

Will the iPod Kill the Radio Star?

Profiling Podcasting as Radio

Richard Berry

University of Sunderland, UK

Abstract / The Apple iPod has not only become a 'must have' style accessory for the 'wirefree' generation but has also revolutionized the way we consume music. At the time of writing, (November 2005) the revolution has already started in the audio world, and has been going for the last 18 months. 'Podcasting' allows anyone with a PC to create a 'radio' programme and distribute it freely, through the internet to the portable MP3 players of subscribers around the world. Podcasting not only removes global barriers to reception but, at a stroke, removes key factors impeding the growth of internet radio: its portability, its intimacy and its accessibility. This is a scenario where audiences are producers, where the technology we already have assumes new roles and where audiences, cut off from traditional media, rediscover their voices.

Key Words / commercial Podcasting / converged media / digital radio / education Podcasts / iPod / music Podcasting / Podcasting / 'wirefree' generation

When a 'new' medium arrives and is named one often wonders where the title came from. In the case of Podcasting the origins can be traced back to early 2004 when the *Guardian* journalist Ben Hammersley observed:

With the benefit of hindsight, it all seems quite obvious. MP3 players, like Apple's iPod in many pockets, audio production software cheap or free, and weblogging an established part of the internet; all the ingredients are there for a new boom in amateur radio. But what to call it? Audioblogging? Podcasting? GuerillaMedia? (Hammersley, 2004)

Hammersley was reporting on the growth of audio content created in an MP3 format that users could download and play back on the expanding range of MP3 players. He pointed to the audio interviews of Christopher Lydon, a Law Fellow at Harvard University, and to 'Audible.com' a speech-led website offering a variety of speech-based content to fee-paying subscribers. Both offered listeners a new opportunity to find commercial-free content to listen to when and where they wanted. In the case of Lydon's work those

listeners can talk back to the producer and establish a dialogue unheard of in traditional top-down vertical media. Neither of these forerunners of the Podcast revolution had any notion of what was to follow, nor did they use the term. Nevertheless they opened the door to new opportunities.

Within a year of Hammersley's article being published the word he employed so tentatively was in regular use as a label for a new media platform. This article seeks to examine the medium that became Podcasting and attempts to provide a 'snapshot' of where it is and where it might be going and provide a discussion of its characteristics and implications for traditional media like broadcast radio.

Whilst the reader may not have listened to a Podcast one cannot fail to have been suddenly aware that the new medium exists. It has been adopted by broadcasters around the globe and has been widely discussed in media and technology pages since its birth in 2004. At that time a Google search for the word 'Podcast' would return somewhere in the order of 6000 hits (Terdiman, 2004): today (November 2005) the same search returns over 61 million hits, such is the increasing use of the term and the medium. A further testament is the decision in August 2005 to include the word 'Podcast' in the Oxford English American Dictionary (Miles, 2005).

Podcasting is not only a converged medium (bringing together audio, the web and portable media devices) but also a disruptive technology and one that has already forced some in the radio business to reconsider some established practices and preconceptions about audiences, consumption, production and distribution. Whilst Audible was established to provide speech content for these devices, the automation, free access and the radio-like nature of Podcasts contribute to the disruptive nature of the new medium. It is an application of technology that was not developed, planned or marketed and yet its arrival does challenge established practices in a way that is not only unprecedented but also unpredictable. Converging technologies are not unique to Podcasting and there are lessons that can be learnt from experiences elsewhere. For media businesses to join in is potentially a risk as 'it requires companies to rethink old assumptions . . . If old consumers were predictable and stationary, then new consumers are migratory, showing a declining loyalty to networks or even media' (Jenkins, 2004). This is the real challenge for radio when attempting to communicate with the 'wirefree' generation in the converged age. It is time to rethink not only established practices but also our notions of what audiences really want.

