

The design of educational audio is often intuitive; however, it is useful to be clear about the particular contextual factors that will affect its design. Design decisions will be affected by the module's learning outcomes, other associated methods and content, the practical needs of the students and the academics, the people available to the producer, the support available and the technical infrastructure. These and other factors can be constraining, but all factors should help you to think creatively.

There are some fundamental principles that should be considered in using educational audio. Above all, audio should usually be brief, focused, and clear in purpose, incorporating a conversational and engaging approach where possible.

By taking a designed approach, audio production should be an empowering, creative, enjoyable and proportionate process that inspires both the academic and the students.

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Digital audio learning objects — student co-operation and creativity in audio design

Richard McCarter and Andrew Middleton

Introduction

This chapter introduces the Digital Audio Learning Object (DALO) concept (Middleton and McCarter, 2005), a design methodology devised to support the co-production of engaging audio nuggets as a Design-based Learning (DBL) activity (Wijnen, 1999). DALO production involves students researching topics and then creatively designing and producing material for the benefit of their peers with the aid of idea generation and planning tools.

Drawing on an evaluation of the approach, the benefits of co-operative design around audio production and a supporting toolset are described.

Background

The DALO idea came from a convergence of interests: awareness of the under-utilisation of digital media in the curriculum; consideration of learning object development by academic staff and as the basis for student assignments; and the use of taxonomies as design tools.

Reflection by the authors on a taxonomy for educational media led to discussion about how the design of a resource's metadata prior to its construction might offer co-designers a useful design framework. This approach had previously been used by the Universities Collaboration in e-Learning (UCeL) to support the collaborative authoring of learning objects by academic staff (Leeder and Morales, 2004). Following UCeL's lead, the original intention in developing the DALO concept was to provide a useful aid to support staff collaboration in designing digital audio Reusable Learning Objects.

The advent of university VLEs as distribution platforms and the development of accessible digital media technologies signalled a potential shift from the existing model of central media production units to an end-user production model, thereby increasing scalability and appropriateness of content. Originally the 'end-user' was perceived to be the academic tutor. However, inspired by engagement theory (Kearsley and Schniedermann, 1998) and Collis and Moonen's (2001) notion of the

‘contributing student’, it soon became obvious that the DALO approach would be more useful in supporting the design and production of media objects by *student* groups making learning resource production a creative, meaningful, and authentic learning exercise (Kearsley and Schniedermann, 1998). Collis and Strijker’s view of learning object design (2004, p.8) demonstrated how “digital learning objects can serve important roles as resources, examples, discussion foci, or the products of learning when created by the learners themselves” without necessarily being primarily concerned with the ultimate objective of delivering knowledge. This use of learning objects exploits the idea that the best way to learn is to teach.

A DALO design methodology was developed to encourage greater exploration of digital audio as an accessible and highly flexible medium. The concept proposes the use of several tools to support the scoping, idea generation, design discussion, decision-making and planning of digital audio learning resources. Central to these tools, for example, is an annotated design proforma with 15 fields, which provides a useful common focus for group work.

Valuing creative co-operation in the DALO design methodology

The DALO concept is principally informed by four ideas:

- People are familiar with listening to spoken word on the radio in its many formats;
- The concept of reusable learning objects (e.g. “an aggregation of one or more digital assets, incorporating meta-data, which represent an educationally meaningful stand-alone unit,” Dalziel, 2002 p.23) provides a useful framework for the academic commissioning of project work;
- Co-operative design-based learning, within an ethos of communal constructivism (Holmes *et al.*, 2001), provides an authentic context for learning;
- A creative curriculum supports the development of essential twenty first century life skills (Loveless, 2002, p.2), while embedding excitement, stimulation, pleasure, satisfaction and meaningful, hard work into the learning experience (Jackson, 2002, p.2).

The ethos of the DALO approach, therefore, is that once the essential audio production techniques involved in audio production have been introduced to the student groups, the toolset equips them to embark on a well-framed, authentic and meaningful learning activity; one that is open-ended and that allows them room to explore their individual and collective creativity.

The technical process

The process of recording and editing digital audio is likely to be new to most students and staff. It is nevertheless quite a simple media to introduce: recordings are made, edited and assembled using copy, cut and paste techniques similar to those used in word processing. Digital productions are saved as audio files which work in the same way as the music files commonly shared among students.

The editing process is simpler than word processing: the linear format and the waveform representation of data deter extensive, detailed manipulation that might be expected or demanded by other media. Audio editing software packages like *Audacity* show a waveform on a timeline representing the recorded sound which is manipulated using a selection tool in a way that is similar to text selection in a word processor. Once selected, parts of the waveform can be enhanced, moved or deleted.

Software like *Audacity* also allows producers to make new recordings by attaching a microphone to their PC and then interacting with an interface that resembles a traditional tape recorder. New chunks of audio can also be imported into the production allowing the producer to bring multiple sources of audio together. Technically, therefore, a complex audio 'programme' can be assembled quite easily using familiar interfaces and techniques. Even where audio production is new to students and their tutors, incorporating audio production as the basis of a student assignment is likely to require minimal introduction and support.

Co-operative audio design

The process of audio production is particularly conducive to co-operative design (Kirschner, 2001), arguably more so than many other forms of group work. From a design perspective, unlike in the production of written work, there is no need to be concerned with spelling, formatting and protracted academic sentences. Instead, the designer-producer thinks more in terms of the arrangement and structure of voices, their setting, pacing and juxtaposition. The whole process is more open and immediate than many other academic methods, and this allows for a creative and rewarding focus on meaning, structure, and the selection of found or captured voices. The challenge is to bring these voices together as an engaging and meaningful whole. The design discussion around 'meaningful whole' is where the rich learning happens.

Importantly, the nature of the content also has a quality different from other media. The focus on voices emphasises implicit meaning; empathy, anger, fun, anxiety, and so forth, can be used to clearly communicate ideas with few words and broad brush strokes. The voices can be from extant recordings, loosely orchestrated discussions, semi-structured interviews or highly scripted presentations. They can be familiar or unknown; they can be monologues, dialogues or multi-participant discussions;

formal or informal; authoritative or speculative; unified or diverse; lively and loud, or quiet and considered.

Above all, audio provides plenty of scope for co-operative design and creativity, requiring designers to decide how voices can be brought together to explain, illustrate, interview, discuss, dramatise, narrate, orate, observe, review, guide, report or reflect.

Audio provides a palette of opportunities for the student designer; perhaps too many opportunities. The danger is that the students will either quickly settle into taking the most obvious approach or they will spend too much time playing with all the possibilities. It is important that they pause for thought by working through a structured design process.

The DALO toolset provides the required structure.

The DALO methodology engages learners in the production of a written artefact (i.e. the design specifications and plans) as well as in the production of the resulting audio learning object. In addition a personal log is likely to be made. All of these artefacts can be assessed and can be used to support the learner's own reflection on their contribution and the decisions that were made.

Collaboration is important. Brown *et al.* (1989, p.40) highlight the benefits of collaborative project work. The process of collective problem solving, they say, is not just a way for individuals to acquire knowledge from their peers, it provides an opportunity to synergistically uncover insights and arrive at solutions that would not otherwise come about. In their theory of situated cognition, each individual not only carries out their role, but through their mutual dependency, develops understanding of the role of their collaborators.

Ziegler *et al.* (2006, p.296), referring to the work of Stahl (2003), describe how collaborative learning emphasises the role of the group in knowledge-creation. The value of a collaborative task can be heightened by encouraging metacognitive engagement (McLoughlin *et al.* 2006).

Engagement with the processes of design and audio production, therefore, can facilitate deeper learner engagement with and around the topic of learner enquiry.

Finding the learning value — process or product?

The benefits to the learner involved in the process of designing and creating DALOs are various and, for assessment purposes, will be formally identified in the specified or negotiated learning outcomes. However, the value of DALO design-based learning is likely to be found in teamwork, communication, project management, and creativity as well as in the study topic and required knowledge acquisition. It shows learning to be a collaborative, rather than competitive, experience.

An important aspect of the DALO methodology is the expectation that the product has a social purpose beyond the design and construction process; the intention is that students are driven by an expectation that the products they make will contribute to a collective pool of learning objects. Furthermore, the posting of the audio to the module resource bank allows the learner to self-assess their contribution alongside that of their peers.

Collis and Strijker (2003, p.7) propose that the benefits of reusable learning objects are not necessarily found primarily in the presentation of instructional content from elsewhere, but where there is,

a strong orientation toward learning from experiences, from one's own and from those of others. This involves a pedagogical shift, away from an emphasis on learning as acquisition of predetermined content, toward a balance that includes or even emphasizes learning as participating and contributing to the learning experience in a way which can be captured and reused by others.

There is a tension between the learner's view of the valuable end product (the DALO) and the tutor's aim to facilitate a valuable high-energy collaborative activity. Finding the best balance between assessing process and product will be decided by particular local contexts rather than in the DALO methodology itself.

The DALO design tools

This section describes three tools that guide student groups through the DALO design process: the engagement design tool; the DALO idea generator; and the DALO design form. A design flow presents the team with a visual overview of the process. Insight is given into the purpose of each tool, how it is used and how the toolset was developed, evaluated and refined.

The DALO assignment

DALOs are short and either detailed and subject-specific (low granularity) or generic and less subject specific (high granularity), and so easier to reuse.

The aim of each DALO design team is to create a short, punchy and 'colourful' audio file, with a tight educational focus. The audio learning object is intended for reuse either 'vertically' through educational levels or 'horizontally' so it is relevant across the subject area. The starting point for each team is a stated learning objective. This provides the basis for the design teams who are challenged to use voice creatively as a way of humanising the presentation of, or engagement with, content or activity relating to the objective.

The engagement design tool

The design process begins with the group deciding how they will engage their audience. Will their aim be to just get them interested in a topic, or perhaps to build

on what they already know? Maybe they will decide their purpose will be to call their listeners to action? To help the design team focus on what they will produce, a set of suggested actions is presented in the Engagement Design Tool: *catch, sensitise, establish, activate, inform, expand, reinforce, conclude* and *connect*. Each action is accompanied by a list of synonyms and keywords so that the group has a shared language around which to discuss their ideas.

The provenance of the Engagement Design Tool is the work of Koumi (1991) whose ideas on *Pedagogic Screenwriting* have been adapted to help design teams craft the DALO content and turn ideas into a script with a style of its own.

DALO idea generator

Having decided how they intend to engage their listeners, the team next consider scenarios from everyday real life that offer them a creative context for their piece of audio. The idea generator describes situations in which the human voice is a central component, listing them as scenarios and sub-scenarios. Again the intention is to arm the design team with a variety of ideas and a language to support their own conversation as they begin to commit to a plan of action. The tool is intended, therefore, to scaffold constructive discussion until the team has enough momentum of its own.

Scenarios such as *interview, illustration, story, commentary*, and *observation* lead to examples of situations that may provide the basis for the team's own DALO. The sub-category *proceedings*, for example, suggests "A project management meeting" or "Legal proceedings". The various scenarios suggest ideas for how multiple voices can be used in different ways: the *interview* scenario for example contrasts with the *debate* and *discussion* scenarios.

DALO design form

The *design form* is used to guide the team through the design process, ensuring that they make commitments to their ideas along the way. They begin by stating an objective and deciding on a meaningful title, then write a general description and note their engagement idea and scenario, before developing an outline storyboard or script. The completed template becomes their considered plan and allows the recording of the DALO to commence.

Evaluation

The DALO method was introduced to academic staff, learning technologists and students in a series of seven one-hour workshops run within the authors' university and at an international student conference on e-learning. Participants were introduced to the concept, the technology and the DALO tools before being put into mixed-role groups of about three people. The groups were assigned various topics,

selected to be relatively neutral given the diverse make-up of the sessions. They were then asked to design and create a DALO.

Following the workshop each participant was invited to complete an evaluation questionnaire that sought to capture their views on three aspects of the concept: 1. The strengths and weakness of audio as a medium for user-generated content; 2. Working together; 3. The tools and the concept. The survey used a qualitative approach primarily designed to capture their immediate impressions following the production of their first DALO and, secondarily, to inform improvements to the toolset, which were made as feedback was received from each workshop. The findings that follow, therefore, report in a general way on the concept of supporting a co-operative approach to audio design facilitated by a creativity toolset.

The DALO concept was new to all those attending the workshops and, in nearly all cases, the respondents had not used digital audio in any teaching or learning context before.

Participants were asked about the special qualities of audio. The responses were diverse and included:

- a quick method for engaging students;
- encouraging interactivity;
- currency of information;
- small file size compared to video;
- useful for recording live conversations;
- direct, easy to remember, content;
- greater depth and texture than full text;
- you don't have to read;
- imaginative, portable, cheap, easy to use.

The questionnaire asked participants to identify any perceived shortcomings with the medium. They suggested:

- it is not so appropriate for items that need more time;
- it is not always the most effective medium and so could be unnecessarily constraining;
- no context other than the voices of the actors;
- more than one voice at a time creates chaos (e.g. discussion);
- environmental noise could result in unclear sound;
- the context can be lost easily with bad editing;
- the medium is not suitable for all students (e.g. disability);
- it can take a lot of time to design, record and playback;
- it requires playback technology for group listening.

When asked about the 'ideal size' for a DALO some took this to mean duration, others download time, while some understood this as meaning the scope or

granularity of the subject matter. There seems to be general agreement that DALOs work best when they are brief and that, given the lack of visual stimulus, five minutes is normally more than long enough. One person explained “Too long is worse than too short.” It was also suggested that the ‘small’ focus enables greater reusability, while it may be helpful if groups see themselves as contributing one piece to a greater, shared resource.

The questions then turned to look at the idea of designing content collaboratively. Respondents were asked to indicate their personal preference for working collaboratively in designing learning media using a five point scale. 92.5% said they preferred to work with others, though this is likely to be skewed by the nature of the workshops which invited people to experience collaborative design. However, the comments that accompanied this response indicate how participants enjoyed having access to each other’s ideas, the inclusivity of the process, the feeling of support, and the feedback from peers. Others also noted that they enjoyed the mixed approach used in the workshops (academics, students and technologists). “More people bring more ideas” was a typical comment. Some appreciated the “discussion before decision” approach enabled by the design template.

When asked for drawbacks with the collaborative approach, several pointed out that they ended up with “too many ideas!” and that reaching consensus could be problematic. One said they had “no room to think” and another suggested that specific roles should be assigned, especially a leadership role, to ensure the discussions stayed on topic and that timely decisions were made.

Respondents were asked if two hours provided enough time to produce a DALO. In the workshops participants had been limited to about half an hour, so the question acknowledged the pressure they had been working under. It also implies that the quality of output is important, whereas in a student activity it is likely that the design conversation itself is likely to be at least as beneficial as what is finally produced. Everyone believed that two hours would be more than enough and comments such as “time pressure can motivate people to deliver good products, but the product will be small” captured the general feeling. One person commented “Yes, but it needs to have a limited perspective and be straight to the point,” and this explains how important the time constraint is in keeping the design focused. Because of the general topics set for the workshops the question of associated research time was not evident in the responses. A preparatory research activity may be important in informing students’ DALO activities.

The toolset was generally found to be usable. In particular, the design flow diagram of the process and the design template both worked well. The idea generator was also well received, though participants did not have enough time in the workshops to explore the many possibilities suggested in it. The engagement tool went through a lot of revision during the course of the workshops. The authors found that workshop groups favoured the ‘hook’ approach, in which they were involved in

designing a way to catch or engage listeners' initial interest in a new idea or topic. This may be down to the use of general, neutral ideas in the workshops themselves, and the lack of resources and time for design groups to draw on. Therefore it may be that, in student DALO assignments, the tutor determines how the designers should aim to involve their prospective listeners as part of the assignment brief.

Conclusion

The DALO methodology exemplifies a DBL approach in which students work as a design group, caught up in an intense and meaningful activity as they explore a research question or discuss a current topic. The activity is intended to reveal their capacity for creative thinking, problem solving and group work, benefiting from a set of design tools that encourage them to work independently.

The workshop evaluations highlight the need for clear communication in the setting of the activity and in the tools that facilitate it. The use of document-based design tools can supply clarity, especially the annotated flow diagram that offers a useful overview of the process. It may be useful in some cases to run a research activity beforehand so that the students arrive at the DALO design activity with useful data which they can then collectively synthesise and represent in the audio format. It may also be useful to seed the DALO design process by making the idea generator tool available before the design session so that learners arrive with a sense of the diverse approaches they can take. The design activity is likely to be enhanced by being kept short and well-structured, with roles assigned to ensure that discussion is kept on topic, with decisions made and recorded speedily.

The DALO approach contrasts with longer learner-generated podcasting projects, with its intensity highlighting how diverse ideas can be generated collectively in a situation that is well-structured and constrained.

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Sound infrastructure for academic innovation

Susannah Diamond and Andrew Middleton

Introduction

I did get a bit of a run-around on uploading video. I contacted [our Faculty e-learning specialist], who directed me at someone else [an Assistant IT & Learning Support Adviser], who directed me at [the Media Materials & Copyright Team Leader], who directed me back to the 'someone else', and I now think I'm going to be able to put the material on the streaming media server. But it wasn't an easy route..... this is what I think is the major stumbling block (or one of them) along the route to 'Digital Fluency'. What should look to the 'user' as a fairly simple task - eg 'putting some video on a streaming media server' - turns out to require persistence and the ability to talk the language of the right people. Uploading to YouTube is relatively easy. I can set up an account in a minute or so, and be uploading material in no time... Getting material onto a server in [the university] is often quite a complicated task, and requires considerable knowledge and persistence beyond what is needed 'in the outside world'

(Email from a Senior Lecturer to an educational developer, [a UK] University)

The quote above expresses the difficulties faced by academic staff in higher education institutions (HEIs) in attempting to use digital media. They often have to find their way within a tangled network of services to find an adequate solution. It illustrates how digital media infrastructure, the subject of this chapter, encompasses a complex combination of technical, human and organisational systems. For the purposes of our discussion here we define digital media infrastructures as the physical and organisational structures needed for the effective and innovative use of digital audio and video within HEIs.

This chapter arises out of the authors' experiences as educational developers at a teaching-oriented university of encouraging autonomous media production and pedagogic innovation among academic staff and students. While academic staff enthusiastically participate in workshops about the potential of digital media to enhance the curriculum, only a small percentage appear to follow through. The research discussed here reveals a deterrent complexity in terms of equipment, systems and support, which leaves staff unsure of how to proceed and suggests that

institutions should review and improve their infrastructural provision so that it does not inhibit innovation.

The chapter outlines the status of the sector's current institutional digital media infrastructures and considers factors affecting future use and support for digital media.

The current state of media infrastructures

The authors have previously undertaken research into the status of media infrastructures in a range of HEI institutions (Diamond and Middleton, 2009). This research was based on a small survey of individuals with responsibility for, and interest in, educational and technical development in UK HEIs, and a focus group involving 27 academic staff, learning technologists, educational developers and managers conducted at a MELSIG event in 2009. Both methods drew on a number of categories proposed by the authors as key elements in a functional digital media infrastructure. The results provide a snapshot of perceptions about institutional media infrastructures.

Respondents to the survey were asked to identify *enabling factors* which support the use of digital audio and video in their institution. The results are summarised in Table 1.

<i>Table 1 Elements noted as enabling factors for current media infrastructures</i>

Leading institutional change	
Institutional leadership	<p>Recognising and supporting pedagogically-led changes in institutional provision, e.g.:</p> <ul style="list-style-type: none"> ▶ High-level support from senior management; ▶ Strategic organisational alignment (e.g. Institutional Plan; LTA Strategy); ▶ Co-ordination of services.
Educational development	<p>Raising awareness of opportunities and challenges relating to innovation, e.g.:</p> <ul style="list-style-type: none"> ▶ Specific staff-facing advocacy projects that highlight various aspects of digital literacy such as IT confidence, critical thinking, and alternative assessment media; ▶ Liaising with and developing awareness in central services; ▶ Projects which promote media-related skills and reward motivated individuals; ▶ Supporting early innovators and sharing outcomes as best practice case studies.
Support methods	
Skill development	<p>Training and supporting staff and students in becoming confident practitioners, e.g.:</p> <ul style="list-style-type: none"> ▶ Self-help support materials and articles; training via skills workshops; 1:1 support; development days and specialist courses for staff and students; peer mentoring and information at induction; ▶ Just-in-time advice from staffed helpdesks, student 'helpers' and enthusiasts and an institution-wide network of academic and technical 'experts'.
Technical provision	
IT networks	<p>Facilitating transparent communication within and beyond campuses, e.g.:</p> <ul style="list-style-type: none"> ▶ Fast, high-quality, authenticated, and resilient (fully meshed and backed-up); ▶ Local TV network, including podcast, vodcast and extra-curricular channels.
File storage	<p>Supporting the safe storage and retrieval of media projects, e.g.:</p> <ul style="list-style-type: none"> ▶ High-capacity file storage, fail-safe, and future-proofed against demand; ▶ Storage and distribution options including streaming media servers, media repositories, and remote access provision.
Production equipment	<p>Easy-to-use equipment for producing audio and video projects, e.g.:</p> <ul style="list-style-type: none"> ▶ Access to software and hardware, including mobile devices and online help: equipment is available centrally or locally for loan or hire; ▶ All PCs support media editing; new PCs have relevant software and connectivity.
Systems for sharing media	<p>Facilitating staff and students in directly sharing media with a range of audiences, e.g.:</p> <ul style="list-style-type: none"> ▶ Digital media repository systems (proprietary or in-house); ▶ Simple IT systems available to students and staff, e.g. for recording and publishing students' presentations and discussions; ▶ User access to streamed and downloadable resources including download of copies to personal devices.

The survey revealed problems in current infrastructure, as well as positive attributes. Participants in the MELSIG workshop were asked to use the same categories to identify *areas of weakness* in their institution's digital media infrastructure. They identified diverse barriers that can be organised as practical, pedagogic and organisational factors (Table 2).

Table 2: Factors inhibiting the user-generation of digital media for learning in UK HEIs

Practical	<ul style="list-style-type: none"> ‣ Difficulties uploading large files ‣ Non-networked storage silos ‣ Fragmentation — support staff are unaware of all services available ‣ Gatekeepers and a lack of transparency
Organisational	<ul style="list-style-type: none"> ‣ Absence of relevant policies ‣ A lack of co-ordination across stakeholders (IT, academic, technical, legal, etc.) ‣ Different drivers and lines of management ‣ Inability of some production facilities and teams to respond effectively, appropriately, consistently and quickly to unfamiliar requests
Pedagogic	<ul style="list-style-type: none"> ‣ Difficulties communicating the benefits of digital media for teaching and learning ‣ Digital media literacy not yet sufficiently or effectively addressed ‣ User-generation and sharing of digital media for learning is not common practice

While there were signs of problems in all of the categories, inadequate leadership and co-ordination stood out. Participants reported that development priorities were not understood or shared within institutions, and that infrastructures were “designed for a different era”. Sometimes the issues were about fitness for purpose: “Senior managers know absolutely nothing about technology-enhanced learning... they simply don’t know what to do with e-learning or technology.” Continuous organisational “chopping and changing” compounded inadequate development. A picture emerged of too many uncoordinated silos of activity, holding back the development of comprehensive, accessible and understood infrastructures. Participants concluded by agreeing that institutional infrastructure is a weak link that will hold back academic innovation in the widespread creative use of digital media.

In evaluating the survey responses and discussion it is clear that the fragmented nature of infrastructural provision within HEIs makes it difficult for individual respondents to have a useful overview of institutional infrastructure. However, this review provided a rich picture of the elements which contribute to media infrastructures within the sector. It demonstrated the need for further development work, preferably underpinned by clear strategic co-ordination, and supported by communication with all stakeholders.

By way of a postscript to this research, it is worth noting that the barriers revealed in this study contrast markedly with staff aspirations. At about the same time, in a different MELSIG debate involving 70 participants with a mix of academic and educational developer roles, all but one agreed with the motion “We believe that digital audio’s potential to further and higher education is as a ubiquitous and flexible medium that can be adapted by any academic to enrich the learner experience.”