There are some issues over the name 'Podcasting' itself. It suggests exclusivity to Apple and that company's iPod media player and, although they are inextricably linked to the development of Podcasting, Podcasts can be played on a variety of generic media devices and computers. The term 'Podcast' is used as an over-arching term for any audio-content downloaded from the internet either manually from a website or automatically via software applications. The latter method of distribution is the most potentially revolutionary, the most disruptive and represents a new medium worthy of a new terminology. However, listeners will inevitably not see the boundaries and will treat all content the same, given that no matter how they receive it their consumption of that content will be the same. For the purposes of this research article, I define Podcasting as 'media content delivered automatically to a subscriber via the Internet'.

The New Medium

To grasp the core concept of Podcasting, one should look to consumer experiences of other media, and the most appropriate analogy is print media. We could buy our favourite periodical over the counter by physically visiting our local newsagent or we could subscribe direct with the publisher and have it sent to our home. By subscribing we do not need to do anything to get the content we want: it arrives shortly after it is issued. Podcasting works like a subscription except it is audio files delivered to the home or office computer rather than printed matter dropping through the door. The audio is (usually) recorded in the MP3 audio format, a generic format used by portable audio devices, such as the Apple iPod.¹

Podcaster and author of one of the many 'how to' books on the topic, Todd Cochrane, describes Podcasting as 'Walkaway Content' which is a neat and vivid way of describing it (Cochrane, 2004). Users download a simple piece of software, such as 'iPodder',² to their home or office computer; they then add the details of the Podcast(s) they wish to subscribe to either by browsing the inbuilt directory or by adding details manually. The software will then monitor the RSS³ feeds users have subscribed to and, when a new item is available, it will be downloaded to the users' hard disks and then, if they choose, transferred to their media player. Once on a player, listeners can mix various Podcasts with their own music to create their own playlist of content. The listener is now in charge of the broadcast schedule choosing what to listen to, when, in what order and – perhaps most significantly – where. Effectively there is a move in power from programmers to listeners. Although the producers still maintain control over content the listeners make decisions over scheduling and the listening environment and that is a fundamental change for producers of radio content.

Anyone can create a Podcast: you don't need a licence (although music royalties are due) and you definitely don't need a radio studio. 'To many Podcasters, it is about reclaiming the radio and using the powerful and easy technology many now have, to do what they want' (Twist, 2005). It is a convergence of technologies that already existed and, in many cases, that users already owned. Portable media devices, such as the Apple iPod, are now commonly seen in use on commuter trains, buses and in the high street and each user is hungry for content. What Podcasting does is to combine these devices with online audio content (such as the material already offered by Audible) and RSS feeds as a distribution system.

The impetus for Podcasting came from two internet pioneers who were musing over how they could share and download their favourite content. Internet developer (and RSS creator) Dave Winer and the internet entrepreneur and broadcaster Adam Curry began to discuss how these technologies could grab content from the web automatically. Curry noted, 'I liked the fact that people were starting to blog audio files, but I didn't want to go have look for them [sic]. I wanted a magical experience' (Curry, 2005a). Despite attempts to convince developers to write a program he finally taught himself how to write a simple program and posted it on the web for 'open source' developers to use, borrow and improve. He says: 'This "pied piper" approach worked better than I ever could have imagined! . . . Once people started to figure out that it's fun to host and record your own radio show, a community was born' (Curry, 2005b).

It is this open approach that has made Podcasting the rapidly adopted and popular medium it has been. No one person owns the technology and so it is free to listen and

create content, thereby departing from the traditional model of 'gate-kept' media and production tools. As word spread, people who had never thought about broadcasting were suddenly recording their voices and posting the results online for the rest of the world to hear. What Podcasting offers is a classic 'horizontal' media form: producers are consumers and consumers become producers and engage in conversations with each other. At a grassroots level there is no sense of a hierarchical approach, with Podcasters supporting each other, promoting the work of others and explaining how they do what they do. Whilst this is true of radio on the internet as a whole it is especially the case with Podcasting because the means to create are as accessible as the means to consume. In her discussion on the need for radio theory in the new digital age, Tacchi argues that the internet challenges the way radio is and opens doors to innovation. So, the building blocks were already in place for a revolution. Web streaming has been possible for some time and the appetite for something new was being fuelled by narrowing playlists in the USA and Europe (Tacchi, 2000: 294). Writing in the *First Monday* online journal a group from the MBA programme at Indiana State University report that: 'In addition to providing greater flexibility in when audio programming is listened to, Podcasting invariably also offers listeners an escape from the advertising that plagues traditional radio broadcasting' (Crofts et al., 2005).