This, then, is the problem: people with a variety of roles and responsibilities in education are ready to use digital media in its many forms to enhance learning, but our learning infrastructure is not suited to the job, and without an adequate infrastructure, the active use of digital media will remain an under-exploited, niche activity.

Having painted a picture of the current status of educational digital media infrastructure, we now turn our focus to how it has been developed to date.

Innovation complexity, interdependency and the changing digital landscape

Infrastructures are innately complex. Complexity arises as infrastructure is developed in *ad hoc* ways in response to emerging technologies, resourcing, and the interests of particular personalities. In considering case studies at Northwestern University Library, Duke University, and Wesleyan University, two aspects of complexity stand out: integration between technical systems, and collaboration between organisational service units (Stewart and Cervone, 2003; Belanger, 2005; Green, 2006).

In developing infrastructure, there is a need for compatibility between what is new and what already exists. Leaders therefore need to be able to assess just how new or different technologies are and whether existing infrastructure should be modified, replaced or extended. Organisational complexities in terms of ownership, vested interests and interdependencies may again be important.

There is an intricate interdependence between technological readiness and pedagogic adoption. Development work would be accelerated by proving the pedagogic case for the use of media in education, but until adoption is underway, it remains an “act of faith” (Cole, 2000) and therefore it is difficult to justify the required investment – either in technology or support infrastructures. Agile leadership is essential in responding to emerging good practice and trends (for example, the change in tutor-student relationships due to pervasiveness of digital social media technology as reported by the Committee of Inquiry into the Changing Learner Experience in 2009). The interdependence between institutional ‘push’ factors and personal ‘pull’ factors (Bates *et al.*, 2007, p4) can result in an *impasse* that can only be resolved through institutional leadership.

Emerging technologies and their corresponding emerging pedagogies are part of education’s continually changing landscape. Many technologies, especially student-owned devices, are in continuous flux (Traxler, 2008), as are the purpose and shape of our physical spaces. As the “Interaction Age” (Milne, 2007, p2) takes shape, we should expect “flexible, technology-enabled learning environments that slip easily between real and virtual spaces” to become more prevalent (Valenti, 2002, p52). In this view of ubiquitous and interactive mobile learning, institutions should also expect greater use of devices capable of generating learning media in the formal, semi-formal and informal learning environment.

In addition to changes in user-devices, the possibility of using externally hosted software applications may make the notion of isolated institutional technical

infrastructures altogether obsolete (see Fig. 1: An Emerging Landscape of Software Services).

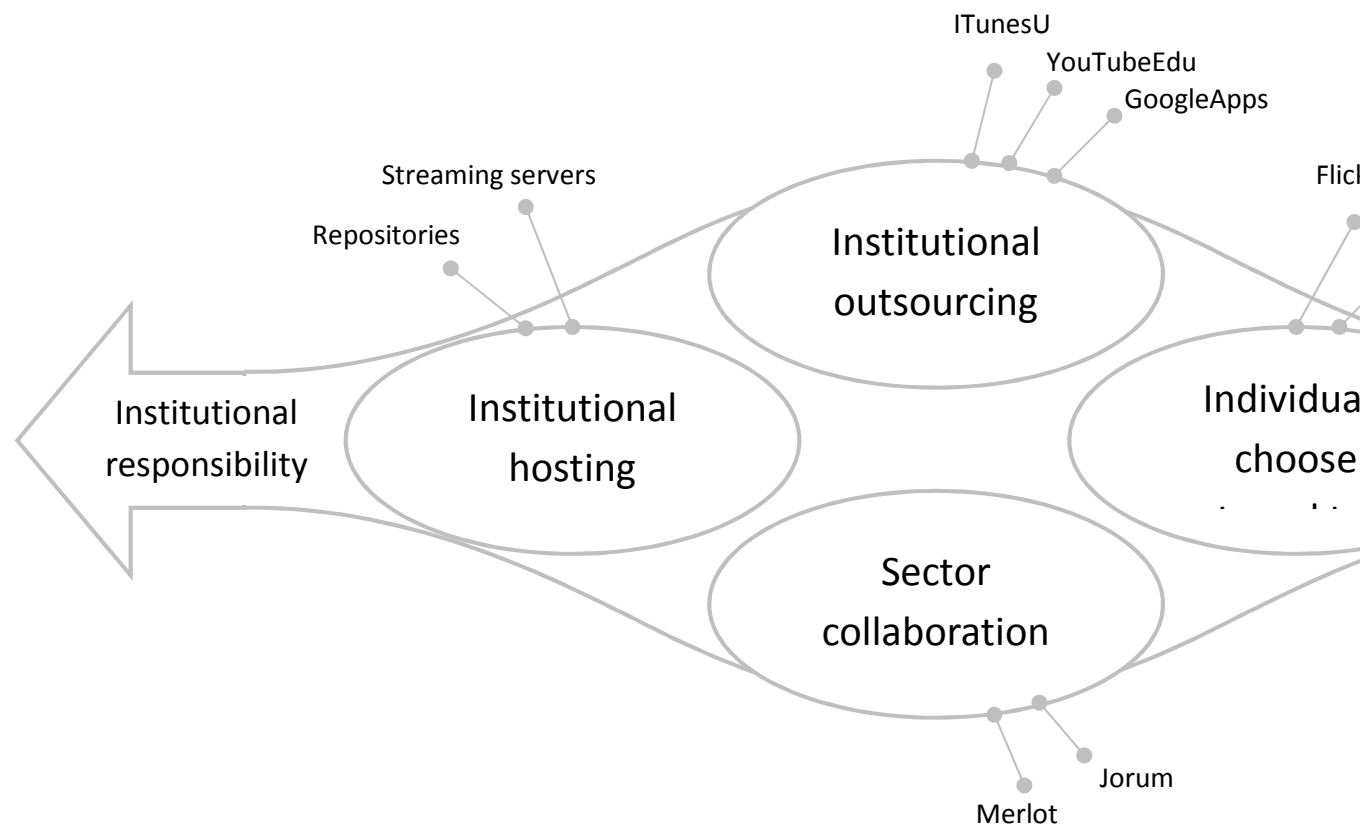


Figure 1. An Emerging Landscape of Software Services

This diagram describes a continuum between institutional responsibility and individual responsibility in the location and choice of software used by staff and students. In the centre of the diagram, two further options are evident: institutional outsourcing and sector-wide collaboration. The latter, for example, is the focus of HEFCE investment in the UK (HEFCE, 2011).

Options such as ‘software as a service’ or managed services are already making IT outsourcing a reality for some institutions, although lingering challenges remain (Panettieri, 2008), and some argue for simply using or retrofitting existing tools (Gould and Unger, 2008). Sector-wide collaboration can be an effective use of public sector funding. For example, the Steeple project focused on streamlining enterprise level podcasting across the HE sector. The answer to developing an accessible, supportive and responsive infrastructure may therefore lie outside of our institutions.

Students and staff are gradually adopting Web 2.0 applications as they increase in availability and sophistication (O’Reilly, 2005; Greenhow *et al.*, 2009), and the future path of institutional infrastructures may simply be to work at removing institutional barriers which prevent them from using externally available tools and services. As

the Open Scholar agenda develops (Anderson, 2009), views about the extent of institutional control over, or even support for, users' activities in the Web 2.0 and Learning 2.0 (Seely Brown and Adler, 2008) domain may change considerably. Furthermore, scaffolding students in becoming confident and critical users of real-world online applications can be seen as essential to the process of developing digital literacy in graduates.

To sum up, issues of complexity, compatibility, co-operation and interdependence, leadership, and the capacity to manage ongoing change will continue to affect the extent to which the development of effective institutional media infrastructures are desirable and achievable. The ongoing flux in ideas, technology, spaces and pedagogy make attempts to establish suitable infrastructure seem like vague shots in the dark. Nonetheless, institutions need to take note of what is happening and look at how innovation can be encouraged. Agile and astute leadership is critical in responding to emerging technology and innovative pedagogy. Furthermore, in the section that follows, we argue that academic innovators can and should develop their own capacity to influence the development of institutional infrastructure.

Influencing future developments

The experiences and conclusions of others highlight several factors that affect future infrastructural development. Rogers' diffusion of innovation theory (2003) sets out five stages associated with identifying and implementing innovation: knowledge; persuasion; decision; implementation; and confirmation. Perry (2006) identifies several characteristics that determine how innovations are accepted: compatibility; complexity; observability; relative advantage; and trialability. These are discussed more fully by Bates *et al.* (2007) in their review of models for the adoption of ICT innovations in higher education, but they help to explain why the changing digital landscape feels fragmented within our institutions. Martins and Terblanche (2003) suggest that innovation flourishes only when five conditions or factors are aligned: strategy, organisational structure, support mechanisms, culture, and communication.

Academic staff have an important role in influencing the institutional development of appropriate infrastructure for the creative use of digital media. The change models identify the importance of being able to articulate benefits and underpin these by evidence. It is both the responsibility and prerogative of academic staff to take on this role within the institution. This does not have to involve much effort or a change in their role; individual innovators can affect institutional change in small ways by mentoring colleagues, writing short accounts for local newsletters, and letting other influential people know what has been done. In terms of pedagogic innovation, evidence often takes the form of rich stories and personal accounts. Innovation can be championed and co-ordinated through national and global networks, and presented as case studies in the literature; however, due to the complexities already discussed, it is important that experience is clearly expressed at institutional levels too. There are other ways to affect change and some of these involve making sure

that like-minded people come across each other. Table 3 suggests some ways of achieving this.

<i>Table 3: Ways to influence the development of suitable infrastructure for user-generated digital media</i>	
Strategic alignment	<p>Be informed by, and seek to affect, institutional learning strategies and policies, e.g.:</p> <ul style="list-style-type: none"> ▶ Understand strategic priorities and, where appropriate, ensure your ideas align with these; ▶ Contribute to the development of local and institutional strategies and policies, especially if you have identified how they unnecessarily hinder innovation; ▶ Discuss your ideas in relation to existing institutional priorities so that your work is seen to contribute to the progress of the university.
Pedagogic expertise	<p>Develop your capacity to argue the case that the effective use of digital media can enhance the student experience of learning:</p> <ul style="list-style-type: none"> ▶ Be clear about the pedagogic benefits of user-generated media to your specific context, and more generally, so that you are able to challenge technologically determined positions. <p>Use, generate and disseminate evidence that describes the benefits of digital media-enhanced learning, e.g.:</p> <ul style="list-style-type: none"> ▶ Find examples of what other people are doing at your institution and beyond; ▶ Test out the techniques yourself without students using the systems provided for you, as far as possible, and report on your experience; ▶ Undertake low-risk trials with students and record difficulties, and how you addressed them, as they happen; ▶ Evaluate your work and identify what is specific to you and what is generalisable; ▶ Work with collaborators to run parallel initiatives to validate your findings; ▶ Use simple qualitative methods to demonstrate learners' engagement including surveys, interviews and digital case stories including those made by students.
Dissemination and networking	<p>Share your own practice, and find examples of similar innovations, e.g.:</p> <ul style="list-style-type: none"> ▶ Seek peer review of your own ideas or develop techniques with others to improve their quality; ▶ Make support materials, assignment briefs, examples and evaluation tools (etc.) that you have produced available for others to use and develop; ▶ Join, or establish, local/institutional special interest groups on media-enhanced learning. Make connections with sources of support and enthusiasm in the institution; ▶ Become friends with people responsible for every aspect of the infrastructure. It is likely they are looking for people who can help them make sense of it all; ▶ Disseminate your findings at internal events, and through external conferences and papers; submit case studies to local and institutional LTA success story repositories; ▶ Go beyond the institution to find other sources of support — invite external experts, and peers from other institutions, to help key stakeholders understand how other institutions value and support practice.

Reflections

It feels as though HEIs should be on the cusp of mainstreaming the creative use of digital media, through the democratisation of media production and its management. It is no longer enough for institutions to simply provide *access* to sourced media: the emphasis now should be on user production and sharing. However, we write in a fast moving field: our own understanding of the issues of digital media infrastructure development has moved on during the writing of this chapter. The potential for outsourcing and cloud computing has taken on a far

stronger reality for us in recent months as our own institution selected the externally hosted Google Mail service for student email, and it is likely that, by the time you read this, other emerging issues or opportunities will be apparent. In the context of outsourcing, some of the relevant issues and strategy have already been explored through the wider debate about outsourcing in HE (see for example Currie, 2008).

Although some staff are taking the lead in demonstrating innovative practice, this often involves workarounds and risks in trying to compensate for inadequate infrastructure. It does not seem reasonable for academic staff and their students to wait for internal service units, 'the media cloud', or for leadership to catch up with their emerging pedagogic needs and practice when effective methods for enhancing learning with media are already evident.

The actions proposed in Table 3 above are grounded in our experience as educational developers, and the knowledge that such early adopters of technologies (both students and staff) are essential partners in our work. While individual staff may not immediately recognise the benefits of such activities, we recognise that informed voices are important drivers of institutional change.

Conclusions

Although media production is now both cheap and easy in the world beyond education, and despite the investment made by UK HEIs intermittently over the years, there is often a mismatch between current institutional provision and what could be done to encourage a vibrant culture of creative media use. Because of this, academic staff are faced with navigating a complex and ever-changing landscape of technological, cultural, and organisational infrastructure provision. In the meantime risks will be taken as staff and students find workarounds.

This chapter has outlined the state of institutional infrastructures for digital media at a critical point in the ongoing development of blended learning environments. It has illustrated the practical, organisational, and pedagogical barriers that staff and students may encounter; has suggested that without institutional leadership and co-ordination, the academic exploitation of digital resources will remain under-exploited; and calls on staff to engage with the challenge of developing the culture and infrastructure for creative use of digital media.

In order for staff and students to become confident and fluent in creating and sharing media, HEIs need to close the gap between the expectations for, and the reality of, institutional provision. It needs to be better co-ordinated, more responsive, and as simple for the end-users as the environments they encounter beyond the institution. To ensure effective infrastructure development within HE, the grassroots must engage with institutional managers so that historic attitudes and provision can be realigned to meet the needs of the 21st-century learner.

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SECTION 2 — CASE STUDIES

This section presents a collection of short case studies from post-compulsory education that, together, demonstrate the versatility of digital media drawing on the experience of academics, students, and educational developers.

In all of the cases, the stories here reflect emerging interests, creativity and innovation. The stories are also pioneering and exemplify the critical academic curiosity that is needed for learning technology and media to affect the quality of the student experience. For that reason many of the authors here were asked to bring themselves into the stories, thereby revealing not only what was done, but also what conditions led to the innovation.

Audio feedback in particular is shown to be an area where academics have demonstrated their versatility in using digital voices to address the challenge of offering the learner timely, personal and meaningful feedback, while other cases highlight how video and Web 2.0 technologies have been used to engage learners.

The authors explain what the digital voice has meant to them, what has worked and what has not worked so well.

A journey through audio feedback

Anne Nortcliffe

Setting out

In 2006 I had conducted research into the student's appreciation of audio lecture notes and, for me, this highlighted the value of the recorded voice (Fidler *et al.*, 2006). It showed that audio could capture not only what the lecturer said, but the essence of the live lecture experience.

Students at the time explained that it enabled them to re-listen to what was said and that it even allowed them to be cognitively transported back to the original experience. They believed they were able to re-engage with their own thought patterns, as well as the actual lecture content. Based on this student appreciation of the audio lecture notes I realised that more could be done: that audio could be used to provide feedback to students.

Audio feedback

The four main reasons I adopted audio feedback were:

- I had already used audio to record my lectures in the form of audio chunks posted to the module VLE site;
- I was providing the majority of the formative and summative assessment feedback verbally in all of my modules;
- Students were not able to effectively recall the feedback they were given;
- I am dyslexic.

My computer engineering and software engineering modules are practical-based subjects by nature and suit the verbal feedback technique I use in the lab. These subjects typically employ assessments that require the students to research, design and produce something real and tangible; therefore lab demonstrations are required to fully appreciate the students' work. This is particularly the case in computer programming modules where students walk tutors through their design, their software code implementation and the running of the software, while the academic provides feedback. It is common practice in these subject areas for an assessment grid to be used to capture the mark for each element of the assessment, and occasionally to combine this with short written comments and, subsequently, some

generic feedback for the cohort. However, there is a limit to the volume of feedback that can be written before moving onto the next demonstration and I have therefore always taken a verbal approach to giving feedback on project work.

Prior to the use of audio capture, the verbal feedback approach I used meant that the formative learning opportunity was largely ephemeral unless the students involved were able to manage their own note taking. However, making notes can be distracting for all involved in the formative conversation that takes place during a demonstration.

Working with the written word is particularly problematic for me because I am dyslexic. Writing requires that I have a dictionary to hand and the time to craft the words into readable English. As a result I have compensated for my dyslexia over the years by refining methods of providing verbal feedback in a more constructive and efficient manner.

The earlier audio lecture notes research had indicated the potential benefits of revisiting experience through listening to audio recordings. Therefore, it became obvious for me to find out whether providing recordings of my verbal feedback on assignments could have a similar, beneficial impact on student learning.

Recording the feedback conversations appeared to have the potential to not only capture conversations for memory, but also to act as a device for cognitive re-engagement, just as note-taking has been shown to increase memory encoding and recall among note-takers (Intons-Peterson, 1986).

Therefore, it was logical for me to record live feedback conversations with the students and distribute these back to them. Research into the impact of recording these tutor-student feedback discussions shows that they have had a beneficial impact on student learning and engagement, with students attributing increased grades to having ready access to the feedback after the discussion (Nortcliffe and Middleton, 2008).

I have used several approaches to audio feedback in response to a variety of teaching contexts.

Initial Approach

The initial approach, which we have called *Personal feedback conversations* (*ibid*), involves recording the conversations I have with students with respect to their formative and summative assessment. Typically the conversation takes place with a student or student group walking me through their assessment. The students then propose and discuss their position on the assignment assessment grid while I interject with feedback and questions regarding their work and my own view of their progress.

The audio file is saved and renamed according to the *Assessment Name-Student/Group Name*, and made available to them using either email or the VLE group file exchange. However, I have encountered technical difficulties on occasion, including device error (e.g. battery failure) or operator error (e.g. the microphone being plugged into the headphone socket). In these situations I have had to record a two-minute reflection of the conversations later. This has highlighted the benefits of capturing the richness of conversation compared to the isolated tutor monologue model. Subsequently, I have used a device that is easier to operate and has a longer battery life.

Current Approaches

Having become more confident in developing audio feedback, I have recorded generic feedback targeted at the entire student cohort. The approaches I have taken in doing this have involved recording live feedback discussions involving the students or recording feedback in isolation. This generic or 'broadcast' model of feedback has been structured according to common feedback themes emerging from the assignment and has been made available through the VLE within 24 hours of the assignment submission.

In addition to this, I have recorded individual feedback in isolation for each student on their assessment submission. This approach has been used where demonstration-discussion methods would be inappropriate.

Recordings made by me in isolation usually state two positive comments and two comments that suggest how the student can improve. This is similar to providing written feedback on an assessment cover sheet, but allows for more detail as recognised by the response a student gave during evaluative interviews I conducted:

Nice you got the detail on each question. Each question got about 30 seconds of feedback, which was nice. You don't always get that... it was also nice that it was personalised.

Audio feedback therefore enables me to tailor a highly personal and formative feedback response for each student and I find it more efficient and effective given my personal difficulties in providing written feedback.

Finding and giving support

I have been self-sufficient with respect to the actual implementation of the audio feedback: its recording, distribution and student notification. The university's Learning and Teaching Institute has assisted me in identifying simple, time-efficient, usable and easy methods of audio file management and distribution in order to lessen the impact on my workload.

The level of support I have had to give the students has been minimal and has mostly involved me highlighting the benefits of listening and re-listening to the

audio recordings, explaining how they can work as a rich, detailed aide-memoirs and potentially as a way to help them re-engage with their thinking to apply what they have learnt to future work.

Impact on my academic workload

The technology has enabled me to capture laboratory conversations that were already occurring and so the impact on my time is minimal. I don't edit the recordings so the additional workload involves renaming the audio files for easy identification and the distribution of the files through the VLE's content management system. This can take up to one hour after each laboratory for a class of about 25.

The recording of generic feedback, which I base on 10% of the cohort submission, is less time consuming; however, assessment submission deadlines need careful planning to ensure there is sufficient time to mark work within 48 hours of the submission deadline.

The feedback I give in response to individual submissions is recorded using an MP3 recorder as I mark the work; this gives me more flexibility. The name of the assessment and student are identified at the beginning of each audio file to ensure appropriate file management, and later it is renamed accordingly. Although the personal audio feedback generation, file management and distribution process is time consuming, it takes me less time than providing detailed personal written feedback on each student script. Once renamed, the audio files are uploaded to the university's content management system by dragging and dropping the files from my PC to a Web folder. This is quick over a large bandwidth connection. Each file in the content management system receives a unique location address, and each student is notified via the VLE grading system of the address for their personal feedback file. This distribution approach takes less than hour for a cohort of 75 students. However, this approach has been updated and made more efficient by using an *iPhone* and the *Recorder Pro* app (Nortcliffe and Middleton, 2011). In this approach each personal recording is emailed directly to the student from the phone.

Although audio feedback generation, file management and distribution can be time consuming, it takes me less time than providing detailed personal written feedback on each student's script.

The student response

The main benefit to my students is that they receive feedback that is rich, meaningful and timely.

Students' initial responses to receiving feedback are interesting. For example, these 2008/09 students:

[It was] weird at first, it was... a nice way of marking I think instead of red pen on paper, which can be quite harsh. You can hear the emotion as people are speaking, so if something is not meant negatively you can tell it was not meant negatively.

Students have appreciated the sense conveyed in the tone of my voice:

If she's emphasising one point she might sound different, whereas if it's just written down it all sounds the same.

Timeliness is not just about speed of turn around, but the availability of the feedback:

It's just there on your computer - at home, at university. Anywhere, any time.

Because the feedback was there, I used it.

The 2007/2008 cohort was very receptive to the feedback being provided within 24 hours of the submission deadline:

I thought it was good to give us at least some indication... before we got the official mark and feedback...

The 2008/09 students recognised that audio feedback can be reused, giving them a way to monitor their progress, extending the notion of timeliness to include multiple engagements whenever it is useful to them:

We could download it and archive it onto our hard drive so we could look at it and see how we have changed since we have started.

Conclusion

In my experience giving audio feedback has been an effective approach to facilitating student learning and one that is valued by the students as demonstrated by survey evaluations, which confirm the findings from student focus group interviews (Nortcliffe and Middleton, 2008; Nortcliffe and Middleton, 2009).

While providing laboratory feedback has added to my workload, other methods, such as the provision of personal feedback on student's written work, has freed up time for me.

Using audio feedback has enabled me to connect with my students personally, beyond the conveyance of mere information, and they have particularly noted their appreciation of this, whichever of these methods is being used. Audio feedback, therefore, has helped me to promote an engaging conversational learning culture.

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Arriving at audio feedback

Anne Cunningham

Rationale

Why audio feedback? My interest was piqued by an excellent workshop (Higher Education Academy Special Interest Group on Assessment, May 2008) given by Karen Croker and some of her students from the University of the West of England. It was particularly interesting to hear what the students thought and felt when they listened to audio feedback. Consequently I wanted to try it for myself, to evaluate how easy it was and what impact it could have.

Previous experience of learning technology and digital audio

My interest in using technology to promote learning really started following my appointment to Sunderland University to lecture Immunology (1996). It soon became apparent that my students didn't understand many of the words I said and it was necessary to teach them the meta-language (quite a lot of abbreviations, letters and numbers, e.g. CD1-CD339; IL1-35, etc). This difficult experience made me reflect deeply on how my students learn in general and how they learn immunology in particular.

The web provided an excellent opportunity to support my teaching as it enabled me to write comprehension-type exercises containing hypertext links to glossary terms. I developed 'immunology open learning' materials in order to enrich the curriculum but mainly to help students learn the language and access the subject. At first, I used HyperText Markup Language (HTML) to write web pages and Java programming, and I soon moved onto using *Macromedia Dreamweaver* and *Coursebuilder* to write positive/constructive feedback into activities that depended on student input into text boxes and other simple questions types (MCQ, matching, etc). Finally, I created a set of 15 'lessons' to introduce and illustrate the key concepts of immunology which included comprehension exercises/glossary terms, formative self-assessment activities with feedback, and web-based summative assessments linked by *Cold Fusion* to an *Access* database to facilitate marking and the provision of written feedback. I had excellent support from colleagues in the Learning Development Services at the University to do this.

The material proved to be very successful. An early version was piloted by a group of resit students and their performance was significantly better than the previous

cohort (92% pass rate/mean mark of 48% in 1998 compared to 50% pass rate/mean mark of 31% in 1997) and my module was no longer viewed as a 'problem' by our module assessment board.

Ultimately, the material has been updated, reused and repurposed for multiple different groups of students in our VLE (*Blackboard*), which I have enthusiastically used for the last eight years.

I think, in part, I enjoy playing with the latest technology, and learning something new. For example, I was intrigued by the educational opportunities of *Second Life* (SL); I have recently been challenged by trying to provide my undergraduate students with access to the busy clinical environment of the hospital laboratory in order to help them to relate theory to practice. This has led to the development of a virtual pathology lab project in SL as a solution to this problem. Most recently, I have started to use Twitter (id: drannecunningha) which has given me a whole new insight into communicating with my students. I have also experimented with podcasting and have created a series of mini-lectures (5–6 minutes each available at <http://drannecunningham.podbean.com>)

I think that what can be done using digital media online, and how that can be applied to helping students learn in formal and informal ways is immensely exciting.

Audio feedback

The assessment of students is an issue of central concern to everyone in higher education. Ultimately, its role is to grade performance so that fair and transparent decisions about student awards (and progression) can be made. However, the effects and implications of assessment are more widespread than even that. Assessment can motivate students and influence learning. Assessment, and feedback on it, should provide an opportunity for a student to improve performance. It is notable that student dissatisfaction with assessment and feedback has been a feature of the National Student Survey.

Specific feedback from final year students in my faculty raised the following concerns:

- Lack of feedback which clarifies things not understood;
- Lack of prompt feedback;
- Lack of detailed comments about work submitted;
- Lack of clarity of marking criteria.

In addition, it is clear that assessment is a key driver for learning, and students focus on assessed work more than anything else.

I always feel challenged by the responsibility to assess students' work fairly and transparently. You have to be clear what you are looking for, then apply the assessment criteria fairly, then translate those thoughts onto paper in order to provide feedback that the student can understand, which stimulates them to improve. This needs to be written in as positive a way as possible. I need to be sure that I am treating all the work equitably, and that my decisions and comments are the same at the beginning of the pile of marking as at the end. So, I do spend time 'crafting' feedback despite knowing that the mark is all that some students are interested in and that they don't look at or focus on the comments.

It is interesting to see other people's marking, because I can't always work out what the ticks and words mean. So I imagine it must also be hard for the students. Despite my best efforts, do I always achieve my aims in marking? Generic feedback sheets can help, but do my students get the most out of them?

I was therefore very interested to try what appeared to be an extremely effective technique to provide feedback.

Audio feedback has proved to be a huge relief to me. It is self-evident that 3-5 minutes of audio could provide quantitatively and qualitatively more information than what is written. Maybe it is because it is something new, but it has engaged my students far more than any written feedback/generic or specific assessment criteria/model answers/generic feedback ... that I have produced in the past. I believe it has proved to be the most effective and rewarding innovation I have ever tried, judging by the feedback from my students.

Practicalities

I record audio feedback (mp3) using *Audacity*, which is extremely straightforward. I start by introducing the assessment (who, what) and ensure that I say something positive, something practical and leave the students with some action points for improvement.

I simply verbalise my thoughts as I am marking a piece of work, and imagine that I am talking directly to the student. It provides me with real opportunities to tell the students what they have done well and how they could specifically improve their piece of work. The recordings are 'rough and ready', and I do minimal editing (e.g. taking out long pauses). I no longer remove my natural pauses, or 'umms', as this tends to produce audio that can sound clipped.

I deliver the audio feedback to the students via our VLE using the 'selective release' tool. It takes about 10 minutes to upload and selectively release feedback for a class of 40 students. I do not state the mark in the audio, but I do write a statement indicating the mark which is visible to the student with the file itself ('Awarded x%_subject to moderation and board decision'). I also give 'auditor' access to all the audio feedback to internal moderators and my external examiner.

I think it has become easier over time. Some items of work are easier to give feedback for. I mark lots of lab reports, and it is very easy to see the strengths and weaknesses of student work. I have also found it quite demanding at times: giving audio feedback to 40 final year students on a critical paper review took time and much concentration. However, I really felt I was providing very useful feedback which they could then apply for future critical reviews in other modules.

I don't think it is applicable to every piece of work (e.g. MCQs), or to everybody. However, I really enjoy giving it and my students appear to value receiving it.

Student reaction

I have not formally evaluated audio feedback on student progression. However, I have talked to my students about how they use it and why they like it. Interestingly, although I give verbal feedback in class, some students have commented that this is different because it is recorded and they can listen to it again. They also tell me that they are too curious not to listen to what I have said about their work. In contrast, I think many students just look at their mark without reading the written feedback, or even worse, don't collect their marked assignments.

Anecdotally, students listen to the mp3s on their computer rather than portable devices and listen more than once (3–5 times). In addition, I have elicited feedback which has been universally positive.

Wow this was cool to listen to, easy clear and straightfoward, its the kind of feedback you can't refuse to hear, once you press play you get the good points and the bad points, when i came on to listen to it, i was like oh dear this could be sad news and was scared of listening to it but i like the completeness of the feedback, sure things that have been helpful and i think i will be better doing the same thing now even without seeing the returned work. Thanks ... i think this was a great idea and surely audio feedback is a plus.

It helped highlight the important points of improvement and the fact that your voice could be heard made it more relevant and 'true'.

...Audio feedback was great i thought considering this is my first ever one....i loved it...it is soo much better than getting feedback on a piece of paper but yeah its really good in the fact that both good and bad points were made clear and how improvements can be made. Thanks ...

Summary

In summary, I believe that audio feedback has significantly enhanced my ability to provide high quality, focused, formative feedback to my students and make a real difference to them and their learning.

Further details

More information on how Anne Cunningham's students responded to audio feedback can be found here:

<http://audiofeedback.wetpaint.com/page/Voices>

and her further reflections can be found here:

<http://audiofeedback.wetpaint.com/page/Anne+Cunningham%27s+Story>

Tutorial audio feedback: a case study

Chrissi Nerantzi

Introduction

This case study reports on a pilot study run in the School of Culture at the University of Sunderland. The author, an Academic Developer, worked closely with the Business English module leader over two months. The pedagogical focus of the pilot was to enhance the use of formative, verbal tutorial feedback practice through the use of technology with the aim of promoting deeper student engagement with feedback.

According to Race (1999, p.27) “feedback quantity and quality are probably the most important factors in enhancing students’ learning.” As has been discussed in other case studies here, the use of audio to support learning in higher education is not new “but it is experiencing a renaissance fuelled by the ubiquity of portable audio players, broadband internet, and software tools that allow the relatively easy creation and distribution of audio files” (Schlosser and Burmeister, 2008, p.1).

Background

Considering audio feedback

Audio feedback was one of several approaches being explored by the university to improve feedback on students’ work. This pilot was encouraged by the positive outcomes of projects such as *Sounds Good* (2008) and *ASEL* (2008). Rotheram (2008, p.9) states that, “students were overwhelmingly positive about receiving audio feedback on their coursework. They frequently remarked approvingly about its personal nature and the detail provided, evidence that the lecturer had carefully considered their work.” Rotheram also notes that students appreciated the quick turnaround of audio feedback and being able to replay it, while some students reported that it was easier to grasp what was most important, or why they had received a particular mark. It also suited students whose first language is not English and students who are dyslexic.

The pilot

The academic tutor in this pilot usually describes himself as being uncomfortable with using technology in his practice. However, he was interested in exploring the possibilities of using audio to enhance formative feedback in this pilot, being reassured by the author’s support. He had identified that some tutorial content was repetitive and he saw an opportunity to avoid this by making it public in audio

format. He also saw the value to students in making a permanent record of each tutorial and, as he was already providing verbal feedback, “recording it seem[ed] sensible.” For him it was, “not necessarily [about] doing new things - maybe just doing things differently.”

One-hour weekly tutorials had been added to the module in response to earlier feedback from students. This led to more personalised support, including opportunities for formative verbal feedback. Students receive clarification, guidance and formative feedback on their progress during the tutorials and good interaction, a relaxed and friendly atmosphere, and a supportive community feeling characterised the small group tutorials.

Prior to the pilot, digital tools had not been used to engage this cohort, which was made up of twenty-one international students during this study. They were mainly used to low-tech and paper-based resources. A survey, carried out during the first session of the year, confirmed that all students expected digital tools to be used to support their learning.

Previously, the discussions had not been recorded and it was not clear how well the students had understood or used the feedback. It was agreed to examine whether technology could further enhance current tutorial feedback practice.

Implementation

Staff development in the use of audio and the virtual learning environment (VLE) was provided on a one-to-one basis resulting in the tutor quickly becoming confident.

The tutor used his own audio recorder to capture the tutorials, producing audio files in MP3 format to maximise usability and user mobility. Some assistance was provided to make the files available within the VLE.

The tutorial audio feedback recordings, lasting between fifteen and twenty minutes, were made available to students within the module space of the VLE. Six tutorial sessions were recorded, each involving three to four students. The tutor asked each tutorial group for their agreement to make the recording public within the VLE. Some students requested that the recordings should only be made available only to those students taking part in a conversation. Selective release was used in two cases to accommodate this.

Listening back to the recordings allows the students to understand parts of the feedback that may have been unclear in the tutorial. Students were encouraged to engage more with the feedback to make more sense of it, to link it to action and to ask for further clarification if necessary.

Evaluating the tutorial audio feedback

The effectiveness of the pedagogic design was monitored through a post-pilot evaluation. Students completed a short questionnaire and the tutor was interviewed by the author.

A student survey completed at the end of the pilot provided evidence that the majority of students found the tutorial audio feedback useful. They believed that it enabled them to relive the tutorials, engage with the feedback, and act upon it to enhance their performance. The students also believed that it helped them to improve their listening skills, as had been suggested by the *Sounds Good* project (Rotheram, 2008).

The majority of students accessed the tutorial audio feedback and found it useful, more lively and rich in information. Some mentioned that they would like to receive a combination of written and audio feedback as, for them, listening was more challenging than reading.

Some students listened more than once to the MP3 recordings and downloaded them to their computers. None of the students downloaded the MP3s to their mobile devices. Some reiterated their preference for the tutorial audio feedback to be released only to students who had participated within a group conversation and not to the whole cohort.

A few students commented on the quality of the recordings, and a suggestion was made by one student to provide individual audio feedback in the future.

The tutor stated that he preferred talking to students, believing it to be quicker, more effective and more natural. This concurs with Schlosser and Burmeister (2008, p.2) who highlight how “humans enjoy the sound of the human voice”. The tutor confirmed that it felt natural to move towards tutorial audio feedback and he believed his students found it useful. He said that he has been, “bitten by the bug” and, despite his fear of technology, he had been enthusiastic about trialling this innovative feedback approach.

Such stories of academic innovation are most rewarding when there is evidence of sustained change and impact: following the pilot the tutor is now using tutorial audio feedback on a regular basis. He has transformed all of the Business English modules into a blended learning experience and feels very positive about his involvement. The outcomes of the pilot are now informing a departmental project to introduce learning and teaching enhanced by technology across the Language provision.

Tutorial audio feedback delivered through the VLE made a real difference to the students in the study. This observation of the pilot is in line with the outcomes of a study by France and Ribchester who say, “podcasts have the potential to increase the detail and accessibility of assessment feedback, provide commentaries that students

view as more personalized and understandable, and encourage a deeper engagement with the feedback information” (2008, p. 79).

Some aspects of the tutorial audio feedback method need further attention. Judgments need to be made about: the optimal length of the recordings; the quality of the recording; the nature of the content; methods for distributing the MP3s; and how to maximise accessibility and usability. The use of *Audacity* audio editing software needs to be explored for editing files, and the use of the selective release feature within the VLE also needs further examination. It was also felt that an initial discussion between the tutor and his students would provide the students with an opportunity to learn more about the purpose and possible benefits of tutorial audio feedback. It would also allow them to discuss any reservations they may have, clarify issues and receive tips on how they can use it, including downloading the recordings to mobile devices.

Conclusion

The tutor demonstrated how audio can be used effectively as an “extension of human capabilities” (Ryder & Wilson, 1996). His evident anxiety at the outset disappeared and, with a little mentoring, was replaced with curiosity for further exploration. The pilot enabled the tutor to reflect on his current feedback practice, develop new skills and experiment with technology to improve it. A permanent audio record of tutorials is now kept and shared with students in the VLE.

The students in the project also benefited from the pilot. The evidence shows that this method of audio feedback successfully captured students’ attention, made formative small-group feedback more engaging and provided opportunities for further reflection and dialogue.

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Audio feedback in sport coaching

Robin Gissing

Introduction

This case study reports on how audio feedback has been adopted by a Sports Science subject team and how its use has been adapted, with the support of a faculty-based e-learning adviser, to meet the specific needs of the team.

Audio recorders and the Blackboard Grade Centre were used by staff to give 'as-it-happens' audio feedback to students undertaking assessed coaching sessions in a number of Sport modules. The Blackboard Grade Centre is the assessment management tool within the institutional VLE consistently used by staff and students for submitting, marking and providing feedback on assignments.

The audio feedback technique discussed in this case study was used within the Faculty of Health and Wellbeing at Sheffield Hallam University and drew on the faculty's e-learning support team, which had previously been involved in developing audio feedback methodologies with other subject areas. Audio feedback was initially introduced to the Sport subject team by one of its members and then used by an academic colleague who saw an opportunity to use it in her coaching sessions in a slightly different way.

Project rationale

Traditionally, feedback has been given to students in written form for this module. However, the coaching tutors estimated that they spend more than 50% of their session time writing down points to provide feedback to the students during the coaching sessions. Crucially this causes them to miss actions performed by the students during the session which may also require feedback.

It was felt that the use of audio feedback, therefore, would enable the academic to pay more attention to the student's performance. The tutor is able to spend more time on their coaching and less on the need to make notes.

On a practical note, the audio feedback was also introduced because it is difficult to keep written notes dry within the poolside teaching environment.

Anecdotal evidence suggests that students prefer hearing their tutor's tone of voice while receiving feedback during the session, but don't always have the opportunity to ask their tutor for further comments on written feedback once it has been handed

back to them. It was hoped, therefore, that audio feedback would go some way to improving the situation.

Practicalities

The audio feedback recordings by staff in the Sport subject team were made with Olympus WMA recorders which had been bought by the faculty to aid standard essay audio feedback work. Initially, some of tutors were reluctant to speak openly to the recorder in the coaching environment, but after a few attempts and listening to their colleague's work, their confidence grew.

Another academic in the same subject area has developed an alternative approach: he found that using two audio recorders in succession allowed his students to go off to a quiet area to listen to their feedback instantly once they had completed their coaching session. However, the students reported that they wanted to keep the files for later reflection.

In both cases, the recordings were uploaded to the Blackboard Grade Centre to be accessed by the students.

Reflections on the academic's experience

An evaluation was conducted into the experience of using audio recorders during coaching sessions. This involved an interview with an academic in order to ascertain the usability of the process and media. She explained:

It took a while to get the hang of putting it on the Blackboard Grade Centre, and it took the students a while to get the hang of accessing it because I never knew what it looked like for them [until later]. However, no one complained that they couldn't get it once it had been released. Once I'd got the hang of it, putting it on wasn't difficult. Time consuming, perhaps, but mainly because of my method of naming things, and my organisation of files wasn't great at first. It will get easier as time goes on and I am planning to expand its use next year.

The student's ability to access the feedback without difficulty is important, since ready and quick access to feedback is understood to be critical in the discipline, and traditional methods have commonly not worked well. Owing to previously successful work elsewhere within the faculty, there were a number of support documents available for this subject team. This gave them greater independence, which affected the way they were able to successfully implement the feedback.

Learning and teaching impact

It has been difficult to estimate the impact on the level 4 students involved in the study. However, the extent of the audio feedback is greater in comparison to the

written notes they previously received. The tutor's perception of success in this trial means that the students will continue to receive audio feedback for this type of assessment throughout their course.

The academic team reported that they felt their own digital fluency skills had improved greatly since they started the feedback work, and that their understanding of effective feedback methods had increased. It was felt that audio feedback fitted well with the requirements of coaching, especially as it led to students receiving their feedback quicker and in a more concise format, enabling them to reflect on it immediately and to keep it digitally for as long as they felt it useful.

Further reflections

There were two coaching sessions within the module: one practice session and a final session, which is assessed. The audio feedback was only given on the final assessed work, and nothing given beyond 'at-the-time' feedback for the practice. The students and the academic staff both felt that, in future, having rich audio feedback from the practice session would lead to improvements in the final performance and overall coaching abilities for the assessed session.

Some of the tutors recognised that their technical skills and confidence needed to be developed, so the availability of support staff proved vital for them. However, all the tutors involved were pleased with how the audio feedback has worked for their modules and will continue to use it. This experience, combined with other successful audio feedback projects in the faculty, has led to the purchase of more audio recorders and noise cancelling microphones. These will allow the tutors to speak more quietly with less background noise.

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Increasing student engagement with feedback through the use of audio

Juliun Ryan

Overview

Staff responsible for the delivery of a team-taught nursing module with a large cohort are delivering individual student feedback in the form of a spoken word recording. Tutors record the audio feedback utilising easy-to-use tools available to all staff, uploading recorded files to the module's Blackboard site. Upon its release, students access their feedback via the module's site where it can be listened to, downloaded and taken away, for example for later use or inclusion in a portfolio.

The aim

The module team sought to address a need to support development and inculcation of a difficult but vital set of skills, namely writing assignments, referencing, study skills and reflective writing. Greater student engagement with feedback through the provision of something more targeted and student-specific was identified as a potential means of achieving this aim. The approach was particularly attractive given the combination of the following factors:

- Students have had little opportunity to hone the aforementioned skills given the assessment task falls early in the module and course as a whole;
- Recent transitions from secondary education, further education or the workplace meant many students have proved sensitive to what they may perceive as criticism in written feedback;
- Difficulties can be experienced in delivering in-depth text-based feedback while remaining constructive, supportive and encouraging.

Staff were attracted to the extra depth of meaning audio can provide through the use of vocal emphasis and inflection as compared to 'cold' text which is more open to individual interpretation. Additionally learners could flexibly engage with feedback in a way that suits their increasingly busy lifestyles. The approach also allowed them to take control of their own learning, thereby enhancing engagement and improving attainment.

The solution

Having discussed ideas and gauged need with two members of the team, the faculty's e-learning Support Advisor delivered a session to the wider team focussing on the practical aspects of the approach, how it corresponded to learning, teaching and assessment strategy and to general good practice in feedback. The session was timely, occurring just before the submission deadline. Ongoing support was also available for staff.

The outcome

The approach was new to all of the module's 16 member teaching team. Given the size of the cohort (ranging from 250-600 per intake) staff were presented with a significant challenge, but nevertheless successfully delivered audio feedback files to every member of the cohort via the module's Blackboard site.

Students responding to an evaluation of the process included some referral students. They universally praised the approach, with some admitting they listened whereas they "may not have if it was paper-based". The team felt it notable that only one referred student went on to be re-referred and felt resubmission marks were generally higher than may otherwise have been expected. Following consultation on the approach and its impact, the module team decided unanimously to continue with the approach.

Pros

- Increased awareness of how the language used on written feedback in other modules can be open to interpretation;
- Improved IT skills and abilities and feedback practice among staff;
- Increased student engagement with feedback;
- Richer detail and deeper meaning was conveyed compared to text-based feedback produced in an equivalent time.

Cons

- The audio feedback did not necessarily save time for academics;
- Staff had to invest time initially to develop the necessary skills.

The module leader commented that "Any change is really difficult to manage when you're so busy. Overwhelmingly, for us it has been worth the effort ... Quite amazed we managed it!"

Towards vidcasts — a case study in the development and use video podcasts

Angela Shapiro and Aidan Johnston

Context

This case study presents the learning journey towards the development of vidcasts at Glasgow Caledonian University (GCU). This was undertaken by the Effective Learning Service (ELS) and the Spoken Word Team at GCU.

ELS was established in 2001 as a service that is available to all students irrespective of level, background or programme. It is currently located within the Learner Support Department together with other centralised services including Spoken Word, Careers, the Library, and Disability Services. The ELS has developed extensive, collaborative partnerships across schools, in the planning and delivery of context based workshops.

Spoken Word Services originated in the international Spoken Word project, which aimed to transform higher education through the integration of digitised audio into learning and teaching. A collaboration and legal deposit agreement with BBC Information & Archives allows Spoken Word to make use of audio and video programmes from the BBC's extensive archive for teaching and learning purposes. At GCU it is responsible for providing tools and technologies, coping with intellectual property rights, supplying engaging and valuable content, and encouraging reflection on the learning and teaching process. The team recognises that teachers need to develop 'pedagogical pluralism' and, in this context, aims to encourage students and their teachers to "write on and for the internet" (Wallace and Donald, 2008). Spoken Word has extensive experience in producing podcasts and exciting interactive material collaboratively. Working with the REAP Project (Re-Engineering Assessment Practices), Spoken Word has applied video podcasts as a driver for change, replacing a one hour weekly lecture with a 15 minute video podcast designed around a blend of a lecturer's narration, BBC audio and video clips, and related to the lecturer's own PowerPoint slides (REAP Pilot Projects, 2007).

Case study background

This case study describes how a vidcast methodology (sometimes known as a vodcast or videocast) was developed. Traxler (2008) describes vidcasts as media that contain audio and images, either moving or fixed.

The impetus for and subsequent shape of the project was research undertaken by the ELS which stemmed from an evaluation of the workshop approach used by ELS. In 2008, the ELS team designed a survey questionnaire which was distributed to a purposive sample of 300 students attending a range of context-based workshops. The questionnaires were completed by undergraduate and postgraduate students and reflected a range of subject disciplines, course work and exam requirements (McAllister and Shapiro, 2009). Students were asked about overall relevance of the session. The majority of responses rated the workshops high/very relevant. Similarly, they responded that workshop materials rated highly for their preparation in undertaking specific assignments.

Nevertheless, it is impractical for every student to attend the workshops or meet with ELS staff face to face. Many students access the ELS materials online where they can spend a significant time consulting them (Table 1). Moreover, many students commented that they would also have liked to have had the opportunity to access workshop material again at a later date (*ibid*).

Table 1 Academic Year 2007-2008 Effective Learning Use

No of students attending appointments	Number of individual appointments – face to face	Percentage of Individual appointments on line	No of Workshops	Recorded Use of Support Guides on ELS web site
900	1,600	40.2%	182	4,595

It was logical for ELS to work in partnership with Spoken Word to address this finding. The collaboration commenced in 2007 to produce a vidcast to support students' learning. The need for such an approach was reinforced by awareness of the needs of a large number of mature students at GCU who have stated on several occasions a preference to view materials on line.

The partnership wanted to encourage students to continue take a self-directed approach to learning by referring them back to the ELS website. An auditory approach supported by visual content was selected with the intention of bringing the workshop into the learner's individual learning space, thus accommodating students' self-directed learning styles (Fox and Ronkowski, 1997). The team also drew on academic literacies theory and practice, taking account of the '...broader and more socially [derived] uses and meanings of literacy' in the context of HE study (Leung and Safford, 2005, p.320).

As a result, students are able to choose when and where they engage with the vidcasts and are able to revisit the materials at their own pace (Gribbins, 2007).

Developmental issues and challenges

Whilst it was not feasible to repeat workshops, the team wanted to try to replicate the experience emphasising the oral voice. They also wanted to give students choices

for how and when they accessed the material i.e. on a computer or on the students' own mobile devices.