Various research bodies have attempted to come up with firm figures on the rise of Podcasting. The first from Pew Internet Research in March 2005 estimated that some 6 million people in the US had downloaded audio content from the web, which they claimed was 29 per cent of the 11 per cent of the US population who owned an MP3 player (Rainie and Madden, 2005). Figures like this suggest a takeoff rate faster than that of DVD.⁴ Whilst the small sample size meant the research was largely viewed with scepticism by the 'Podcasting community', it is not unreasonable to assume that Podcasting has taken off in a dramatic way. OFCOM research reveals that in their 'residential tracker survey' at the end of 2004, 18 per cent owned an MP3 player already and a further 5 per cent intended to buy one within six months. This can be considered against a background of the lowest listening levels to commercial radio in six years (OFCOM, 2005a: 48). Unlike DVD or digital television, Podcasting is effectively a free technology. If someone has an MP3 player it will cost them little or nothing to go online and download a Podcast. More recent data from Forrester Research was seen as more realistic, estimating 12.3 million US households would be listening to Podcasts by 2010 (BBC, 2005c). However, research revealed at the time of writing suggests that Pew may have had it right after all: Bridge Research and Ratings projected that 8.4 million people had downloaded a Podcast during 2005, up from 820,000 in 2004 and, of those, 20 per cent were weekly downloaders with those figures set to rise to between 45 and 75 million users, and 18 million weekly users, by 2010 (Bridge Ratings and Research, 2005).

There are, however, no data to indicate how many of the downloaded Podcasts are actually listened to by the subscribers. If the listener is using software to download Podcasts on their behalf the process is automatic and it is possible (and likely) that many downloads simply stay on the user's hard disk and are never heard, such is the volume of content that a reasonably sized repertoire of subscriptions can generate. The previously cited research by Bridge Ratings and Research in 2005 projected that only 20 per cent of downloads are ever transferred to an iPod or similar device, although they take this to mean that Podcasts are played on the host computer rather than suggesting how

many subscribed items of content are ever played. It does, however, give us some guide to listening patterns.

The Radio Advertising Bureau in the UK has identified two types of listening in broadcast radio; 'habitual' and 'discretionary', where habitual listening is peak-time or potentially 'wallpaper' listening, and discretionary occurs in leisure time, with programmes seen as 'appointments to listen' (Radio Advertising Bureau, 2004). We could consider that all Podcasts fall into the discretionary category, with listeners making deliberate choices to subscribe to content and to transfer to their playback device. As with music collections listeners can choose Podcasts that appeal to them at that moment and so, one would assume, would be more attentive and 'active' as listeners given that they have made the choice to hear that specific piece of content at that point in their day. If this is the case then that will have an impact on programme makers and how audiences are addressed.

Podcasting Precedents

Radio was developed in the late 1890s as a point-to-point communication system but set owners began 'listening in'. Slowly the medium developed from a means of talking to each other into a means to talk to the masses, with broadcast organizations such as the BBC emerging in the 1920s. Writing in 1930 Bertolt Brecht argued of radio:

The radio would be the finest possible communication apparatus in public life, a vast network of pipes. That is to say, it would be if it knew how to receive as well as to transmit, how to let the listener speak as well as hear, how to bring him into a relationship not isolating him. (Brecht, 1993: 15)

This equates with what Podcasting does, as one can listen or one can 'transmit' and crucially there is no 'gatekeeper' controlling who can and who cannot transmit in this space.