Vidcast production

In the initial stages of developing the vidcast, the lecturer was videoed delivering a workshop on essay writing to students. However, once the video recorded output was viewed, it was felt that the lecturer's presence detracted from the recording, rather than adding to its pedagogical value (Figure 1).

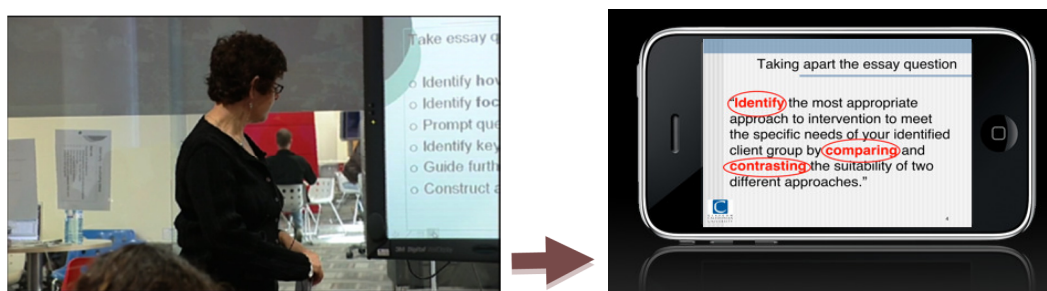


Figure 1 Lecturer delivering workshop compared to the information displayed more simply on a mobile device

It was also apparent that additional features appeared which were not anticipated, such as the visibility of students working outside the room. This meant too many non-essential visual cues were appearing at the same time. Furthermore, it was felt that the lecturer's presence on film would limit the 'shelf-life' of the resource.

Other problems arose. For example, the questions from the audience during the workshop were not clearly audible on the recording. It also proved difficult to match the spoken voice to the pertinent sections of the recording as no prepared script had been drawn up. This meant that at times there was either too much or insufficient oral content.

In light of these issues the decision was taken to design and produce a 20 minute vidcast that would use the PowerPoint slides from the essay writing workshop with oral voice and links to the ELS website (Figure 1). This was informed by the work of Lee and Chan (2007) who highlighted how the use of *iPods* by mobile learners allows them to access information at self-determined times. This decision was further influenced by the flexibility of the medium in meeting a diverse range of learning needs. Podcasting appeals to auditory learners and the addition of visual prompts means that the vidcast is also able to support dyslexic students (Edirisingha *et al.*, 2008). Students with visual impairments on the other hand are able to learn from listening to the vidcast's audio element. The ability for the download of the material on to their mobile device further enhances accessibility.

The PowerPoint slides were supported by further links to specific areas of the ELS website where additional information could be found. Two formats were used: one for online access embedded within a webpage using a Flash-based video player and the other for students who prefer to download the material for use with their *iPod* or other mobile video device.

User evaluation of the vidcasts

Views from a small number of students were sought using a focus group approach. Students with diverse learning needs (dyslexia and English as a second language), coming from a range of undergraduate and postgraduate programmes and levels were purposively sampled. The views of one member of ELS lecturing staff were also sought. Respondents were also asked to complete a questionnaire.

Forty-five academic staff representing learning and academic development units from all Scottish Universities also gave useful and critical insight on the vidcast approach during a critical discussion with a wider audience of informed practitioners at the biannual Educational Learning Advisors Scotland (ELAS) Forum (Shapiro and Johnston, 2008).

The feedback indicated that the users enjoyed having the option of viewing and listening to the vidcast and that the vidcast language and content was useful. However, some also commented that the vidcasts could be improved by reducing the amount of information for use on the mobile devices, that shorter sections would be preferable and that ways needed to be found to aid navigation through the materials for users who only wanted to view sections of it. Users of *iPods* and other devices without connections to the web were potentially disadvantaged and did not want web links displayed on their materials. Even when students downloaded the material onto their *iPods*, they still preferred to access university course material when they were in their 'studying zone' rather than accessing the material 'on the move'. In short the majority liked using *iPods* for an overview, but preferred to download the materials onto a PC.

Conclusion

The feedback has subsequently prompted several changes. Chapter marks were added to aid navigation and the links to the ELS website were omitted from the versions for *iPod* download. The vidcast can be fast-forwarded and the user can also select to watch the vidcast with or without sound. Further evaluations and refinements are underway.

Whilst PowerPoint can give part of the story, the addition of the spoken word is a powerful tool in delivering workshops as vidcasts.

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From paintbrush to podcast and beyond — engaging staff and students through incremental innovation

Alan Carr

Introduction

This case study describes an opportunistic approach to introducing digital media to build on existing teaching practice, resulting in benefits for students, academic staff and the learning technologist involved. It describes how digital photography and the recording of student interviews were combined to produce a virtual 'art show' as a podcast.

The learning technologist at the centre of the story was well-positioned to see how, with little effort, digital media could be used to make a significant change.

Background

The focus of this case study is an idea informed by two earlier initiatives in Mid-Cheshire College's Art & Design subject area.

The first of these concerns the use of podcasting as a framework for student group research. For the last two years the college learning technologist has worked with students studying at [level?]. Student groups were required to research a well-known painting and to talk about it in a recorded discussion a few days later. The aim was to involve students in creating episodes for a 'virtual gallery' which could be published as a podcast. This resulted in a collection of podcast episodes, made by the learning technologist, each of which included an unedited audio record of the discussion combined with the picture being discussed. One of the main benefits of this approach was that it was easily introduced to the students and created an interesting framework for the assignment.

The second initiative involved an exhibition of students' final project work. The exhibition is held at the end of each academic year in Art & Design. The college's learning technologist has photographed the exhibits each year to provide a good source of images for future workshops on using software including *PowerPoint*, *PhotoStory* and blogging software.

However, the learning technologist was ideally positioned to recognise the connection between these two distinct activities. He realised he could interview the art students about their own exhibits in the end-of-year show and this would enable him to create a 'virtual gallery' podcast featuring the students' own work. In addition, he then decided to edit extracts from the 2-3 minute student interviews so that they could be used as an accompanying audio track to a slideshow of exhibition images. Using Microsoft's *PhotoStory* software he put the photographs in order on the software's timeline and inserted the audio clips in the appropriate places. This resulted in an audio-visual show of student artwork with student voices providing the commentary lasting approximately five minutes. This short production, made using readily available software, has been distributed on the VLE for appropriate course areas.

Benefits

The benefits from this work are cultural as much as they are about enhancing learning with digital media.

The learning technologist was well situated to identify opportunities and able to invest a small amount of time in developing the ideas. By using materials that are well-known within the college he is well positioned to involve other staff and students in considering similar approaches, and has the experience to guide them in integrating these approaches in their teaching and learning.

The main benefits to the students are that they have a wider, asynchronous audience. The real-world display of their work, accompanied by their commentary, is both motivational for them and academically demanding.

Future directions and incremental innovation

This case study highlights the benefits of taking small steps and evaluating practice with an open mind. There are many further directions to be taken by the learning technologist from these first small steps, and by staff and students who were involved with, or who have come across, the work.

All of the staff involved with these courses have been enthusiastic about the project, and the virtual galleries will become a useful and engaging resource for them and their students as examples of what can be done. The virtual 'Art Show' will continue each year, probably using more images and voices now that the basis for the idea has been proven. Next year the learning technologist intends to investigate how students can be more involved in producing the show, though he notes that finding extra time is as much an issue for students as it is for staff at the college; the techniques need to be transparently simple. The idea of the 'Art Show' is easy to understand and usually the example receives plenty of comment and approval. This therefore creates a good platform for encouraging further innovation. It is inspiring in other ways, for

example in staff development podcasting seminars where it helps to establish interest in further opportunities for recorded voices, especially the idea of student podcasts.

Learning with audio — a student's reflections on making notes with an MP3 recorder

Kimberley Schenke

Introduction

I was made aware of the Student Audio Notes project at Sheffield Hallam University by a friend who was already involved in the project. The project set out to find out how students might use MP3 recorders as a note taking device (see Section 1: *Learners take control: how audio notes can promote learner autonomy*).

As an MSc Cognitive Neuroscience student, I was interested in taking part because, apart from being given a free MP3 recorder, I liked the idea of using digital audio to aid study. The main reason for this was that in my undergraduate Psychology degree I often experienced difficulties in lectures as I rushed to write down everything that was said and, as a consequence, found it difficult to really listen to the lecture content. Therefore, I thought that being able to record the lecture might allow a deeper processing of the information by allowing a more relaxed listening style during lectures, while still storing the details. Indeed, the more I developed my use of the device, the more I realised its potential in the pedagogic environment.

We were given *Creative Zen* audio recording devices which I used in several ways. On joining the project I wanted to use the device to record lectures and seminars, probably the most common application of a recording device by students at university. I also wanted to use it to record one-on-one meetings with staff, group work with peers, and revision notes. However, an unanticipated use, which emerged from the initial meeting to collect the device, was to record my thoughts and reflections. While I produced and managed what audio was recorded, and was more or less its only audience, I did feedback any special findings or important notes to my peers, and shared the occasional recording with friends if they had missed a lecture or seminar.

I found the experience rewarding and in this case study I explain how I used the recorder during my MSc year and reflect on the difference it made to me.

How I worked with the device in the project

Throughout the audio notes project, my use of the device remained more or less the same, although I was aware of an increasing reliance on the device for lectures, seminars, meetings with peers and tutors, and personal notes.

Although I was initially told that smaller chunks of lecture or seminar recordings might be more useful, I actually found the reverse to be true. This is probably because I listened solely to the recordings on my computer using the Audacity software, so if the recordings were in smaller chunks it would have involved opening and closing files quite frequently. I also found it more useful to listen to the entire lecture or seminar and then select and edit the useful information using Audacity. It's not necessary to edit the recordings, but for me it enabled a deeper processing, and indeed understanding, of the information. Obviously this is a very time-consuming process, but I found it very useful and definitely worth spending the extra time on. What I found most useful about this process was that I already knew the main themes from the original lecture and, therefore, had a better idea of the information that would be of most relevance. Moreover, I had had some time, since initially hearing the information, to process the ideas and concepts and develop a more sophisticated understanding of them, i.e. piecing ideas together. However, listening to long recordings may elicit a 'passive learning' style of engagement, therefore, other learners may find the approach of listening in smaller chunks more useful.

Whereas lectures are heard in 'real-time', audio recordings, much like written text, can be perused at the learner's own pace, which could prove more useful in terms of reflective and enhanced thinking around the topic. Another useful learning tool is the ability to pause and rewind a segment when an item of information is not fully understood.

The device allowed me to have a greater level of reflection of my work, which was an unexpected positive. It also made me review my notes in much more detail than I would otherwise have done. For example, while listening to the recording I would also edit out information I deemed to be irrelevant or of less interest. Probably the greatest benefit from this approach was the knowledge that as my lectures (etc) are being recorded, I was able to make fewer written notes, and this allowed me to concentrate more on the information. Therefore, I was able to gain a greater understanding in 'real-time' as the lecture progressed.

Initially, I used the device while reading a document to record important information by making 'margin notes'. However, I did not find this as useful as I had hoped because each recording came up as a separate file which was a nuisance to use on the computer and I did not think to use the device to listen back to recordings.

Positives

I found many positives with the device. For example, it was small and discreet with relatively good sound quality, particularly if listening to files on the computer with speakers. Moreover, the device had a good battery life and was easy to use. Secondly, actually having the recordings is a real bonus as I will have them for life and can listen back to them at any point. I also found them useful because they allowed me to interpret intonations and associated meaning which could not be gained from written text, e.g. you cannot tell emotions from written word.

Concerns

In terms of the negatives for the student population as a whole, there could be problems associated with an over-reliance, for example if the device failed during a lecture. As previously mentioned, it is a time-consuming process to listen back to and re-write notes, but I did find that this extra process afforded me a greater processing and understanding of the information.

Preferences — in theory and practice

As a Cognitive Neuroscience student, I was interested to find out more about the cognitive theory that may relate to making and using audio notes.

Arthurs (2007) highlights a number of different types of learners: visual, auditory, read/write, and kinaesthetic. Therefore, some students may find a recording device more useful than others. While I actually prefer seeing the written word, surprisingly I found the auditory material very useful for reflection and enhancing current ideas and information. What I found particularly useful during revision was being able to walk around and do food shopping, household chores, etc, while still processing the information.

In 1972 Craik and Lockart first proposed that the greater the depth of processing, the greater the cognitive analysis. Therefore, by using a variety of learning styles (i.e. visual, auditory, writing), there is the potential for deeper processing. Indeed, Arthurs (2007) argues that only 10-20% of what is heard is retained (citing Bowman, 1997 and Nilson, 2003). She further suggests that the addition of visual information can almost double recall. Therefore, combining lectures and visual imagery has the potential to increase retention by 50% (Bowman, 1997). Moreover, Bowman (1997) argues that the active cognition and hearing involved in speaking may increase retention by 80%. Furthermore, Nilson (2003) proposes that the combination of auditory, visual and experiential learning could lead to 97% recall of presented information.

Listening to audio notes is not always the best way to review knowledge. For example, I sometimes found it more useful to look at diagrams and photographs than to listen or read information around it – ‘a picture paints a thousand words’.

Concluding thoughts

On reflection, I believe that audio-enhanced learning could prove to be highly useful within the university setting. Indeed, it is already utilised within medical practice and for dyslexic students. Most people, by the time they reach university, have a good idea about how they prefer to learn and how motivated they are to study and I believe that podcasts, and similar audio-enhanced techniques, will take off over the next few years. Obviously there is the worry that people may not turn up to lectures if they have the podcast easily accessible to them. However, lectures are generally not just about the auditory or visual content; they are also about having the opportunity to ask questions. So, in my opinion, podcasts are unlikely to ever replace lecture attendance for the majority of motivated students, but what audio recordings do provide is the opportunity to apply greater concentration and, therefore, greater understanding, by allowing a more relaxed learning approach.

The main argument against this is that an over-reliance on the auditory information could be detrimental if the auditory device was to fail. Moreover, students would only find this useful if they were dedicated learners, willing to spend the extra time after lectures re-listening to the information.

I have other ideas for how I might use the device in the future. For example, I think recording notes after writing them may be a useful process as, firstly, this information is ‘safe’ on a file on the computer for future use, but also it can be listened to repeatedly and listened to with the accompaniment of the written notes. It may also prove useful to use auditory recordings for practicing information or for remembering instructions.

The audio device has proven very useful and highly effective for me personally. I will definitely continue to use it as I have done and by finding new applications I have not yet considered.

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Starting a conversation — podcasting within Initial Teacher Education at York St John University

Mike Hickman and Linda Mason

Case study background and aims

This case study focuses on the use of podcasting for feedback within a part-time post-graduate Initial Teacher Education (ITE) programme, in which we have different roles (maths tutor and subject leader). With backgrounds in primary education, we perceive aspects of assessment in ITE as potentially problematic when encouraging teacher trainees to assess children effectively in school. Despite a pedagogical imperative to provide good quality, formative feedback that impacts directly on learning (Biggs, 2003), time constraints within HE seem to place disproportionate importance on summative feedback. This teaching and learning model does not readily allow for the same kinds of daily conversations about learning as would occur naturally within the primary classroom. We, therefore, speculated whether using podcasts to provide formative feedback would initiate such conversations.

Our students were about to receive formative feedback on maths e-learning journals prior to summative assessment. Previous cohorts had received this in writing, but module evaluations requested greater clarity on success criteria and more personalised feedback.

Durbridge (1984), cited in Lee and Tynan (2008), highlights the educational value of audio material, stating that “the spoken word can influence both cognition...and motivation (by conveying directly a sense of the person creating those words)” (Lee and Tynan, 2008, p.100). Brooks and Brooks (1993), as cited in Clarke (2003, p.7), argue that constructivist teaching should “encourage students to engage in dialogue, both with the teacher and with one another.” We hoped that podcasting feedback might inspire students to actively participate in the assessment process. In this way podcasting could be used to start a conversation...

Practicalities

In an attempt to model open dialogue, the podcasts were recorded as a conversation between the tutors. Section one contained generic feedback highlighting whole

cohort strengths and areas for improvement, as advocated by Race (2005). This was published as a 'true' podcast, using *Audacity* and *Podium* software for recording and publication. Section two provided individual feedback and was emailed separately to each trainee along with a response form to invite further comment. Students had successfully accessed previous podcasts, using a variety of methods, including subscription and download from the VLE. Having overcome some early confidence issues, all received feedback successfully (the speed, however, was very much dependent on individual computers). In total, the recorded feedback lasted approximately 10 minutes, the optimum length promoted by Edirisingha *et al.* (2008).

Reflections on potential for learning

Eleven students (33%) returned email response forms after listening to their feedback. Comments were analysed and common factors identified. (Table 1)

<i>Table 1. Question schedule</i>

Focus Question	Common Factors			
Q1.	Question 1 merely asked students to confirm they had received and listened to their formative feedback for the module			
Q2. Was having two perspectives on your work useful?	Relevance — comments specific to 'my' work/sense of work being valued (3)	Hearing both views helped to concentrate and engage (3)	Balance of having two viewpoints (9)	Encouragement for and perceived impact on future work (4)
Q3a. How does receiving feedback verbally compare to receiving the standard written feedback? PROS	More personal and interesting/entertaining (8)	Little room for misconception due to tone and intonation. Targeted and direct (5)	Ecologically sound (1)	Easy to access (1)
	More immediate and memorable, aiding concentration (5)	Can review material at same time as listening (2)	Greater quantity of feedback (1)	
Q3b. How does receiving feedback verbally compare to receiving the standard written feedback? CONS	Takes more time to listen (2)	'The unknown' is daunting/more difficult to listen to, but voices very calming (3)	Could have a negative impact if too critical — it is just like being in room with lecturer (2)	Possibly difficult to access/harder to refer back to with no hard copy provided (6)
Q4. Are improvement suggestions helpful?	Yes — objective, clear, specific (4)	Yes — positive, fair, balanced (3)	Yes — personalised, practical and helpful — informing future entries (9)	Further clarification was needed (3)
Q5. Length of feedback	About right length — succinct (9)	Too long (1)	Too short, leading to some unanswered questions (1)	
Q6a. Confidence towards meeting summative assessment criteria	Yes — good idea given of strengths and areas to improve (6)	Increased confidence (4)	Wanted to know how to add indicated suggestions within word limit (1)	
Q6b. Any further comments on feedback via digital audio?	Enjoyed/valued feedback (5)	Would have appreciated a mark (1)	Would like a written summary (1)	Did not see value in generic feedback (1)
Q7. Should summative assessment be received in a similar way? What are potential difficulties or advantages?	Difficult to re-listen/need to make notes from audio feedback (1)	Potentially useful assessment tool for summative assessment (7)	Need for more formal written "documentation" (either alongside audio feedback or solely) (4)	Need for lines of communication with tutors to remain open in order to clarify any points (1)
Total number of comments counted: 117				

Four strands were identified after interrogation of these responses, drawing from the most commonly made observations. Ten students (30%) volunteered for a focus group interview (Denscombe, 1998) to provide a closer insight.

1. Voice

Students noted that receiving audio feedback initially felt 'daunting', but the 'calming' nature of the voices reassured them. In addition, they felt more able to focus effectively on two voices than one, valuing the balance between occasionally contrasting opinions. While not neglecting a keen focus on the success criteria, the

conversational aspect of the feedback was perceived as more “informal”, establishing the notion that we “cared”, were approachable and had actually “taken an interest.” Salmon and Nie (2008) observe that “informality can lie in the voice of the lecturer ... in varied forms of conversation ...” and that “podcasts made ... lecturers feel ‘more friendly’, inviting and personal than in class” (*ibid*, p.9).

Students felt there was less scope for ambiguity, with one observing that in written feedback “you can get misunderstanding of what is actually meant whereas when it’s spoken you... can [hear] exactly [the] intonation and stress... [placed on] particular things,” concluding that, “it’s much clearer.” Power (1990), cited in Chan, Lee and McLoughlin (2006), refer to these “subtle nuances” and a resulting “sense of intimacy.”

2. Personal aspects

Students welcomed the personal aspects of the feedback. Acknowledging the recipient’s name in the audio files, prompted responses such as, “I loved it. I really felt you were talking to me.” This echoes Salmon and Nie’s (2008) work where many students clearly “appreciated the time and energy their lecturers invested in developing the podcasts” (*ibid*, pp.5-6). The heightened sense of being addressed directly arguably inspired students to recognise that their feedback was both unique and pertinent. Audio feedback was considered “a lot more personal” than written comments which could, in their eyes, be more easily copied from one student to another.

Following reflection on feedback, students have been proactive in approaching us to discuss issues raised. One student said emphatically within the interview that, “because the line of communication has been [initiated] verbally, you therefore wouldn’t be so intimidated getting back to ... [tutors] verbally.”

3. Role and ownership

One of our ambitions was for students to actively engage in the feedback process, something they admit they do less with written feedback, generally seen as “not that useful”, “vague” and “generic for everyone.”

However, differing views were expressed on how best to use audio feedback. Students agreed that taking notes in a structured way while referring to their work would be beneficial. They also acknowledged the time needed to reflect on comments and their role within the process, summarising that “[the] benefits far outweigh the time spent listening to it.”

4. Types of feedback

Students were initially unsure about the value of podcasting for assessment purposes. Within a very short time of publication, a dramatic shift in views was evident: “I did not want to hear it ... I was very against it, I like it written down [but] within 30 seconds I just completely changed my mind to the other extreme...”

Students consider podcasting within formative assessment as beneficial, noting that "...it is definitely the best feedback I have had on the course so far." Their only caveat was that a summary sheet might be needed to support the audio.

The students did not, however, feel that digital audio *alone* would necessarily lend itself to summative assessment. While audio feedback could perhaps reduce misunderstanding and make clear improvement suggestions, a more formal system for summative assessment was preferred. Students suggested the use of a highlighted success criteria sheet alongside any summative verbal feedback. This would provide a written indication of the summative standards that had been met along with the opportunity to make formative use of summative assessment through the podcast "conversation."

Summary and next steps

It is perhaps evident that podcasting has a role within both formative and potentially summative assessment processes. Our next ambition is to involve trainees themselves in the process of providing feedback for peers using digital audio. Podcasting in education could encourage collaborative dialogue between students, tutors and peers alike: Souter and Muir (2008, p.4), for example, argue that "a constructivist approach would suggest that involving learners in creating podcasts for the tutor, for peers, for younger learners or for assessment could be more valuable than simply listening to podcasts created by tutors and experts."

Race (2005, p.82) argues that "increasing the diversity of assessment instruments" prevents students being "discriminated against repeatedly by the same old assessment formats." We should, therefore, take note of students echoing this sentiment, stating that "...it is great that new things are being tried to improve the quality of feedback" and conclude that "verbal feedback probably does engage [them] more in reflection (than written)" (*ibid*). This gives impetus for further development of digital audio in ITE.

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Bringing students together through a virtual classroom — a study of *Wimba Classroom*

Alex Spiers and Katie Barnes

Introduction

This case study reports on the use of the *Wimba Classroom* (now known as *Blackboard Collaborate*) as an integral part of the Advanced Paediatric and Neonatal Practice programme at Liverpool John Moores University. The study draws on interviews with the Programme Director and explains why this online collaboration technology was used to support a blended learning pedagogy, while highlighting both positive and negative experiences of the approach. It explains how the technology allowed both tutors and students, wherever they were located, to communicate together using text, audio and video synchronous conferencing, and how important this was to them.

Background

A blended approach

Technology is increasingly able to support the delivery of learning materials, assessments, and the way in which tutors interact with students; even when tutors and students are based on campus. This can be understood as blended learning, which is generally understood as learning which combines online and face to face approaches. A meta-analysis of blended learning by Means *et al.* (2010) suggested that the combined impact of technology with a face-to-face experience of learning is beneficial, especially among undergraduate and other older learners. In addition, the proliferation of collaborative communication technologies capable of supporting diverse learning styles provides educators with ways to deliver interactive blended pedagogy as proposed in Laurillard's Conversational Framework (2002). However, what is often missing from blended pedagogy is the spoken word in an online situation, especially where this involves dialogue.

Widening access

Widening access is a key strategic driver at Liverpool John Moores University, alongside the commitment to technology-enhanced learning. In 2007 a licence for the *Wimba Collaboration* suite (*Classroom*, *Pronto* instant messaging and *Voice Tools*) was

acquired. This allowed *Wimba* to be delivered as a plug-in through the institution's *Blackboard* VLE.

Accessibility was a key factor in developing the pioneering Advanced Paediatric and Neonatal Practice (APNP) programme; currently the only one of its kind in the UK. It was felt that using online collaboration technologies would be crucial to allow students to participate in the course wherever they were located. Equally, it afforded the flexibility needed for NHS staff, clinicians and consultants, whose time was incredibly valuable and in short supply.

Following the introduction of *Wimba*, the APNP programme was identified by the university's Learning Development Unit as being suitable to use as a pilot study. The pilot involved 'frontloading' technical support in order to create an exemplar model that could be disseminated across the university. A small team of multidisciplinary staff was gathered to deliver and support the programme for the initial intake of 18 students.

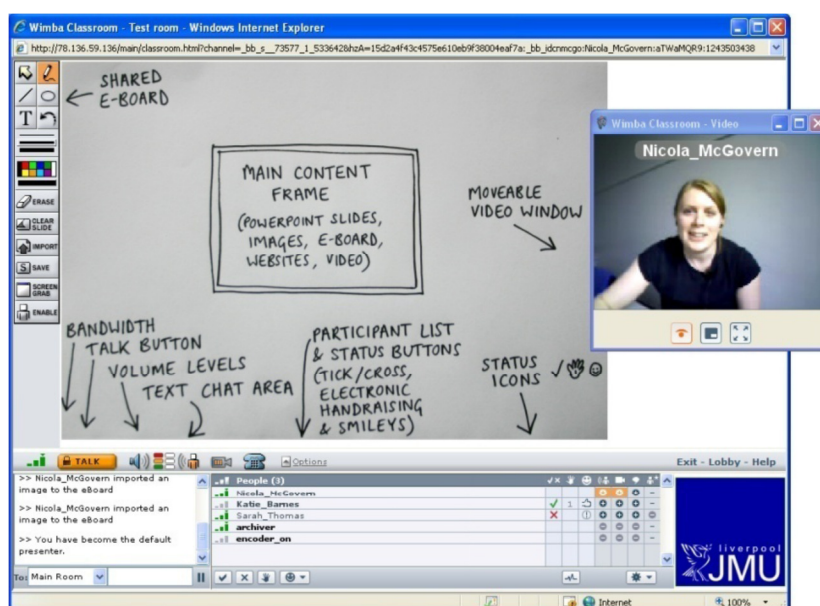


Figure 1: Screenshot of *Wimba Classroom* from the student's perspective (screenshot: Nicola McGovern)

What is Wimba Classroom?

Wimba Classroom (Figure 1) is a live, online learning environment that enables lecturers to deliver teaching sessions to remote students using synchronous conferencing (video and audio), PowerPoint slides, application sharing and instant text messaging. In addition, *Wimba Classroom* has the facility to support collaborative working practices using virtual 'breakout rooms'. Students can see who is online, use emoticons to communicate feelings, and chat by sending texts messages either to the main room or privately to individuals.

Students can also use *Wimba's* Talk button to speak directly to the tutor. If the students have a webcam, their video stream will be shown to the classroom as it follows the speaker and overrides the lecturer's video. The tool also has the ability to record or 'archive' presentations in the *Classroom* and these can be accessed through *Blackboard* later. Recordings can be played online or downloaded in MP3 (audio only) or MP4 (video capture and audio) formats. Using the MPEG standards allows the recordings to be played back on a range of mobile devices as well as on PCs.

Technical setup

The intention at the beginning of the *Wimba Classroom* pilot was to ensure that the technology was both flexible and portable. This meant tutors having access to hardware such as a laptop, a wireless microphone, a webcam and a projector. However, the flexibility introduced problems: the need to set up the technology in a public access space before each lesson increased staff stress, especially when pieces of the kit were forgotten or lost. The Programme Director explained:

Mobile setup is a nightmare. No matter how many times you have done it, it always is a little bit of a white knuckle ride. You grab the bag, and run up to the room and you're plugging all this stuff in, assuming that everything is going to work fine and hope that you haven't forgotten anything.

These issues led to the design of the '*Wimba Ready Room*', which was set up as a dedicated space for online lectures. The room has a built-in interactive white board, short throw projector, discreet ceiling microphones, highquality camera and a laptop in the room to test the quality of presentation from the student's point of view. Having a room devoted solely to *Wimba Classroom* sessions, with high quality equipment to capture and transmit the lecture, ensured that the students had as close to an 'in class' experience as is possible. The outcome of this has been positive for the Programme Director:

The static room has made a big difference, so that we only use mobile setup as a backup or when we are off-site.

The use of Wimba Classroom

Combining face-to-face with an online learning experience provides the learners with more control over their learning. Convenience and flexibility are important factors for students attending this course, most of whom are working professionals. The use of online collaborative tools was the only way to achieve the Programme Director's vision of teaching students from all over the country.

The APNP programme is made up of a series of traditional lectures delivered in class in the Health Faculty at LJMU. The *Wimba Classroom* tool is used to simultaneously broadcast these to participants who cannot attend in person. This approach has

meant that all the lectures have been recorded and this has also offered greater flexibility and convenience for all students.

Using the technology like this has been novel. While many practitioners use collaboration software primarily to deliver teaching online, our approach has concurrently added a remote audience to the one in the classroom.

Student induction

Students were invited to an intensive, face-to-face induction to begin building relationships with teaching staff and fellow students and to familiarise themselves with the technology, as it is essential for students to be confident with its use at the outset of the course. The students were introduced to the basic functionality of the learning technology, including how to access *Blackboard* and *Wimba*, how to text, how to interact, how to voice in, how to load sites in *Wimba*, how to interact on the screen, and how to troubleshoot problems. They were also shown the archiving functions and how to access them. It was important for students to know what to do when things go wrong. Technical problems are often specific to a particular student. For example, broadband speed can be a problem outside the tutor's control. Having backup procedures in place is imperative, as time with clinicians and doctors is limited and valuable. Backup procedure, therefore, is an important part of the induction session. Access through an alternative *Wimba Classroom* is available (the 'APNP SOS' room) for times when access through *Blackboard* is not possible. This allows presentations to be delivered as scheduled.

Evaluation

Student feedback

Initial findings from the pilot have indicated that the students liked using the *Classroom* and recognised its benefits, and felt the tool enhanced their learning. According to the Programme Director, students in the wider locality initially stated they planned to attend the lecture:

[They would say] "I'm not going to use Wimba so much as I'm not great with the computers." However, once they get a taste of how things go in Wimba they find that it really comes in handy. The more they use it, the more they like it and the more they tell you and their work colleagues about it.

Other themes have emerged around flexibility and revision. Anecdotal feedback suggests this continues to be the case with the current intake. Evaluation has also shown how *Wimba* was able to support student assessment using the breakout rooms for students to collaborate on group work and prepare presentations. The diverse learning needs of the group were attended to by the range of communication tools

available to them. This flexibility allowed students to participate on their own terms, playing to their learning strengths. A student said:

Sometimes you feel more confident interacting with Wimba than in the classroom... sometimes you put your hand up you feel you are interrupting, whereas you can type in a question... you don't feel stupid asking it.

Students didn't feel that using *Wimba* to access the lecture impeded their learning at all; in fact, they felt it strengthened their knowledge because they could watch the archive again (McGovern and Barnes, 2009).

Lecturer's reflections

The archive facility also proved beneficial in providing the opportunity to record assessments and share these with the external examiners, at a time suitable to all. In addition, the Programme Director reviewed early archives to critique performance, and enhance her lecture delivery and teaching practice. She has always described herself as a clinician first, teacher second and a technology expert last; however, reflecting on the experience, she appreciates the need for excellent role modelling:

You have to model for the students that you cannot be afraid, you have to show that you are willing to try this technology, hook, line and sinker, and then the expectation is that they have to do it as well.

Despite the generally positive responses, frustration levels did increase when things went wrong. The Programme Director commented that the students were understanding about the early disturbances, and this was partly due to good induction. From a tutor's point of view, the Programme Director explained that, in her opinion, using technology like this is "not for the faint hearted." However, she has developed skills in using the technology, mainly through her ongoing practical experience.

Let's face it, it's not beyond the will of man to overcome these problems, and the students love it, and if they love it then that's part of my motivation for doing it.

Conclusion

Success in using an online environment requires commitment. The academic in this pilot describes herself as tenacious and believes this was a key factor in the success of the course. She says:

If you are going to do it, do it. You cannot dip in and dip out of this type of practice. You set the example for the students in that you use it, and you use it a lot. So 100% commitment is essential.

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Using *VoiceThread* to enable media-rich online collaborative learning

Chrissi Nerantzi

Introduction

In this paper we describe a small intervention which is under development within the Engaging and Enhancing Student Learning (EESL) module of the blended Postgraduate Certificate in Academic Practice (PGCAP) Programme at the University of Salford. The aim of the intervention is to develop an alternative to online text-based asynchronous discussions within the university's *Blackboard* virtual learning environment (VLE). Taking into consideration how we process information through auditory and visual channels (Mayer, 2001), the intervention provides a media-rich experience towards enabling a more natural, social and collaborative learning experience within this blended programme. Middleton (2011) describes how the human voice can play a vital role when connecting with others and reminds us that we have the technology at our fingertips today to capture the digital voice using audio and video, synchronously and asynchronously. Concurrently, Macgregor *et al.* (2011) have reported on the benefits of using *WimbaVoice* in the VLE for recording and sharing audio feedback. The benefits of using technologies to mediate online audio conversations would seem clear therefore. This study describes how the *VoiceThread* digital media discussion tool was used on the PGCAP.

Context

The innovative use of technology in the Postgraduate Certificate in Academic Practice

The PGCAP is a multi-disciplinary programme, mainly for new academics and other professionals who support learning in the university. Donnelly (2010) highlights the need to develop technology-enhanced approaches further to provide participants with the opportunity to experience this mode of teaching as a student, as well as a model of good practice. A variety of institutional and external technologies, including social media, are already used within the EESL module, which provides a safe playground for experimentation. It is also a space that gives programme tutors the opportunity to model a variety of pedagogical approaches fit for the Digital Age. They are able to discuss theories of learning which challenge a participant's own beliefs, perspectives and interpretations of more traditional practices, thereby leading to transformative learning (Mezirow, 1997).

The PGCAP has an Online Programme Space within *Blackboard*, an umbrella space in which all modules and their participants are brought together. Currently, the *Blackboard* discussion feature is used on a regular basis as an opportunity to extend engagement with the module themes beyond the face-to-face sessions, and to enable communication and collaboration during the two weekly online seminars of the EESL module. It was noted during the running of Cohort 1 and Cohort 2 that not everybody participated in these online discussions. This occurred despite the tutor facilitation, the fact that some of the activities were linked to assessment, and despite the opportunity for a small number of participants to lead one of the discussions. The author decided that it would be interesting to investigate whether the evident frustration and the limited engagement were linked to the limited prior use of the *Blackboard* discussion technology; something that would be supported by Schwier's findings of a similar phenomenon (2002).

Participant feedback suggested that while more discussions around the module themes, and in particular around the literature, would be useful, many had found it hard to follow the online *Blackboard* discussions, including the threads and contributions made by peers. Many were frustrated by this. One participant explained that, "Discussion boards, although they are fun, they distracted and diluted." It was noted that the volume of contributions decreased as the module progressed, and the majority of contributions were restricted to text and some link sharing.

The need to explore alternative, more media-rich and intuitive platforms for asynchronous online conversations led to the experimentation with *VoiceThread*. It was hypothesised that multimedia-learning is closer to how humans process information, as Mayer (2001) has suggested. Interactive multimedia, it was proposed, resembles more the way we engage in conversation. This study reflects on those ideas and the lessons learnt.

About the tool

VoiceThread is a Web 2.0 tool that enables media-rich online interaction and collaboration. Its design is based on sound pedagogical principles and the discussions that users create in *VoiceThread* result in a collection of resources for future cohorts, making them even more attractive to academics and others who support learning. Used appropriately, *VoiceThread* promises to be cost- and time-effective.

Practicalities

At the time of writing, a basic *VoiceThread* account (www.voicethread.com) is free and doesn't require a download or installation. Setting up a user account is easy and creating a *VoiceThread* discussion area can be done in a few minutes. The interface is user-friendly and doesn't require advanced technical skills. However, tutors and learners will need a headset and a webcam to participate fully. Only one account is needed per tutor, who is then able to use it with a whole class. Students simply add

their identities to the particular *VoiceThread* discussion and start contributing in the following ways:

- Digital voice: microphone, telephone, audio file;
- Doodle: using the inbuilt drawing tools;
- Video: using a webcam;
- Text.

Some training for staff and students on the basic functionalities of *VoiceThread* is recommended, and tutors will benefit from setting aside time to familiarise themselves with the pedagogical concepts and principles of using such a tool within their practice.

Each *VoiceThread* discussion can be linked to or embedded within the institutional VLE, making access to it easier.

Social learning environment

Asynchronous multimedia *VoiceThread* discussions and collaborations are conducted using a visually nuclear structure which resembles everyday 'round table' interaction by using both the digital voice and the written word (see Figure 1). *VoiceThread* is intended as a tool for social learning, requiring the input of others. *VoiceThread* discussions create opportunities for dialogue and exchange. Currently, this system is not accessible to visually impaired learners although a more accessible version is currently under development.



Figure 1 Sample VoiceThread discussion 'VoiceThreads for Education', available at <https://voicethread.com/?#q>

Pedagogic application

VoiceThread discussions can be used for a variety of teaching and learning activities, such as tutor- or student-led discussions, storytelling, critiquing a written text or video, and feeding back on student presentations or projects. The written and digital voices in a *VoiceThread* discussion are interwoven with still and moving images, a reason for thinking that learners may engage more with this technology. Mayer (2001, p.74) claims that, “students perform better on verbal retention when they learn with text and illustrations or narration and animation than when they learn with text alone or narration alone.” This, then, is what can be achieved with *VoiceThread* discussions based on a pedagogical rationale.

A comparison

The written and the spoken word (audio and video) can be captured in both *VoiceThread* and *Blackboard* discussions if learners have a headset and a webcam. However, while multimedia discussions are possible within *Blackboard*, it appears that the complexity and the linearity of the tool confuse the learners, making it harder for them to follow and engage in a discussion in a meaningful way. Predominantly it is the written word that seems to be used.

It has been noted by Kear (2011) that Web 2.0 technologies such as *VoiceThread* discussions have the potential to enable and enhance collaborative learning. *VoiceThread* discussions are an example of what Norman (1993) defined as human-centred technology, where interaction resembles a human conversation, is nuclear in its format, and where the ease of using richmedia makes such content more intuitive and learner-friendly. *VoiceThread* discussions enable individuals to express themselves creatively; something that has the potential to transform online discussions into a richer learning experience overall.

The intervention

As an Academic Developer, I support and implement institutional strategies, but I also have a role to identify new opportunities for the institution. Academic Developers are strategic, both re-active and pro-active, and continuously expected to push at the boundaries towards enhancing teaching and learning. Active experimentation is therefore part of the job.

The EESL module of the PGCAP, in which the *VoiceThread* discussions were trialled, was such an experiment. The aim was to explore a more media-rich approach to discussion in order to make online discussion more inclusive, accessible and collaborative. The trial was conducted with Cohort 2 in specific weeks of the module during the Academic Year 2010/11. Activities were developed around weekly reading tasks as a way to increase engagement with the reading materials provided. After completion of this module, feedback was collected from participants via email and remote interviews.

The *VoiceThread* discussion participants said they preferred it to the *Blackboard* discussions. Participant 1 commented:

With the VoiceThread I liked that you were able to see the presentation we were discussing and you could visually see and reply in the order that comments were posted.

A second participant stated:

I found VoiceThread very good. It is a vast improvement from the Blackboard discussions. In fact it inspired me and I got thinking about how I could use different media with my students. As a result of it I did more podcasting and videocasting with them.

Though the evidence from this initial experiment can only be indicative, it suggests that *VoiceThread* discussions can be more intuitive than *Blackboard* and can engage learners without causing confusion.

Reflections

Natural engagement

Participants' feedback has supported our hypothesis that multimedia-learning is closer to how humans process information. One stated:

Posting was really easy and following a conversation too. The VoiceThread discussion felt like a mindmap of audio, video and text. It makes sense to use this... it felt much more intuitive. Blackboard is so difficult to use.

Integrating *VoiceThread* discussions early on in a module or programme, and modelling the use of it, will give students the time to familiarise themselves with the tool and encourage experimentation with the media-rich features. A 'who is who' *VoiceThread* discussion, for example, could be set up as an online induction activity which would not only provide a good opportunity to use this tool but also present an attractive way for online socialisation. It is important to start small and make clear how the discussions are to be facilitated. Students can be given the opportunity to lead some discussions as well as create their own, either for assessment purposes or to showcase their work and seek feedback from peers and tutors.

Identifying the need for and embedding new technology

In order to enhance the learner's experience and provide rich and meaningful learning opportunities, this small study has demonstrated the value of working closely with learners by inviting them to regularly share their thoughts about how they experience teaching and learning. Enabling and cultivating an ongoing and open dialogue has helped to identify issues and opportunities for enhancing practice.

The study also demonstrates why having a clear pedagogical rationale of what you would like to achieve is vital before considering technologies. It is easy for an

educator to pick a tool and then start thinking about what they could do with it. This explains why many applications are under-used and suggests that, potentially, they detract from the student experience.

The implementation of *VoiceThread*, as discussed here, has demonstrated the value of educators and learners familiarising themselves with technology before applying it in critical situations. The use of interactive self-study resources, demos, video clips and small collaborative tasks are helpful for this purpose. A short introductory preparatory activity, such as commenting on a video clip, enables learners to try out the different features of the tool and identify any difficulties.

Transferability

For some learners at least, *VoiceThread* discussions are more intuitive than *Blackboard* discussion threads and can be used in a variety of learning situations. *VoiceThread* discussions can be tutor- or student-led. They can be used to complement current practice or introduce new pedagogy capable of engaging students in online learning activities and collaboration using a variety of media.

Further investigation involving the use of *VoiceThread* discussions is planned within the EESL module. Collaboration, involving a small number of colleagues delivering online modules from around the institution, is planned to refine the approach and develop a set of pedagogical guidelines for colleagues who wish to introduce asynchronous media-rich online discussions in their practice.

Further information about VoiceThread can be found at:

<http://voicethread.com/about/features/>

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Role play replay: technology and media-enhanced experiential learning

Juliun Ryan

Introduction

This case study describes how blogs and digital video were used to facilitate and enhance the development of counselling skills using an experiential learning framework. The approach harnessed user-generated media to capture a small group role play scenario and to support learning through formative feedback and assessment arising from the activity. The technologies used to support the activity were intended to be non-specialist and easy-to-use, and are typically widely available within higher education.

Background

The approach was first implemented during the 2010/11 academic year on the level 5 module Counselling Skills in Education, part of a BA (Hons) Education Studies with Psychology and Counselling course. The module, led by a single tutor, had a cohort of 35 students who were split into 12 groups of three for the role play activity, with the tutor herself making up the numbers in one of the groups.

The aim

The overall aim was to develop students' learning and counselling skills. The use of media-enhanced role play was prompted by limitations on the tutor's time and logistical constraints in light of cohort size and the accommodation in which face-to-face teaching took place. These constraints created serious challenges for the tutor in observing her students' practice and providing meaningful feedback to them.

It was envisaged that using digital video recorded by the students would enable the module leader to review their practice more thoroughly and give rise to more effective formative assessment and feedback opportunities. It was also hoped that ongoing access to examples of their own practice and that of their peers, in the form of the video recordings, would encourage the students to review and reflect later on what they had done.

The approach

Prior to the session the module leader worked with the author, a learning technologist, to set up a series of blogs inside the module's site on *Blackboard*. One blog per group was set up, with access to the blog restricted to the individual members of each group and the module leader. Each group of three - referred to as 'triad groups' by the tutor - was set the task of role playing a counselling scenario. Triads comprised a speaker, listener and observer. The groups were allocated a *Flip* video camera, which was used by the observer to record their role play with a view to subsequently making the video available online for review.

Students undertook the role play task, rotating the roles of speaker, listener and observer until each member had fulfilled each role once, thereby recording three video clips in the process. The students themselves then uploaded their video files to their group's blog.

Students were asked to access the blog, review the clips made by their group and provide a written reflection on their own practice. They were also asked to use the blog to engage in formative peer assessment and feedback using blog posts and comments. This process took place under the auspices of the tutor who also assessed the clips and provided her own feedback on the students' practice using blog posts and comments.

Students were asked to repeat the activity in the same form a week or so later, building on their previous experience and incorporating insights gained from reflection on self, peer and tutor feedback.

The sequencing of the activities comprising the approach - initial filming, reflection, assessment and feedback activities, further teaching in the interim and finally repetition of the initial activity - aimed to develop more effective practice by taking students through the stages of Kolb's Experiential Learning Cycle (Kolb, 1984).

How the tutor was supported

Though experienced in her field and having previous experience of embedding learning technology, the tutor had not tried the approach before. Also, as a relatively new member of staff, the tutor had limited experience of the institutional VLE and its tools. Support was provided, therefore, in order to realise the idea. This involved: identifying the means by which video could be shared and commented on for feedback and assessment purposes; the configuration of the blog tool to support the process; and identification of, and training in, the use of the appropriate hardware.

Flip video cameras were identified as being the devices most suitable to support the approach. The compact, ultra-portable and easy-to-use qualities meant lower overheads in terms of tutor and student training requirements in using the video

hardware; their somewhat basic and limited functionality was actually seen as a benefit in this situation.

How students were supported

Students were provided with a mixture of online and face-to-face support. In terms of face-to-face support, the learning technologist attended a seminar to provide a technical overview of the process and to outline how the activity linked with the relevant learning outcomes and module assessment. Students were given a short introduction on how to use the cameras, and provided with some basic good practice information on aspects such as positioning the camera, framing a shot and recording a short test clip. They were also shown how to save a copy of a file from the device, how to make blog posts and comments and how to upload their video file to their blog. A follow-up visit was made a week later to address any issues.

Supplementary online guidance and support was made available via the module's *Blackboard* site, which was signposted in the face-to-face session.

Evaluation

In the weeks following the activity, the video role play approach was evaluated. This involved the author reviewing contributions to the blogs and conducting an interview with the module leader. A second interview, with a small focus group consisting of three students from the module cohort, was conducted by the module leader. The evaluation of this data considered:

- the capacity of the students to engage with videoing the role play activity;
- the value of recording the role playing;
- the extent to which students reflected on their role play performance and that of their peers;
- the approach as an opportunity for providing formative feedback.

Findings

A number of benefits and challenges arose from the use of user-generated media in conjunction with blog tools to give the activity a legacy beyond the classroom. High levels of engagement with peer, tutor and self-assessment, feedback and reflection were evident from the amount and overall quality of content posted to the groups' blogs. The outcome was, on the whole, very successful.

Student engagement

Some students reported feeling somewhat anxious at the outset, finding the prospect of having their practice recorded and shared daunting. However, the students were reassured that their clips would only be made available within the triad groups that undertook the activity. They also reported that by the time they repeated the

recorded role play activity the following week in their groups, they had overcome initial feelings of self-consciousness and anxiety.

Students, with a few minor exceptions, found the technologies straightforward to use. A small number of students encountered difficulties in uploading their video files to their blogs and required extra support to do so. Generally though, using the cameras, managing the recorded files and using the blogs to upload files posed no real challenges for most of the students, given the support available to them. For some, undertaking the process yielded digital literacy benefits outside the context of the subject focus.