The same pattern of development can be seen in the internet insofar as another system developed for one-to-one communication soon became a widely adopted system of content production and distribution. When the web was still quite young Progressive Networks launched their 'Real Audio' software in 1995, allowing radio to use the web as a new distributive platform (Priestman, 2002: 7). The problem was that technology had effectively 'landlocked' web radio (Wall, 2004: 34). Web radio lacks portability – although Wi-Fi radios have recently been launched in the UK, as discussed later. The development of downloads of audio content in MP3 formats may be seen as the web's equivalent of the cassette recorder or the portable radio. Both changed the way listeners consume radio. The MP3 player, like the transistor, frees the listener from a large box wired to the wall and, like the cassette recorder, it allows programmes to be time-shifted. This demonstrates the virus-like nature of radio as a medium. Radio has found its way into all parts of homes and outdoors, into transport systems, into the internet and now into our MP3 players, an environment which is entirely suitable for radiogenic content. Like a virus, radio is also very resilient, fighting off attacks from television, compact disc and the increasingly visual world we live in. So for radiogenic content to find its way through the web to portable audio devices should not come as much of a surprise. After all, many people have taped radio programmes at home to listen to at a later point – even if it was just the weekly Top 40 countdown.

Radio's essential qualities may be related to those of Podcasting. Radio by its nature is an intimate medium – users rarely listen to it as a collective and often listeners are alone in the car or on the bus, all places that portable media devices now also go. It is probably because radio invades these personal spaces that it is viewed more fondly than other media. We trust it more and often rely on it more. We also engage with the radio more: it is, as Crisell points out, a 'blind' medium (Crisell, 1986: 3). The listener paints the pictures and as such is more active in the process of consumption. These characteristics of intimacy and blindness shared with Podcasts enable Podcasting to reach individuals and groups not normally found in mainstream radio, as the listener may feel that the producer is 'one of them', a member of their community, whether defined by geography, ethnicity, culture or social group. One major advantage audio has on the web is that audio files are smaller than video files and so are more easily downloaded from the internet. Despite the launch of a video iPod in 2005, it is unlikely that large numbers of people will watch the tiny screens on the Number 49 bus – in the short term at least. The car industry has also noted the rise in portable media and several leading manufacturers are actively promoting the fact that their latest vehicles allow drivers to plug in their iPods. Consumers in the USA and Australasia are able to use devices like the 'iTrip' to rebroadcast the output of an iPod (or similar) on very low power for reception via normal car radios. However, in Europe, EU clearance is required before such products can be used legally.⁵

However, despite its obvious strengths, radio listening amongst 15–24-year-olds has fallen over recent years in both the UK and the USA, with various factors being blamed for falling audiences. In 2004, the UK's Broadcast and Telecommunications regulator – OFCOM – commissioned a report into the so called 'iPod Generation' and the report made uncomfortable reading for traditional broadcasters. The report revealed what radio academics already knew from talking to students, that the medium was no longer offering them what they wanted and that 'younger people are listening to the radio noticeably less than their parents' (OFCOM/The Knowledge Agency, 2004: 5). Not only that but they are fussier in their listening habits and choices and they were turning off 'faceless presenters' and a 'playlist culture' in favour of their own music, in their own way (OFCOM/The Knowledge Agency, 2004). It seems as though the 'wirefree' generation is growing up without the radio habit enjoyed by the previous generation and that offers a threat to broadcast radio (Carter, 2005).

Whilst the notion of programme and personality selectivity seems commonplace on the web it goes against traditional radio models. Writing in the trade weekly, *Broadcast*, in summer 2005 the then Managing Director for the Capital Radio Group stations in London, Graham Bryce, suggested that listeners by and large choose 'radio stations, not programmes' and, as such, Podcasting for music radio was unlikely to succeed (Bryce, 2005: 16). It is clear that in the Podcast world it is content that is king, with listeners choosing material that appeals to them, rather than selecting radio stations or formats as has been the case in traditional commercial radio models. Bryce's lack of enthusiasm is not unusual in the radio business, although many broadcasters have welcomed the new medium into their businesses, making it work for them as a way of reaching their audiences in new places and in new ways. The first UK broadcaster to take to daily Podcasting was the national commercial station, Virgin Radio. Virgin was the first European station to broadcast on the internet and is often quick to embrace new