Asynchronous media to support reflection

According to the module leader, undertaking the exercise without recording the role play would mean that students, “would be able to listen to the feedback from their peers, but it’s forgotten about in an instant. The value is... it allows them the time to go back and review their progress.”

Participants valued the opportunity to review their own practice after the event, saying this provided valuable insights: “You see yourself how other people see you.” The opportunity to review and feedback on others’ practice was also cited as beneficial, with students placing particular value on being able to observe, learn from and incorporate elements of others’ effective practice into their own practice.

New opportunities for formative feedback

Glover and Brown (2006) state “providing... feedback and maximising student engagement with it can be a real challenge. For staff, providing feedback can sometimes be very time consuming, repetitive and inefficient.” Both the students and the module leader emphasised the value they placed on the formative assessment and feedback opportunities represented by the ongoing access they had to their videos and the asynchronous communications made possible by the blogs to which the media was posted. The ability to post and comment in the context of a private group blog facilitated a degree of peer to peer and peer to tutor dialogue around the activity that would otherwise have been impossible to achieve.

The combined use of user-generated media and blog tools also made the delivery of a greater depth of formative tutor feedback more scalable. As the module leader said, “in a big class it would be virtually impossible to get round every group during one seminar. It gave me the luxury of being able to... give them formative feedback.”. It was therefore felt that the approach went a considerable way to meeting the aforementioned feedback challenges and was also very much in keeping with the ethos of assessment *for*, and not just *of*, learning (Gibbs and Simpson, 2004).

Transferability

Whilst the approach was implemented in a Counselling Skills context, the module leader commented:

“I do think [the approach] is definitely transferrable... It lends itself really well to Counselling, but I think it lends itself to other disciplines as well, particularly teaching and anything that involves practical activity or groupwork for example.”

Conclusion

In conclusion, some practical and pedagogical recommendations are provided for anyone considering implementing a similar approach to the one outlined in this case study. If possible:

- consider enlisting support from a suitable individual such as a learning technologist;
- devote a portion of any available contact time for demonstrating how to use the cameras, managing files and interacting with the blogs;
- provide appropriate online resources to support students undertaking the technical aspects of the process;
- use small triad groups to:
 - facilitate the rotation of roles;
 - address students’ feelings of exposure by limiting the ‘audience’ for the clips;
 - make dialogue and peer feedback based on the activity more manageable;
- maximise the benefits of peer assessment and feedback opportunities by articulating criteria and setting clear expectations for the length, content and other video attributes;
- maximise the formative benefits of the task by linking it to the learning outcomes of a subsequent summatively assessed task;
- provide students with the simplest, most user-friendly video hardware available;
- make sure that students are clear that the video quality needs to be ‘just good enough’ (see the chapter *Mirror and memory* in Section 1) and that, to be effective, the activity does not depend on high production values.

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Using digital posters to promote academic literacy

Cathy Malone and Diane Rushton

Introduction

This case study describes the use of *digital posters* as an innovative approach to developing student academic literacy. It reports on how this digital media technique was implemented to support a Business Globalisation assignment about emerging markets. We explain the rationale and the technique before reflecting on the value of the approach to students and the implications of this for embedding academic literacy in the curriculum.

The initiative described here emerged from the desire of a small group of staff to explore the use of new technologies as a means to engage students more deeply in their subject. From a writing perspective there was some frustration with current approaches to supporting and developing writing, and an awareness of the profound antipathy many students demonstrate towards writing. This antipathy makes it difficult to use writing as a medium for engaging them with their subject. What we were looking for in particular was a means to step away from an approach to writing that is perceived as simply a technical device, and moving towards the deepening of subject engagement by students, with a view to ultimately improving student academic writing and criticality.

About digital posters

Digital posters is a new technique proposed by colleagues at the university and iteratively developed over two years through the work described here. The method offers a formative practice activity similar to giving poster presentations, but without the high social stress or pressure of such public performances. Through recording the audio track we lose the ephemeral nature of live performance. The students' control over this process shifts the focus further from the final performance to the process of developing ideas and refining thoughts through repeated re-recordings.

It was realised that screencasting software could be used to simply capture the evidence of student research together with their commentary on it. In the work discussed here the approach has been pared down further: by removing text completely from the poster, save for a heading or an attribution, and relying only on four images presented on a single PowerPoint slide, the intention has been to create a

strong and simple visual thematic structure that is also open enough for students to talk to.

By recording the screen and the student's voice, and by encouraging the student to use the software's zoom and pan controls to make connections between the visual elements, the *digital poster* process results in students generating screencast videos that can be shared in the VLE.

Background

The *digital poster* initiative involved a small number of staff with responsibility for leading the module, learner development and educational development. Our experience had been of working with many intelligent, motivated students who could articulate ideas but who experienced a profound disconnect in translating their ideas and thoughts into a more academic written form; an experience observed by many writers in the field (Lea and Street, 1998; Lillis, 2003; Northedge, 2003; Rai, 2004).

In order to write well, students need to acquire the appropriate style or voice of a discipline, learning both the form (how to write) and the content (what to write) (Ivanic 1997 cited in Devereux *et al.*, 2009). Combined, form and content establish the written discourse of the community that students are seeking to join. However, those involved in the initiative shared Rai's experience of many students who are anxious about writing and whose major concern becomes the surface forms and structure of a language (Rai, 2004). This preoccupation by students diminishes their ability to focus on the content of their subject, and this results in superficially appropriate writing; writing that lacks a confident authorial voice or strong communicative intent.

Moreover, while writing is a key means of assessment at university, student experience of study is a much richer, multimodal experience. One consequence of this is that our students have little consistent experience of using writing as a tool for thinking, for exploring ideas creatively and freely, and of using writing to facilitate their own thinking. Elbow (2000, xiv) writes of two mentalities necessary for writing: one that is generative and another which is critical and needed for reviewing ideas. While these mentalities can "push" against each other, they can flourish "if we make separate arenas for them."

Digital posters appear to offer a separate creative and reflective arena (Middleton *et al.*, 2010) in which the student can privately capture, review and develop ideas until they are ready to be shared with tutors and peers. The challenge for us was to explore how we could use this to involve students, re-engaging them with their subject through the use of images as a scaffold on which the learner can develop their own academic voice. Ultimately our challenge has been to develop a pedagogy around *digital posters* for use as a platform to develop student writing.

What we did

Early on in the course the students complete an extended individual research project supported by Library & Information Technology Support staff. Highly valued by students, this activity has resulted in informed students who have a strong sense of ownership over their material. A suitable activity was needed at this stage, requiring the students to shape and process the research material and begin to commit to a critical perspective on this. Previously students' research had been shared by presentation to their peer group, but the opportunity for students to reflect over time on their performance was missing.

Digital poster workshops



Figure 1 Students in a digital posters workshop speak

Digital posters were introduced and created by the students in workshops (Figure 1) lasting two hours. The students used screencasting software to capture simple, clearly structured representations of their assignment research onto which they layered a spoken commentary. The use of images, rather than words, to describe their structure, ensured they are not overly constrained as they find the best words to use. While students were required to come prepared with a single slide containing an arrangement of four visual components, the audio track was unscripted and they were instructed to talk through their presentation and record it for their group and tutor to listen to. This resulted in *digital posters* of varying sophistication lasting between two and four minutes.

Once the *digital posters* had been completed in each workshop the posters, which were not formally assessed, were published by the students using a wiki on the module *Blackboard* site for shared group access. This was followed by a wide-ranging, semi-structured group discussion in class led by the tutor. The end-of-workshop

discussions examined the idea of *digital posters* and what could be learnt from the experience of designing and producing them, and how this could be applied to academic writing. Later, the tutors discussed the posters that had been most successful and offered informal feedback online.

Challenges

Introducing a new technology-enhanced pedagogy into an existing module presented several challenges. How could workshop time be given over to introducing students to the approach and the unfamiliar software? How could we engage students in a non-assessed task relating to the development of their academic literacy?

Beginning with one cohort and then scaling up across the module, students responded well to the novelty of the new technology and were consistently interested in learning new techniques.

It was a good way to engage your attention. The fact that it was a digital poster, it's different. No one's ever done it before. It's a fun and interesting way to engage in something that probably would have not been so fun before.

The task was offered as an option and taken up by over a third of each seminar group. In some cases, those who did not attend expressed regret on seeing the posters in the VLE.

A more prosaic challenge involved the access to appropriate hardware, software, storage and support. Learning from the first iteration of the task, PC labs in the second iteration were properly equipped with *Camtasia* screencasting software, headsets and illustrated step-by-step handouts describing the technical process. Suitable contingency plans were also developed to overcome difficulties (e.g. a similar approach was devised using just *PowerPoint* and its narration functionality).

Reflections

This *digital posters* approach has been trialled for two years during which time an action research method has been used, enabling the authors to reflect on, appreciate and amend the methods to streamline the workshop and to make its purpose clearer.

Initially the *digital poster* workshops were extremely busy with tutor modelling of the approach using a live demonstration, introducing students to the screencasting software, ensuring students were ready and confident enough to make their recording, and encouraging them to talk to the computer in a lab situation. With practice, running the workshops came into a productive balance. The key to getting students to talk, we discovered, was to make them realise the benefit of making several attempts at producing the commentary while tightly delineating the time

available for doing this. Identifying and encouraging a confident 'first talker' was key to breaking the group's reticence to begin talking.

Focus groups

Focus groups have been used in each of the workshops to review the development and effect of *digital posters*. Ten minutes was typically reserved before the end of each session to gather all participants into a discussion circle where a number of points were addressed. Latterly the module team has appreciated how this end-of-session gathering has informed the aim of the *digital poster* pedagogy itself by removing the students from the immersive bubble of their screencast production into a social and meta-cognitive situation in which they are able to review what they have done and why this is useful to them.

In the focus groups students have reported that the method was accessible, attractive, engaging and intellectually liberating.

I think it will definitely help a lot [to do more of this at home]. It's giving me a clearer view about what I'm doing. And if I missed out something it's going to point out all these bits and pieces.

The pictures help you to concentrate. When you look at them your thoughts start to take shape and they help you to focus on your topics.

It's really good for gathering your thoughts.

The combination of using images to structure their ideas and recording these orally as they talked through the presentation allowed the students to focus fully on the content. They were able to shape their own ideas, especially when they had time for more than one attempt. The process appeared to allow students to sidestep concerns about academic expression and offered a practical means to engage them in their subject.

It's good listening back to yourself because you can hear whether or not you know what you're talking about.

I've learnt that, if I go off at a tangent, to realise it earlier and redirect myself straight away.

Yes, I think it was really good because I can use it for my next preparation for my assignment. I can listen back to it so I know where I need to improve and where I need to work on it. And actually, it gives me a bit more confidence to listen to my own voice and knowing what I am going to include in my assignment. So there's not going to be any confusion when I'm doing my preparation. So, I think it was really good.

I spoke it initially, but when I listened back I realised I'd said it incorrectly ... it emphasises the importance of having a good understanding of the subject you're talking about.

Observing the process

Many students initially struggled to work without a script. Written notes and scripts create a safety net that many appreciate; however, reliance on scripts tends to result in poor, relatively lifeless recordings. The team was also keen to challenge the students to develop new approaches in the safe environment of the workshop so that they could see for themselves the benefits of using a simple, visual structure to talk through their ideas. By and large this was a successful strategy even in a discipline with a high proportion of international students. For many students this activity provided an accessible way in, a means to get down a first draft and, by simply talking through their ideas, it allowed them to think creatively about their subject.

From observation, what was striking was the high proportion of time the students spent re-working their recording, suggesting that this activity facilitated the editing and refining of their ideas. Their awareness that these would be published in *Blackboard* appeared to promote a shift in discourse tone from personal to a more public formal voice; a voice that is more appropriate for the academic context and task.

Students also mentioned a strong sense of ownership:

You learn a lot because you don't want to do it badly because it's your voice you want to get it right.

This contrasts markedly with the loss of self, the sense of foreignness observed by novice writers reflecting on their early forays in to academic writing (Lillis, 2001).

Reflecting on the posters produced by students

There was an interesting phenomenon concerning the intersection between use of the visual codes of the poster and the spoken word. Having four pictures on one slide, rather than on a series of slides, meant that the stronger students tended to articulate the connections between the visuals, relating them back to an overarching idea or main point. This was echoed, but not replaced, by the use of the zoom functionality in the software to focus visually on particular images and the use of panning to make connections by moving between the images. The simplicity of the design of the visual prompt encouraged the students to make these higher-level discourse features explicit, to put them into words; an approach which translates easily into writing. In identifying the most polished posters, it was simple to highlight these features as characteristics which indicate clear structure and organisation; features that make it easy for the audience to follow your train of thought in speech and in writing.

The publication of student work on the group *Blackboard* site offered an opportunity for tutors to identify key characteristics transferable across the media being used. In the feedback, attention was drawn to posters which addressed the task and communicated most effectively; those that demonstrated the effective use of evidence and examples, reasoned thinking and logical sequencing. This offered an

opportunity to deconstruct the best examples and demonstrate up close how academic literacy develops, how abstractions such as critical analysis and the use of evidence and structure translate into language within a particular subject. This opportunity to see highly valued, peer-produced examples is seen as a valuable learning opportunity and a significant addition to the module.

Future research

At this stage in our research the *digital posters* method has been shown to visually scaffold learners' thinking and presentation, resulting in more open thinking and fluency, and less anxiety. Research is now required to validate these initial findings and explore a number of further questions: To what extent do effective communication and strong authorial voice straddle different media? How well does audio recording scaffold entry into a discourse by allowing students to focus on content as well as support the shift from spoken to written modes? Does a *digital poster* 'text' or 'script' evolve the same way as a written text through its iterative re-recording?

There is a sense that, as students switch flexibly between different modes of communication, tutors need to re-examine the assessment criteria they use to foreground features of effective communication through different media. Finally, the reason this particular task is worthy of further scrutiny is that it both re-establishes the primacy of the relationship between student author and audience and, in scaffolding an introduction to a new discourse community, it creates a space for students to create and contribute meanings of their own.

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Sketch blogging — increasing accessibility to self-evaluation using digital media

Alison Evans

Introduction

This study reports on the development of an alternative format to the traditional journal and sketchbook approach used by students studying Art & Design. A multimedia approach was used to support learners' self-evaluation of their visual work; a technique that responded to diverse learning preferences, low literacy levels and, in some cases, learning difficulties. The initiative was situated in the author's own study for a teaching qualification.

Context

Obstacles to effective self-evaluation by students

The sketch blogging technique devised in this study was informed by a survey of the mature students who were studying Fine Art at BTEC levels 2 and 3 at Mid-Cheshire College. The approach is an outcome of an independent research project undertaken by the author as part of her teacher training programme.

Drawing on data collected using a questionnaire with two student groups, it was evident that they were interested in using digital techniques to support their reflective portfolio work. In the survey, students highlighted dissatisfaction with the existing paper-based techniques, citing problems with personal organisation, poor handwriting, their weak communication skills, and the repetitive nature of the recording and reflection process. The factors indicated there were fundamental obstacles to effective self-evaluation, though the survey showed they valued the opportunity to reflect nonetheless.

Aims and objectives

The aim of the research project, therefore, became to find and test an alternative, attractive and accessible approach to supporting learners in reflecting on their artwork. Aligned to this was the need to encourage the learners to apply their ICT skills to the presentation of their work to enhance their employability.

Having assessed the need for a different approach to using journals and sketchbooks, the design and evaluation of a digital multimedia method was planned, the hypothesis being that the technology would address the organisation, presentation, and communication weaknesses that had been identified, while introducing novelty and variety to the way that students engaged in their work independently and socially.

To create a more stimulating and contemporary resource, audio visual media in the form of digital photography, Photostory and Audacity, would be incorporated and brought together through a network of student blogs. The diversity of the media would allow all students to engage in self evaluation, including those with low literacy levels or learning difficulties. Audio would provide the students with the opportunity to self-evaluate their work without having to struggle with written methods: a struggle that had resulted in frustration for some students.

About the tools

The tools used to support the process are all free and relatively unsophisticated. They do simple jobs well.

Audacity is an audio recording and editing software. It allows the user to record through a microphone directly onto their PC and edit the recording by selecting parts of the visual waveform representation of the sound. Parts of the waveform are selected and treated using a small range of functions that are usually easy to grasp. Alternatively recordings made on Dictaphones can be imported for editing.

Photostory is a free tool produced by Microsoft for assembling collections of images along with a spoken narrative and, optionally, a music track. Some text can also be added, so it is ideal for constructing short digital narrative sequences which can then be exported in video format. This allows images and audio to be combined so that reflective commentary can be layered and evaluated as part of a digital sketchbook. This promised a marked improvement on the existing disjointed approach of using a separate journal and sketchbook.

Google's *Blogger* tool was used as the blogging platform. As a Web 2.0 tool, the potential audience of a blog is the entire internet. This allowed students to decide, therefore, to share and present their work to the general public as well as to the class group, potentially resulting in more feedback and a greater variety of responses. At the same time, participants' blogs can be linked together to form a basic social network; something that was identified as a potential benefit to these students, who had rated the use of peer feedback highly.

The intervention

Slightly different approaches were taken with the two BTec groups in this study. The first group received support through workshops, and the second was supported more directly by the tutor.

Group 1 was composed of three British women with no learning difficulties who were all over the age of 50. With the support of a learning technologist, they were guided in setting up a *Blogger* account in a one hour workshop following a step-by-step guide. The students had the option of controlling access to their blogs. The decision was taken to create a closed group involving all participant students and tutors. Later family, friends and other peers were added, as well as members from Group 2. This was achieved using the built-in 'blog list gadget' feature in *Blogger*.

Over two weeks the students transitioned from using the existing paper-based techniques to recording their notes in *Blogger*. The tutor gave class and email support and began to use the commenting feature to give feedback. Peers were encouraged to comment on each other's blog posts in the same way, which they did.

In a later session, the students were introduced to *Photostory* and its potential for displaying their work and embedding it in their blog. They were shown how to add and structure images, text and sound files. The tutor produced an example of what could be achieved which was shown to the students and made available on her blog, also part of the network. Links to the software, handouts and related materials for using *Photostory* were also given through the tutor's blog.

Group 2 engaged in the initiative some weeks later than Group 1, coinciding with the start of a new unit. Though the group was made up of just two students (again they were both over 35), they chose to opt in to this new approach because they had struggled with the more traditional formats for self-evaluation. One had severe learning needs, requiring additional learning support. In supporting Group 2 more closely, the tutor was able to draw on what she had learnt and the resources produced from working with Group 1. Subsequently one of the students dropped out due to problems with her home internet connection.

Evaluation

Individual semi-structured interviews were conducted with each participant following completion of the project to find out what the main benefits and problems had been in using the multimedia sketch blogging approach as an alternative format for self-evaluation and as a generic learning resource.

All participants stated that they enjoyed producing their blogs, describing it as "an interesting and creative experience" (GB1). DB2 found it fascinating: "I think it's a way, if you like, to develop ideas and get feedback to enhance your development."

They valued the opportunity to develop a range of technical skills around an academic task. DB2, for example, said, "I am aware there are a number of techniques that can be used to make videos, voice recordings, etc, and all these things, I feel, will enhance my work."

Students particularly valued using *Photostory*, as one explained, "It gives me an opportunity to express myself in a verbal manner, and so I found it the way forward." (DB2)

In relation to the hypothesis that the technology would address weaknesses with organisation, presentation, and communication skills while adding a new independent and social dimension, the students valued being able to share their work and making the recording of their work more interesting. GB1 suggested that it had given her, "more confidence with being public with what I am doing." The approach had given her more access to the self-evaluation process and this had increased her engagement with it. DB2 agreed, explaining, "I can record my thoughts and express my feelings with regards to a piece of work and I can explain it much more fluidly than I can write it."

The students enjoyed the flexibility of the technology, identifying how this supported their experimentation. They valued the control it gave them over their presentation too. SB1 stated, "It makes your work look good", while the platform according to DB2 "concentrates the mind."

On a less positive note, there had been some minor technical problems during the running of the project relating to classroom PC access and a lack of basic ICT skills and confidence in one or two cases.

Reflections on mixed media engagement

The digital voice does not appear to feature highly in this case study. However, its use is subtle and part of a mixed digital media strategy for enhancing meaningful engagement according to the preferences and needs of individual students. This demonstrates how important the accessibility of digital media technologies can be, especially among students who have identified particular needs for themselves.

Students, especially where they have had additional learning needs, have benefited from the ability to record their evaluation in a verbal format, and then marry this with their images. It has removed some of the barriers presented by the written word and has increased motivation and independence. Learners have been able to make audio notes on the spot without having to wait for additional learning support, and have then imported this into *Photostory* to combine with their digital photographs. DB2 stated, "In my opinion it gives people with difficulties a voice to be heard and I think that's important."

In some cases the students have used the new digital environments as a spring board. One student used this new approach to produce and present both primary research and contextual studies in a predominantly verbal and visual manner, circumventing the text-based approaches that had inhibited him previously.

Students also valued the tutor's own blog and the resources there which also used a mix of media.

Participants used their own blogs regularly. In Group 1, for example, one student made a total of 19 posts during the project using images, text and *Photostory* projects, and another made 20 posts using similar techniques. In Group 2 similar types and levels of engagement were evident with links also being made to artist website and videos.

Conclusion

Learner feedback on the approach was very positive, and the four most active students from both groups opting to use this approach all received distinctions on their work.

The feedback from participants suggests that the use of multimedia blogging provides a successful alternative to traditional sketchbooks and journals for student presentation and self-evaluation. All learners have enjoyed creating their own blogs and have found benefits in doing so.

The main gains to students have been increased accessibility, development of ICT skills, greater knowledge of presentation methods, access to a wider audience, prompt and recorded individual feedback, and an integrated platform for communication. The project has increased interest, enjoyment and motivation and, perhaps most importantly, it has offered a method that did not exist before for some students to engage as effective learners.

SECTION 3

50 IDEAS FOR EDUCATIONAL PODCASTING

Introduction

Fifty ideas for incorporating the digital voice into the curriculum are presented here a synthesis of the many hundreds of ideas that have been suggested in special interest group workshops. These ideas demonstrate not only that there are many ways in which audio can be effectively used in post-compulsory education, but also that there is a desire and the creativity to see such methods developed. A readiness for innovation can also be found elsewhere in the literature on podcasting (e.g. Guertin, 2010; Sutton-Brady *et al.*, 2010; Salmon and Edirisingha, 2008).

In many ways it was the enthusiasm of SIG members for exploring the educational potential for digital audio in these workshops that highlighted the need for *Digital Voices* and the shift from a technical focus on podcasting to exploring the potential of the asynchronous voice.

In most cases each of the ideas described in this section is the result of collaborative activity: the ideas came out of structured conversations and were peer reviewed in the Podcasting for Pedagogic Purposes SIG wiki and later in follow-up workshops. Finally, similar ideas were merged or alternatives presented side by side. That still leaves hundreds of ideas that do not appear here, and hundreds more that are still to be devised to meet different needs. These 50 ideas, therefore, represent a way of thinking more than a set of solutions.

Pedagogically the ideas require that the learner is actively engaged and these ideas feature a mixture of voices to achieve this, while the role of producer is as often undertaken by the learner as well as the tutor.

It is difficult to properly acknowledge the contributions that have been made here because so many people have taken part in this activity, but gratitude is due to all those who have taken part in sharing and devising ideas so enthusiastically.

Organisation

The ideas below could have been organised in several ways: alphabetically, by technical complexity, educational level, numbers of participants, tutor or student producer, and so forth. Carvalho *et al.* (2009) have devised a podcast taxonomy, recognising the diverse ways in which the medium can be used. However, a simple schema has been devised that identifies the underlying purpose of each idea. The

categories we have used draw on the notion of media intervention, as discussed in *Digital media and their pedagogical opportunities*. We hope that the categories, as well as the ideas themselves, are inspiring. It should be noted that despite the apparent fit of the ideas to the categories, most ideas could be listed under more than one heading.

50 Ideas

Orientation

These ideas are about establishing the study of the current topic, the assignment or the learning community itself, ensuring that people are 'pointing in the right direction'.

1. Announcements, Thought for the Day, and Word of the Day

Announcements that would normally be posted to the VLE can be enhanced by the tutor making more of a personal connection through audio.

Alternatively, tutors can pose a daily question, word or idea, or they can ask students to take turns in making such daily postings.

These ideas are fundamentally about community building by using a low overhead, a 30-second message.

2. Assessment criteria

The tutor, or tutor team, discusses the assessment criteria, talking through what is required. They possibly develop the bare bones of the criteria with illustrations or reference to previous iterations of the assignment. The method offers the students a different view to what has been written or introduced in class and may allow them to pick up a stronger sense of what is important from the tutor's voice.

3. Audio guides, and audio traces

The audio guided tours are designed as a number of episodes that relate to specific places or artefacts with corresponding labels. An approach similar to a museum guide, it is useful for inductions to libraries, labs, workshops, services and the campus.

The same technique can be used with reference to labelled objects, such as equipment which needs to be assembled, or labelled samples (e.g. geological, or documentary). Expert voices can be used to bring new insight to the artefacts where appropriate.

Conversely, an 'audio traces' approach can be taken where the learner leaves evidence for others. For example, in the construction of a model by a group of students, various design decisions will be made. By annotating the model with reference numbers, and labelling audio notes according to those numbers, those viewing it later are able to interrogate the design to reveal

more about why and how the model was made. Anything that involves decision-making can use this technique. This approach can be extended by labelling the objects with QR codes, for example, that connect to explanatory audio files when scanned.

4. Process guides or pocketables

Walk-through or talk-through guides can take the learner through a process one step at a time, especially where it would be difficult to use written notes. Recordings can instruct learners to pause playback every so often as they execute the procedure or respond to reflective questions. This technique can be used to hand-hold people through any process for the first time, especially in situations where the learner can't be supported in person, e.g. nurses or teachers on placement, and they can be used as aide-memoirs as learners undertake the task. Such 'pocketables' (podcasts in your pocket) can be used to reduce anxiety prior to an initial performance of a process by talking through or demonstrating the technique. Audio, video, screencasts or machinima (films made in 3D virtual worlds and games) are all techniques that can be used to produce such information.

5. Digital digest or audio FAQs

An audio compilation of the week's questions from students to their lecturer allows all students to hear the queries and concerns that have been raised.

Alternatively, short recordings made by tutors following tutorials are posted immediately, especially where questions have generated answers that are generally useful to other students.

6. Every student should know...

This is a series of podcasts made by tutors, support staff and students, each proposing one thing that every student should know. Topics cover everything from information literacy skills to staying safe on a Friday night pub crawl. Each proposal takes the form of a structured three-minute proposal and discussion by two people. The range of topics adds an element of surprise that can help to keep students engaged over a long period of time.

7. Illustration

Audio illustration is intended to bring further insight to taught knowledge. For example, the illustrations can be short anecdotes delivered by the tutor or externals to add colour, or they can be interview extracts that really add emphasis to a point or a concept being introduced. In fact they can take many forms, but as with graphic illustrations, the audio adds another dimension or explanation to the study topic.

8. Prevision, previews, tasters and teasers

Podcasts or videocasts are provided prior to lectures or lab classes in which the lecturer introduces key topics and concepts, or demonstrates practical

techniques to engage or prepare the students beforehand. These pieces can be recalled during the session and used later to aid revision. The main benefits of this approach are that students come already engaged in the topic and are more prepared to participate.

Alternatively, questions can be posed with the promise of solutions in the lecture. They can work as taster clips to develop interest and pre-lecture enquiry.

A similar approach can be used to introduce modules where a collection of module tasters can be made as module outlines. The collection can feature a range of voices and even present teasers to tempt the students to find out more.

9. Previsit

Students are engaged in their field trip or museum visit through podcasts prior to their visit using materials produced by the tutor or museum. The students listen as they travel and arrive already familiar with important information relating to the destination and how they might expect to use it.

10. Out in the real world

Interviews conducted with recent graduates to provide insight for those about to graduate.

11. Recaps, audio summaries, and revision co-ops

Recordings of key points are recorded soon after a lecture, lasting about five minutes. They particularly address questions raised by students during the lecture and, as such, are intended to aid the learner in making connections to their personal experience of the lecture as they revise later. The previous week's recap recording is played at the start of the next session as people settle down.

All of these build up week by week to form a full podcast glossary, revision pool, or course overview.

Alternatively, recordings can be produced and organised by students co-operatively as weekly audio summaries. Following lectures, seminars and assignments, small study groups can pull out key points of interest from their written notes. The recordings are best kept to less than 10 minutes with all students contributing at least one key idea or question for clarification. These summary conversations are pooled for the use of all contributors.

12. Research methods stories

Most students need to develop research skills, yet it can get confusing knowing which methods and methodologies are best used when. Stories from across the institution are recorded with staff and students who discuss what they have done and how successful their methods proved to be.

13. Think tank

A podcast in which tutors and experts discuss an important topic.

Motivation

These motivational ideas are designed to encourage the learners to raise their awareness of a topic and to develop their interest. In some cases the requirement to *make* an interesting recording is the driver.

14. Activity capture

Commentaries or notes on small-scale student group activities can be captured in audio format to inform later discussion and reflection.

15. Break out posters

Group discussion and feedback is recorded for later review in the VLE or podcast. This can be particularly valuable when students are doing similar activities in different seminar groups, allowing them to compare their responses. It promotes live and post hoc discussion and subsequent reflection.

The idea can be developed by photographing visual artefacts such as flipchart sheets that can be recombined later with the audio to produce a video. The recording can then be archived or shared more widely. In some cases it may be useful for the voices of 'the audience' to be captured as they question the presenters.

This technique allows important ideas to be reviewed where flip chart notes might otherwise be lost or thrown away. Those involved in presenting, or being presented to, are able to pay more attention to what happens in class in the knowledge that they will be able to review it later.

16. Digital poster

Normally, the benefits of student poster sessions fade with time. Such presentations, however, can contain the evidence of focused research and this can be useful to other students. However, other students may be too preoccupied with their own posters to make use of this research. To address this, a similar poster assignment can be set where an MP3 recording is made to accompany the graphic presentation of information, and this is layered with the poster graphic later and produced as a video. This method also can help the student presenter to find a useful balance between words and graphical information, leading to a reduction in the use of text in the poster which in many cases weakens students' presentations.

17. Call the expert

Audio provides a powerful vehicle for bringing experts in to talk to students, adding professional insight to the topics they are studying. The use of phone recording devices or *Skype* recording software means experts can be

physically located anywhere in the world and still make a valuable contribution.

'Experts' can be closer to home too: tutors, advice and guidance staff, alumni or students studying at a higher level.

18. Drip feed

This approach involves a simulated replay of an unfolding real world situation that draws upon a variety of content, e.g. in Politics a replay of the Cuban Missile Crisis; disaster or crisis management for floods, traffic accidents, etc. At each stage of the simulation students are asked to signal what action they would take next. Later they can reflect on the quality of their response.

19. Elevator pitch or dragon's den

Students are asked to form an argument or present a new idea and pitch it in under three minutes. A second voice interrogates the presenter according to an agreed structure. They are expected to be passionate, selective and convincing in making a lively and persuasive case, drawing on evidence where necessary.

This approach might be useful in preparing students to make more formal, assessed presentations. Listening back to their performance can help them to identify what works well, and what does not work so well.

External experts can be invited to judge the presentations.

20. Newscasting

Broadcast news programmes, and the various techniques they use (e.g. "...And Finally"), offer a good framework for student podcasts because they consider various perspectives and should be non-judgemental. Students and their audience will be familiar with the genre and so producers have useful reference points when beginning to plan what they will do. When setting a student podcast assignment the tutor can tell their students "Do it in the style of a two minute news bulletin that incorporates at least two contrasting perspectives."

21. Phonecasts or phlogs

Services such as *Gcast*, *iPadia* and *Audio Boo* allow anyone to set up a podcasting account to which they can phone in episodes. This can be useful in many ways; for example, academics on sabbatical could produce a podcast of a study tour; or students could work together by phoning in reports from a field trip or museum visit. Individual students can use such an approach for an audio blog or reflective diary.

22. Podcast dramas or soap in your ear

Producing a drama only in audio can be quick, easy, cheap and good fun because audio does not need expensive visual props. Co-producing a script and recording it, with or without sound effects, can be an engaging group exercise and one that allows co-creators to learn together. In the social sciences, for example, students can be asked to produce a script based on their understanding of a decisive moment in the history of the discipline. The drama can be driven by ongoing research and later the class interpretation can be used as the basis for further discussion.

Alternatively, an end-of-session three to five minute improvised soap opera by students can be a daft, exciting way to conclude what has been taught and might even help learner engagement during the session itself – “How are we going to get that into this week’s episode?” Bad acting can even help in such situations!

23. Professional briefings

An audio briefing can be used to trigger student project work. Professionals from industry can be invited to offer real-world project briefs. The audio post might be one of several briefing documents or might be the main 'client' interface to the project. Getting professionals into the university can be difficult to organise; however, there are several options to get them involved, some of which make it easy for them to stay involved with the assignment along the way. One approach is to ask them to record audio briefs from their office, use internet VoIP telephony to make recordings, or invite them in and use an MP3 recorder in your office.

24. Project streams

Some project work needs to follow a strict procedure and many modules are designed to reflect this. While students are caught up in the day-to-day project work, an audio commentary by the tutor delivered through a module podcast can echo what is happening in the student work. This meta-layer can even involve people from industry providing anecdotes relating to the various stages of a process.

25. Quote of the week

Regular podcast episodes can be produced featuring short quotes from the literature to entice students to take more interest in reading around a subject.

26. Vicarious experience

What is it like being the 'other'? For example, the patient, the student, the doctor, the teacher? A podcast supports an empathy building activity.

Challenge

The ideas in this Challenge category require that the learner or the learning group undertake some action. In several cases here the students are the producers and it is the act of production that facilitates their learning.

27. 60 second summary

Each student group has just three minutes each week to agree and deliver a 60-second summary of the week's lecture or topic. Optionally, the tutor can use these to create a single résumé for the week and add further notes as necessary.

28. Book review pool

Here, students are encouraged to read critically and engage with the literature available to them. By developing a pool or collection of audio reviews students can make a contribution not only to a resource used by their peers, but also to a resource that might be useful for those that follow in subsequent years. This can be an ongoing activity in which all students are expected to contribute.

29. Diagnostic cases

The focus here is on 'problems' presented by service users, for example, recordings of patients talking about, or being interviewed about, their symptoms so that medical students can attempt a diagnosis.

Similarly, customer care diagnostic cases around various services could use this approach; or engineering diagnostics describing faults or bugs in equipment or software. Such recordings are ideal to set challenges and can be embedded in online assessments.

30. Field assignments or geocast

This method captures the intensity and richness of off-campus trips and might include interviews with the people encountered, data collected in audio form, discussions recorded on location, observations captured in real time, sound stories or walk-throughs of the environment.

Student groups can be assigned the task of creating an audio report, perhaps on a particular theme, so that when they return to base they have a rich collection of material. The audio might be mapped onto other materials where it was recorded at significant locations.

31. Global stage

Recordings of multi-participant telephone conversations involving people from across the world for free using *Skype* or other VoIP software.

32. Glossaries

Either tutors or students can create an audio glossary of complex ideas or jargon by taking one word or concept at a time and exploring and explaining its meaning. This could be done in text but the use of voice highlights the subtleties of meaning and interpretation.

33. Group assignment

Group audio presentations challenge the students to creatively articulate ideas, understanding and experience without the use of visual aids. This approach forces the group to come up with a useful presentation technique, perhaps drawing on a broadcast format with which they are familiar. The benefits of such assignments, beyond the enquiry itself, include the development of teamwork and collaborative skills, communication skills, and technical skills.

34. Group story

Group members are required in this method to produce a joint audio report on their group activity to ensure all members of the group contribute equally. Each member is assigned a particular role in the group and is required to share what they have learnt about the task from the perspective of the role they were assigned. A set of headings may be useful to frame the report, such as: description of duties; prerequisite skills and attributes; research undertaken; group relationships and dependencies; main challenge; main contribution made to the group assignment. Each group member produces an audio report that, when put together, tells the full assignment story.

35. Groupcast or minute by minute

This audio notes technique is used as a device in group work. Students are required to summarise group meetings and to record the allocation of tasks for the next week to ensure that everyone is clear about what is expected of them. This approach can also help to identify the extent of individual contributions.

36. Just a minute

Here, each student is expected to give a 60-second solution to a specific problem. The recordings are shared and form the basis of further work or discussion.

37. Moot

A moot is the role play of legal proceedings by law students. The same technique can be used in other disciplines where an idea, rather than a person, is put on trial. Making an audio record of such an event adds value, allowing students to critically review their own arguments and performance.

38. Audio gathering

There are many ways by which students can use audio to gather notes and feedback. The idea of gathering suggests an opportunistic and habitual use of a recorder, so access to voice-memo technologies such as those available on mobile phones are useful here. In this idea it is likely that students decide to make frequent small recordings for themselves, such as ideas to be explored later, personal procedural notes, and conversations with peers and tutors; but a more formal approach can be encouraged around assignments and even undertaken as a social exercise. The notes and feedback gathered during each day are likely to be wasted if periodic reviews of the recordings are not made.

39. Fly-on-the-wall observation or monitor me

This approach involves production of an audio documentary by a student that includes selected and edited commentary of live observation, produced as a coherent audio report packaged for submission. The selection and editing process require the student to decide what is important. The report could cover a student's lab or studio work.

Alternatively, students can work in pairs, one observing the other as they perform (e.g. teachers, nurses, musicians). Individuals in some situations can conduct audio self-assessment too. Using such techniques, students are able to monitor their progress by recording several performances.

Reflection

In these ideas the learner is primarily expected to engage in a reflective way.

40. Academic reflections or bridgecast

Tutors discuss the outcomes of an activity or module: what were the highlights of this iteration compared to previous years, what didn't work, and what was surprising. This reflective piece allows the tutors to also look forward, making connections to forthcoming activities and modules, and implies that the learner should seek connections.

41. a-PDP

On the way home the student answers three questions using an MP3 recorder or mobile phone memo tool: 1. What have I done today? 2. What have I learnt today? 3. What am I going to do about it? The student reviews the previous day's message on their next journey back to campus. Periodically the student creates a summary reflective statement, possibly in written form.

42. Audio feedback

There are many models of audio feedback involving formative commentary on student work by either tutors or peers. In this way feedback can be targeted at individuals, small student assignment groups, or whole cohorts. Groups can be advised to compare feedback or listen to and discuss group feedback together.

43. Audio role play

Role play can be a valuable technique in the classroom and is often centred on the spoken role. Audio can capture the performance and allow the actors, and others, to reflect on what happened.

44. First thoughts

Audio is used to capture the immediate responses of individuals and groups to a problem. This can be insightful for the learner or others as they later look at how they have refined their response following research or discussion.

45. Group feedback

Generic or broadcast assignment feedback is targeted at student groups or the cohort as a whole and may be used to complement other more specific feedback methods. As well as aiding reflection, the recording can be used to help the students prepare for future assignments in more advanced modules (i.e. “don’t make the same mistakes you made last year”) or can be used to kick off the same assignment for next year’s cohort (i.e. “don’t make the mistakes they made last year”).

The feedback file is distributed to students and can be handed on to the leaders of other modules to indicate what has been achieved and where feed-forward action needs further support.

46. Hypotheses drafting

Writing hypotheses or research questions can be difficult for the first time. Establishing the ideas in a spoken format can be useful as it prevents the learner from committing themselves to a written form of words too early. The audio format can help the student to capture the essence of what they intend to do and articulate its rationale. Once the student has made a brief recording they can either put it to one side for later review or they can exchange audio files with peers who can review the initial ideas. Hypotheses are later written on the basis of review.

47. Look sharp interview simulation

In this method, students work in small groups to practice their interview skills. Two or three students ask questions while another responds. Later, students can listen to their responses to identify where they should improve.

Alternatively, simulated interviews can be recorded and used to support discussion about how questions could have been dealt with more effectively. Students or former students who have been through interviews can be involved to share their experience.

48. Peer review

In this idea audio is used to give structured peer feedback on the academic work of fellow students. Criteria are provided to ensure the feedback is signposted and focused. This enables the reviewers to learn by reflecting on

how their peers have answered, while supporting their fellow students with constructive criticism. Peer review is sometimes criticised when the responses appear superficial; the audio format can heighten the demand to make the review more rigorous as it puts the spotlight on the speaker as much as on the recipient. As well as allowing the recipients to review their work, the tutor is able to moderate the recordings.

49. Proof reading

Reading written work into an MP3 recorder can help some students identify written mistakes. Speaking and listening back to their words can help them to pick up on awkward sentences. It is also possible to submit written work to a robot voice reader (e.g. spokentext.net). Listening back to the robot reading the written work can help to identify mistakes or problems with the flow of the text or the argument itself.

50. Storytelling voices and predicaments

Digital storytelling involves students producing short stories using digital photography, video, spoken word, music, text and transitions. It can be used as a way of sharing ideas, experience or supporting personal reflection. Digital 'evidence' can be gathered while on placement, on a field trip or during a project. This can then be sifted, selected and edited to support reflection and then used to share the essence of experience with tutors and peers.

Students on placement who are not in a position to record their actual experience (i.e. teachers, medics and anyone working in situations where they can't record the people around them) can use a reflective diary approach. These can make use of abstract or real images that complement an aural telling of the experience.

Digital stories, can of course be used directly as learning resources for students. Patient voices, for example, might be useful for healthcare students, enabling them to encounter patient's stories through digital media that form the basis of various follow-on activities. A client voices or customer voices podcast could use a similar approach. Such voices (or stories) could be collected by academic staff, developers or students. In the 'predicament' approach, for example, students on vocational courses use stories to help them develop client- or public-facing skills, by responding to recordings of real life or dramatised situations.

Finally

We hope that some of the ideas above will be useful to you, those with whom you work and of course to the students who will encounter them. Above all, we hope that this brief list will encourage you to think creatively about how you can use audio,

other media and learning technologies in general to extend the ways in which teachers and learners are engaged in the blended learning environment. Most of the ideas here came from, and were refined through, conversation — always a good starting point!

APPENDICES

Reflections on the pedagogic potential of digital media — an institutional and cross-sectoral perspective

Jethro Newton

Context

This appendix presents some reflections on insights gained from having worked on a cross-sector basis since 2008 with colleagues drawn from higher and further education in leading the UK-wide 'Podcasting for Pedagogic Purposes Special Interest Group' (PPPSIG); later to become the Media Enhanced Learning SIG (MELSIG). At the heart of this initiative has been an exploration of the educational and pedagogic uses and potential of podcasting and digital audio. The reflections set out here are further contextualised by drawing on the perspective of a senior university manager with a portfolio of responsibilities that includes strategy and leadership in the areas of learning and teaching; technology enhanced learning; quality assurance and enhancement; and staff development for the enhancement of academic practice.

The broader context for these observations on the potential of digital media is one in which practitioners and institutional managers face increasingly turbulent and uncertain times, in terms of policy and funding (Morgan, 2009), and the delivery and support of learning. This climate of operation puts the spotlight on learning and teaching more than ever before. Difficult choices lie ahead, and higher education institutions (HEIs) face many challenges and contrasting opportunities that create a tension for educational innovation.

Here, it is argued that the success of institutional decision making is dependent in no small part on achieving alignment between resourcing and infrastructure, between technology and pedagogy, between staff development and student expectations and behaviour, and across all of these. Within this, the role and potential of digital media, as a key facet of technology enhanced learning, merits urgent consideration, sound understanding, and insight amongst all the key players in post-compulsory education.

A linked challenge concerns the need to transform pedagogy so that it keeps pace with and effectively exploits the societal adoption of digital technology (Garrison and Kanuka, 2004). This volume, and the case studies it contains, illustrates how SIGs can provide a collaborative model for supporting educational development in challenging times (Wenger, 1998). The experience of MELSIG testifies to how SIGs can act as agencies for transformation by developing knowledge and practice collectively and to mutual advantage, and how they are suited to addressing the opportunities and challenges of the Digital Age. To the extent that the value of a SIG lies in its ability to organise rich and sustainable approaches to developing robust academic innovation, then this is highly pertinent to sector leaders, institutional senior management, and educational developers and pioneers; not least because it offers insight into developing responsive and affordable ways of leading transformation in exciting but difficult times.

The ‘PPP/MELSIG’ Initiative (2008-)

Initiated as a ‘Pathfinder’ project with funding from the Higher Education Academy, PPPSIG was established by the universities of Chester and Hertfordshire. The first SIG meeting in Chester (February 2008) was oversubscribed, as has been the case with subsequent events, in England, Scotland, Northern Ireland, and Wales. Online, a wiki was established to share practice and ideas, but the most significant outcome of the developing community has been to explore what educational podcasting and digital media can be. By early 2011, over 600 practitioners had taken part in SIG events. Along the way, other initiatives have echoed and complemented this interest. For example, the Leicester Impala project has presented guidance and case studies of UK higher education podcasting practice (Salmon and Edirisingha, 2008), while the Steeple project, led by Oxford and Cambridge universities, with input from PPP/MELSIG and others, has developed online tools for distributing educational podcasts. Added to this, a growing volume of new case studies from universities and colleges around the world has appeared in the academic press which have set out simple, discipline-based, classroom experiments with digital audio.

One of the defining features of PPP/MELSIG has been its emergence as a growing community of educational developers, learning technologists, academics and students, with a common interest in exploring the educational benefits and transformative potential of podcasting technology for higher and further education. The enhancement of pedagogy and the student experience have been fundamental concerns since its inception, as have exploring and projecting the powerful educational potential of the recorded voice. *Digital Voices* carries all this forward in an exemplary manner since it is very much about people and their capacity to respond to emerging technologies and pedagogies, rather than being about technology or even pedagogy *per se*. It also encapsulates the different ways in which people have engaged with and worked around PPP/MELSIG. On the one hand, some have dipped into events to keep abreast of the topic, or contributed as invited

experts in keynote mode to bear witness to and share innovative insights and practice. On the other hand, some have participated through links with associated groups such as the Steeple and Impala projects, or JISC Digital Media, or the ELESIG (Evaluation of Learners' Experiences of e-Learning Special Interest Group) initiative. Yet others have become fully immersed members of the SIG community, signifying the rich diversity of 'voices' talking about and engaging with podcasting, audio, digital media, video, and so forth, that is to be found in this book.

This breadth and growing scope of pedagogic thinking and activity has seen PPPSIG gravitate towards its re-designation, in January 2010, as the Media-Enhanced Learning SIG (MELSIG). Whether as novice or expert, inquisitive front-line academic or student, or institutional leader or manager, diversity will continue to be a hallmark of this initiative. The spirit of richness, diversity, value, and innovative edge which MELSIG seeks to engender finds clear and powerful expression throughout *Digital Voices*.

The practical focus and the ideas set out in the various chapters in this book reflect, directly and indirectly, the achievements and contributions of the MELSIG initiative. Since 2008, using a 'Hub and Spoke' model (Nason and Wooding, 2006) as the preferred organising structure, the 'spokes' have enabled the core group to connect regionally to people or organisations with related interests and expertise, thus supporting a large open community. In this way the SIG has sought to connect with as many forward-looking and 'creative voices' from higher and further education as is feasible. In this, without doubt, it continues to succeed. Indeed, the communal and collaborative approach and philosophy that underpinned the establishment of such a Special Interest Group, focused around digital technology and pedagogy, is represented well in this volume and reflects what the SIG increasingly came to signify. The richness evident in the testimonies and case studies set out in later chapters provide a clear illustration of the progress made by the SIG and its emerging community.

Digital Voices, as a project that has emerged from MELSIG, is a much needed and authoritative exploration and demonstration of the potential of educational podcasting, digital audio and video in post-compulsory education. Given the situation in which higher and education now finds itself, this potential is there to be tapped.

An institutional manager's perspective on the sector-wide potential of digital media

The objectives, focus, and activities of MELSIG make it well placed to be of pivotal significance in a sector facing challenging and uncertain times. *Digital Voices* is both engaging and timely. The book's subject matter and its focus on academic practice, combined with the exploratory stance of MELSIG, and the messages from both of these brings to the fore a major dilemma now facing post-compulsory education:

how do we, as higher and further education sectors, adjust to the challenges and opportunities that new and emerging technologies present us with, not least the democratised view of media-enhanced learning as signified in *Digital Voices*? Indeed, how is the potential of podcasting, and its role in assisting pedagogic transformation, to be realised institutionally in universities and colleges? *Digital Voices* provides us with a timely reminder of the difficult choices faced by institutional leaders and planners, not least in the area of support for digital media and preparedness of infrastructure.

Whatever the potential, or the attendant challenges and institutional requirements, there are pressing considerations for national funding councils, enhancement bodies, policy makers, and those educational opinion leaders who help to shape policy. In some quarters, the picture is less than encouraging. Take, as an example, the reaction in the higher education press to how institutions might respond to the 2009 Pandemic Flu outbreak. At the beginning of the crisis, the *Times Higher Education*, speculating on possible scenarios, boldly pronounced that 'universities are even considering delivering lectures via podcasts to contain the illness' (Attwood, 2007). Quite apart from the issue of institutions' likely lack of preparedness for such a project, such paucity of thinking amongst leadership raises some quite fundamental issues. One obvious and perhaps worrying aspect is the automatic thinking that links 'podcasting' with 'lectures', as if they have some inherent association. But most concerning, perhaps, is that such a limited and limiting understanding of the potential of podcasting and digital audio places them within a formal, traditional paradigm of pedagogy in which the main message is 'new technology, old pedagogy'. Of course, the related dilemma here for technology enhanced learning is that as long as the curriculum is lecture-centred, and indeed teacher-centred, then this sort of logical connection will no doubt continue to be automatically made, to the exclusion of more creative thinking about the use of such media.

The change agenda here then - for national policy-makers and opinion leaders, for national enhancement bodies, and for institutional decision makers - includes the need to recognise and plan for a pedagogic paradigm that is aligned more closely and organically to the potential of emerging technologies such as digital media and to changing learner needs and behaviour. Is this a timer for being careful or smart? For retrenchment or innovation? Misleading conceptualisations at higher levels of policy-making and opinion forming regarding the educational role and uses of technology, as have been alluded to, will serve only to generate further misunderstanding and to undermine real possibilities for educational innovation.

As institutions look ahead to the next decade in post-compulsory education, and contemplate the significant funding constraints that will undoubtedly confront institutions, much careful thought needs to be given to the resourcing and infrastructural implications of all this. Such thinking needs to be factored into institutional strategies for learning and teaching, and e-learning, and the deliberations of national enhancement bodies and fora.

Indeed, as the theme and agenda of the November 2010 meeting of the Heads of E-learning Forum (HeLF) signify, attention at national level is becoming much more focused on such considerations. With senior figures from HEFCE, HEA, and JISC, providing speaker input, the focus of the meeting was 'Strategy, efficiency, and resource management: national strategic directions for Heads of E-learning'.

For present purposes, if indeed the potential of podcasting technology is as considerable as is being evidenced in this book and elsewhere, then for digital media to realise its potential, its use has to be effectively supported and institutional infrastructure and learning and teaching strategy must be appropriately aligned and adequately resourced. But this potential has to be properly understood. The pedagogic and learning paradigms that underpin and inform government reports and pronouncements, and which provide a steer for the sector, often linked to funding, will need to be more unequivocally learner- and learning-centred than appears to be the case at present (DIUS, 2008; BIS, 2009). Hitherto, the signs have been that institutions and the sector as a whole are running the danger of the 'wrong' things being resourced, and the 'right' things being cut, squeezed, or under-resourced.

The imperatives, then, are becoming increasingly clear. As the unit of resource is threatened, and as student-staff ratios are set to worsen, the status quo will no longer be sufficient. How students learn, and how learning opportunities are provided, organised and shaped in a resource-stretched post-compulsory sector, requires more imaginative approaches. This includes shared and collaborative student-generated learning, with students learning from and with each other. This makes the place of digital audio and video in learning and teaching even more obvious and necessary. In relative terms, it is also cheap. Moreover, research also points to its popularity and effectiveness from the point of view of the learner (France *et al.*, 2009).

Change management and alignment challenges: infrastructure; technology; pedagogy; student and staff development

There is a huge emerging agenda around digital literacy (Westerman and Barry, 2010; Bean, 2010), and this presents a complex dichotomy of challenges and opportunities. Changes in how and where students learn would appear to be signalling a need to respond to the requirements and exigencies not only of lifelong learning but also of life-wide learning (Jackson, 2008). Accordingly, as life-wide learners, today's students need to be equipped to engage effectively within and beyond formal curricula. Graduates need to operate fluently as competent and confident Digital Age users of technology, literate in finding and critically evaluating information, whether online or on the move (Moore and Thorpe, 2008). The Learning Literacies in the Digital Age report highlights the changing nature of work and learning and its literacy requirements, suggesting that education must address this if

the economy is not to be disadvantaged by a “lack of high-level skills and a dearth of future capacity... The future demands skilled, digitally-aware learners with the capacity to participate in learning throughout their life, using technologies of their own choosing” (JISC, 2009, p.1).

It is timely, therefore, to reassess the methods available to the sector to ensure alignment between higher education and societal demands for digital fluency, also ensuring that opportunities for transformation are adequately supported. As the students entering post-compulsory education become increasingly streetwise through their ownership and use of educationally-relevant technology, their expectations and behaviours need to be interpreted, understood, developed and responded to by institutions and by front-line academics. What students increasingly take-for-granted about the place of technology in their own day-to-day lives places increasing pressure on universities and colleges to change. This change includes the need to review the technology we introduced over ten years ago so that it aligns with what we know about effective pedagogy. Moreover, those institutions who do not formulate staff recruitment and staff development and training programmes that are matched to new pedagogy, new technology, and to changing student expectations and dispositions, may well lose out in a higher education world where fee-paying students will make choices around what kind of experience they might expect in their course and during their passage through higher education. The challenge then is about both capacity building and capability building.

The case study material set out in this book offers many insights and much guidance in the way of pedagogic innovation. But, for the front-line academic, uninitiated in the potential of digital media, how does their institution introduce, support, or empower them in the adoption of new and innovative approaches, and how well equipped to do this is the average university or college in terms of infrastructure?

At several MELSIG events the opportunity has been taken to explore such questions and, specifically, the matter of alignment between ‘infrastructure’, ‘technology’, and ‘pedagogy’ as they relate to digital media (see also, Newton and Middleton, 2009, 244-245). Using purpose-designed plenary and workshop activities participants have been invited to bear witness to their own institutional experiences from a practitioner perspective. At one such event - the Final Programme Meeting for the all-Wales Gwella initiative - data was gathered from some 40 participants, drawn from nine Welsh HEIs, on how participants saw the future potential, or otherwise, of the use of digital media in HE. The opening plenary concluded with a vote on the motion: “We believe that digital audio’s potential to further and higher education is as a ubiquitous flexible medium that can be adapted by any academic to enrich the learner experience”. On a show of hands, and mirroring feedback from MELSIG events, participants unanimously supported the motion; there were no dissenters.

This was followed by a workshop session entitled ‘Supporting the use of digital media: the importance of institutional infrastructure’, a session that provided an

interactive opportunity to explore and discuss what is required to support and facilitate educational podcasting, and to enable academic innovation. It also explored the question: how well equipped are our institutions? The format for the workshop involved inviting participants to consider a range of 'infrastructure hot-points'. From a list of 12 and, with the use of 'Help Cards', they were asked to identify the weakest points at their home institution and to add comments to the caption: 'Our infrastructure is weak because...'. The plenary discussion then focused around the clustering of the responses, the 'common problems/easy wins' that could be identified, and the theme of 'how well equipped are support mechanisms for educational podcasting'.

Of particular interest for present purposes is that the main clustering was around the following categories: 'institutional drivers'; 'access to kit'; 'educational development'; and 'student support/academic support'. This reinforces the emphasis placed in this chapter on the importance of alignment. More generally, the results and findings resonated well with those from similar sessions held at PPP/MELSIG events since 2008. The vote on the potential of digital audio, produced remarkably close outcomes, and the infrastructure workshop again confirmed that institutional infrastructure is a critically weak link that, unless addressed, may prove to undermine academic innovation in the use of digital media. That practitioners are readily able to identify such 'infrastructure weak points' as those identified at the Gwella event and at other MELSIG events, is indicative of the urgency with which HEIs and FEIs need to examine and plan for suitably robust and transparent infrastructure, and to assess the fitness for purpose of current arrangements.

The research from the infrastructure workshops also indicates that our understanding of infrastructure itself needs to be broad and joined up when considering the successful implementation of new and emerging technologies to enhance learning, and linked factors such as digital literacy. This is discussed in more detail in chapter **, Sound Infrastructure.

What is not in doubt is that the experience gained from MELSIG events and discussions, over a three-year period, confirms that practitioners take the view that institutions will miss a huge opportunity if higher education does not ensure that infrastructure is developed to support greater, more widespread use of digital media by staff and students, and if linked arrangements are not in place to build capacity and capability in terms of pedagogy and innovative approaches to pedagogy.

Concluding observations: SIGs as agencies for educational transformation

This book points to a dichotomy between two worlds and to the need for a paradigm shift and leap of faith from one set of ways of seeing and doing, to another. Who knows exactly what the future holds, or how far it will involve digital media? A clear message from *Digital Voices* is that podcasting, digital audio and video can help us to

address many of the sector's learning and teaching drivers and challenges. They provide an opportunity for extending today's forward-looking learning environment and for permeating the whole student experience in ways that can only result in enhancement of that experience. The most immediate challenge is to address the possible disconnect between the excellence in technology-enhanced learning practice on the one hand, as exemplified in the case studies and examples of academic practice gathered together here, and sector policy on and investment in e-learning innovation on the other hand. Such a disjuncture has been evident in policy steers and policy discussions at national level, in conference proceedings, in reports and publications, and in the education press.

Undoubtedly, then, there is a pressing need for debate. But, equally, rapid responses to opportunities afforded by today's technology are needed to ensure that HEIs are able to enhance pedagogy and to develop student competence and confidence as Digital Age graduates. Arguably, taking stock in a measured and informed way can be made easier by SIGs as they are able to collectively imagine the future, thus informing sector-wide and institutional strategy. In contrast, innovators working in isolation can struggle to imagine effectively, incurring costs for institutions that may find they are supporting risky and unmediated endeavours. The contribution of MELSIG - through this book and in other ways - is that it bears witness to the opportunities available to us for achieving widespread pedagogic transformation in our institutions. *Digital Voices* carries forward the original purpose of PPPSIG (and now MELSIG), in helping to achieve the leap of faith that has to be made if thinking and practice are to be changed for the benefit of maximising learners' engagement with the media rich world they inhabit.

To achieve meaningful transformation, education needs new ways to develop knowledge collectively, to mutual advantage, thus addressing both the opportunities and challenges of the Digital Age. SIGs, it is argued, offer agency in achieving this. Moreover, MELSIG, and the innovative ways it has found for disseminating its work, offers a cost-effective approach to pedagogic transformation. By facilitating and directing energy, the SIG provides a basis for sectoral support for enhancement. Such initiatives, and the communities of practice that can grow from them, provide a good model for how the sector can promote and sustain educational innovation, transformation, and change. While this chapter focuses primarily on a SIG operating at sector level to affect institutional innovation, SIGs can be equally valuable within institutions as mechanisms for coordinating interest, experience, and energy.

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Students don't listen — a cross-institutional survey of students' podcasting habits

Andrew Middleton and Graham McElearney

Introduction

This paper presents results from a literature review which considers the perceived value of podcasting to academics using syndicated podcasting to distribute recordings to students and the results of a survey of students' awareness of syndicated podcasting carried out at two UK universities.

The aim of this study was to estimate the significance of podcast syndication to academics and students in UK higher education and was carried out to inform the strategic development of the Podcasting for Pedagogic Purposes SIG and the universities concerned.

Editorial note: This work is presented here as an appendix because the research, which was conducted during 2009, was important in informing early thinking about this book. At the time there was no widespread ownership of smartphones by students. 'Mobile phones', iPods, MP3 recorders, PDAs, laptops and, to some extent, netbooks were the prevalent personal technologies on campus then. Subsequently smartphones and tablets ('phablets') appear to have largely replaced the aforementioned technologies. It is expected that the attitudes, behaviours and ideas of students, tutors and institutions have also changed markedly – or will do so soon. This appendix is needed to address the concept of podcast syndication in education; it has been the subject of too many conversations at SIG events to be ignored. However, for the moment at least, it seems the sector needs to pay attention to the always-connected student more than the student subscriber.

Do academics expect their students to use syndicated podcasts?

Opportunity and aspiration

A review of literature on educational podcasting finds many references to the benefits of syndication. Extracts from a selection of journal articles are presented here.

In 2005 a paper by Gardner Campbell for EDUCAUSE Review painted an exciting picture of a near-future student experience in which the many facets of podcasting work together to continually immerse students in their university life, even while they're sleeping.

With a podcatcher, the listener can subscribe to his or her favorite podcasts, which will then be downloaded automatically to the computer at a time of the listener's choosing, usually overnight as the listener is sleeping. (Campbell, 2005, p.34)

While this captures the potential of podcast syndication, the reality reported in other academic publications more often highlights the benefits of mobility rather than the episodic nature of podcasts feeds.

The value of mobility to academics

References to "anytime and anywhere mobile learning" and "portable" learning occur frequently in the literature on podcasting (e.g. Nataatmadja and Dyson, 2008; Bell *et al.* 2007; Cebeci and Tekdal 2006; ELI 2005). Much of the early literature identifies mobility and informality as a particularly valuable dimension to adopting podcasting. Salmon *et al.* (2008), for example, pick up on the benefits of the constant presence of personal devices to the student. They describe how students can access academic content outside of formal teaching environments for use at their own discretion,

... at home or in the library; away from the campus but in relevant locations for learning such as on the 'dig', in the field or at work; while carrying out everyday activities; while travelling. (Salmon et al., 2008, p.30)

Draper and Maguire (2007) also look at how students can make effective use of their time because of the access they have to technology,

Significant numbers of students at many campus universities in the UK today face long daily commutes ... If this listening time could be given an educational value, this would be a considerable help to them in extracting more value from their day. These students are also more likely to have to spend time waiting on campus for their next scheduled activity, and again, something useful to listen to could be helpful. (Draper and Maguire, 2007, p.46)

This is developed by Bell *et al.* (2007) who introduce the podcasting's capacity to support multitasking making menial activities and time spent on chores more productive.

Do students use syndicated podcasts?

The following observations remind us that it is unwise to judge the value of podcasts in a simple way. The evidence creates a mixed picture of students' readiness and interest in subscribing to academic podcasts or making use of their mobile potential. More students in Atkinson *et al.*'s 2008 study (p.80), for example, valued listening to the podcasts than they valued subscribing to them:

Only 4% subscribed to the RSS feed, although 14% claimed to use a portable audio player — indicating that many students used methods other than subscribing to the RSS feed to transfer audio files from their computer to the iPod.

The value of mobility to students

The new *iPod* and MP3 player technology, increasingly visible on campus in 2007, did not appear to influence students' academic listening habits. In Australia Newnham and Miller (2007, p.110) observed:

Interestingly the findings ... show that many students who had access to a portable player did not synchronise the podcast to their portable player.

In a UK survey conducted of 83 students, Copley (2007) found that 94% of the students who downloaded the podcasts used them sitting at a PC, while the remaining 6% did not use them at all and only two of the students indicated that the potential to use them in a mobile context was of any possible benefit.

Stokes *et al.* (2008, p.13) noted students preferred to listen on their home computer:

...Students reported they mainly listened to the podcasts at their computer, while studying; not as 'mobile learners'. This possibly challenges the view of podcasting as a medium for allowing students to learn 'on the go'.

While their findings do not preclude the potential for learning 'on the go', this highlights something about the quality of the listening space. In the US, Deal (2007, p.6) concurred:

The most consistently reported [finding] is that a majority of students report using lecture podcasts at home or on a computer, rather than in a mobile environment.

However, this appears to be contradicted by Ralph *et al.* (2008, p.3-4)

Podcasting requires the use of an RSS feed ... Our data shows that almost unanimously, students like the fact that material can be delivered to them in such a way.

Perhaps this highlights how the nature of content is significant. Edirisingha and Salmon (2007, p.3), in a study of 21 students who regularly listened to podcasts found that “20% said they saved to an MP3 player and 28% to their laptop, to listen later.” Evans' study into the use of podcasts to support revision (2008) also found that 20% listened on a mobile MP3 device.

The subscription model suggests a relatively steady release of content, echoing the rhythm of the academic timetable. However, there is no technical reason why a podcast feed has to be either regular or frequent. Echoing Evans' interest, Brittain *et al.* (2006, pp.26-27) noted far more students downloading podcasts around exam time (44% cf 26% throughout the year).

A study published by McKinney *et al.* (2009, p.620) found that:

While 57 of the participants had mp3 players, only 3 students in the study had ever listened to podcasts before (5%), and none of the students had ever listened to a podcast of a classroom lecture.

Students will not listen to podcasts or subscribe to podcast feeds just because they have the wherewithal to do so; they need to be clear about the purpose, expectations and benefits of engaging in this way.

Aspiration and practice — out of sync

Despite the widespread ownership of MP3 players such as *iPods*, most owners do not use the subscription functionality of these devices (Pew Internet & American Life Project, 2008). In the UK, the attraction of the MP3, even among podcast subscribers, appears to be almost exclusively related to the portability of music or comedy programmes rather than serious spoken word content (Ipsos MORI, 2008).

Much of the literature on educational podcasting reports that students access their podcasts in the same way that they access other learning materials — from within the VLE (Middleton, 2009). This approach does not require the use of an RSS feed and does not require the use of downloaded media synchronised to portable devices.

One idea, the notion of online ‘podcast portals’, may emerge as a mechanism for organising media. In 2006 Apple’s media player, *iTunes*, was developed to support podcast downloads (i.e. an aggregation function was added) and the *iTunes* store began to categorise and list podcast channels to make it simpler for podcast publishers and subscribers. In 2008 Apple established *iTunes U* as a portal service for universities, allowing anyone to browse through the managed podcast output of any participating institution and the UK’s Steeple project (Robinson, 2009) developed its own portal service as a mechanism to support the sharing of academic content.

As the review of literature has shown, although the syndication of educational audio material and the synchronisation of it to student-owned devices is technically possible, experience demonstrates that the educational user-base for syndicated

podcasts is likely to be small unless a special effort is made to promote and support its widespread use.

A survey from two UK universities on the student ownership and use of MP3 players for academic purposes

The authors wanted to find out what students in UK universities in general, away from the influence of particular academics or courses, thought about podcasting and its potential to support their learning.

What we did

We conducted a survey of students (n=102) from two universities. We each approached students at our respective universities to discover more about how they used their MP3 devices, if they knew about subscribing to podcasts and to what extent they listened to academic-related material or other spoken word content on their devices.

Students were approached on campus in public spaces if they were wearing ear buds connected to a portable MP3 player. They were asked to answer three questions:

1. What are you listening to now?
2. Would you listen to study-related content on your MP3 player?
3. Where do you get the media that you listen to on your MP3 player?

Options were offered for question 3 (Ripping CDs; Online music store; Social network; File sharing; Podcast subscription; University; Friends; Other) and in running through these we checked their understanding of 'podcast subscription' to determine their familiarity with the concept of RSS.

What we found

The results of the survey are summarised in Table 1 below.

Sheffield Hallam University (51 students)

Q1	94% Music	4% Spoken Word	2% Mixed
Q2	20% Yes	59% Maybe	21% No

Q3	70% Ripping CDs	62% Online store	15% Social networking site	56% File sharing	15% Podcast subscription	4% University course	86% Friends	13% Other (not specified)
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Using/familiar with RSS?	37% Yes	63% No
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The University of Sheffield (51 students)

Q1	90% Music	10% Spoken Word	2% Mixed
Q2	20% Yes	59% Maybe	21% No

Q3	67% Ripping CDs	55% Online store	18% Social networking site	35% File sharing	15% Podcast subscription	0% University course	35% Friends	0% Other (not specified)
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Using/familiar with RSS?	33% Yes	67% No
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Table 1. Students use of MP3 Players and podcasting

Findings from the survey

As with most other studies discussed here, the small sample size and design of the survey mean that the findings can only be indicative, but the results confirm that, on the whole, students are listening to music on campus (Q1); even those who were approached in learning centres.

Quite a large proportion of the students was interested in listening to academic-related material (Q2) and would use their own devices. This would seem to contradict suggestions that students wished to maintain a distinction between the use of their devices for study and recreation. What is important is that, at the time of the survey, the academic podcaster was not in a position to assume that their students would have mobile access to educational podcasts or, in cases where they did have technology, would be happy to use it. Perhaps this reluctance to use personal devices for academic work by a minority of students will decrease as issues of device capacity disappear and the learning benefits are more widely understood.

Though the survey showed there is some familiarity with the concept of subscription feeds, there is no indication that students are listening to academic podcast subscriptions on their devices for academic purposes despite evidence of academic feeds being available at both institutions (Middleton, 2009; Stokes *et al.*, 2008).

One of the reasons why students are not subscribing to podcasts feeds, despite their availability, may be due to a lack of awareness among academic staff producing the podcast material. In several cases at the University of Sheffield, academic staff have specifically asked how to make individual podcast recordings available to students from within an RSS feed, suggesting that they are not promoting the use of the feed at all, instead seeing each individual podcast recording as some sort of standalone entity. This is despite the fact that RSS feeds are created automatically by the podcast hosting service used at the University of Sheffield (provided by the University of London Computing Centre). Similarly, academic participants in the *Closer!* project at Sheffield Hallam University (Middleton, 2009) were interested in interpersonal connectivity and social presence but often remained confused by the technical dimension to podcasting despite the availability of tools and support.

Conclusions

In summary, these studies of the student use of podcast feeds and the use of personal mobile technology to support learning demonstrate a lack of general awareness and interest by students in the potential of syndicated podcasting. The studies invariably use small sample groups and the contextual factors, including the extent of academic promotion and support, make it impossible to arrive at any generalisable conclusions. This does not imply that RSS, audio or any particular content-types are bad, only that students in general have not concluded they should adopt the practice of subscribing to feeds and listening to podcasts on their own mobile devices. In addition, the many contextual facets of educational podcasting make it difficult to draw general conclusions.

Both the literature and our own investigation suggest that, in general, students are not familiar with podcast feeds. Students are also not using their personal MP3 players to listen to academic-related material in the main. However, there is some evidence in the literature that students will subscribe to feeds and use their personal devices when the reason for doing so is clear. Academics should not assume, therefore, that students will know about podcast syndication or that they know how to subscribe. Further, academics should not assume that all students will have mobile technology or will want to use it for academic purposes when they do have it. However, this is a fast moving area, especially with the growth in student access to personal smart technologies such as smartphones. Even so, it seems likely that some students will never subscribe to syndicated media on personally managed technology.

Technology is not standing still in this area. The ongoing rollout of WiFi and 3G, the advent of Apple's *iPhone*, Google's *Android* and other smartphones, and related developments in mobile technologies, mean that society is increasingly likely to be in 'always on' mode. This suggests such devices will promote existing browsing behaviour and the need to systematically manage content through syndicated feeds will be less important. It is still not clear how this ubiquitous connectivity will affect wider exploitation of RSS, but ultimately RSS is mostly a technology designed to help the end-user manage information: a good thing, but not necessarily something that inspires a change in the habits of the general user of web-based information.

The subtle complexities in the technical facets of podcasting (e.g. syndication, mobility, the use of personal devices, regular and frequent publication) may be both podcasting's strength and, at the same time, the reason that academics and students have not embraced syndicated podcasting more widely. While interest in the pedagogic value of the recorded voice among academics is clear, how to take advantage of this potential technically remains confusing, problematic and of little apparent benefit.

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Andrew Middleton, Editor, January 2013

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