technologies (Virgin, 2005). Head of New Media at the station James Cridland says Podcasting is 'a threat and an opportunity . . . We have some great content here, and it makes sense to make those available in different ways to our audience' (Careless, 2005: 36). The station removes the music tracks from the weekday breakfast programme and makes the Podcast available as a daily download and Podcast feed. For Virgin Radio it is a way of reaching listeners in a new way, of finding new ways for their advertising clients to reach the ears of the wider – and possibly more attentive – audience and represents a step forward in the commercial adoption of the new medium.

The theme of Podcasting as a new threat was never very far away from several sessions at the Radio Festival 2005.⁶ A presentation on research carried out for the BBC by Sparkler not only discussed a fall in radio listening amongst 16–29-year-olds in the previous two years but, like OFCOM, gave radio's lost audience a name: the 'digi-life generation': an audience which has grown up knowing digital choice, computers, the internet and mobile telephones (Gallie and Robson, 2005).⁷ This is an audience which communicates via text messages (SMS) and instant messaging and for whom using technology is easy and second nature. It is clear that for radio as a business to develop it should recognize these fundamental changes in the lifestyles and expectations of the audience. My own conversations with students reflect what the industry is hearing in their research. Young people are disconnected by contemporary broadcast radio and seek out new forms online or choose their own music over radio. Most cite poor commercials, overly tight playlists and stations that do not target them directly as their reasons for not tuning in as often as the previous generation did. It would seem that the notion of audiences choosing the least objectionable – or the least worst – is over, with no radio being preferable to unsuitable radio (MacFarland, 1997: 17). Historically, commercial radio programming is safe, inoffensive and mass market to maintain advertisers and to build and maintain the largest possible audience. To programmers this is consistency, whereas to audiences it is predictability. MacFarland describes this philosophy as the McDonaldization of radio with predictability and familiarity being guiding factors in programming strategy. It could be argued (and evidence of student listening bears this out) that it is predictability in commercial radio that has created the fall in listening by the 'wirefree' generation and the movement of audiences (in the UK) from commercial radio to BBC national radio or to streaming web stations and Podcasts.

Feeding the Public Service Habit

For the BBC, Podcasting is an extension of their public service mission to find ways of making their content available to the licence fee payer on multiple platforms. The BBC Radio Player currently archives the vast majority of the output of BBC Radio and makes content available for audiences to 'listen again' to programmes they have missed or want to hear again. This 'time-shifting' of content has proved to be hugely successful, with listeners streaming 4.2 million hours in January 2005 alone (BBC, 2004, 2005a, 2005b). This is strong evidence that the BBC's programme-led (rather than format-led) approach is successful both in the broadcast arena and online. It could also be argued that it proves that a programme's appeal does extend beyond its broadcast 'slot', with listeners who were not available to listen when it was broadcast catching up online. This was echoed in the 2005 OFCOM radio sector review, where the movement away from 'live radio

consumption' to 'listen again' players – Podcasting and DAB (digital audio broadcasting) radios with time-shifting capabilities – was cited as a growing pattern in the UK market (OFCOM, 2005a: 40).

In February 2005 the BBC redesigned their 'Radio Player' to include links to MP3 downloads and reported more record figures for online listening. Furthermore, the three programmes used in the Corporation's 2004 Podcast trial ('In Our Time', 'Fighting Talk' and 'TX Unlimited') had been downloaded 270,000 times in the four months since the experiment started (BBC press releases). This was clearly an unqualified success given the relative newness of the medium. The first regular BBC programme to be offered as a Podcast, 'In Our Time', was first made available in November 2004 and by the end of the month had been downloaded 70,000 times. Prior to that a series of 'The Reith Lectures' had been available as a download from the BBC Radio website and again this was viewed as a success worth pursuing by the Corporation. Whilst it is unlikely that all of these downloads were by UK-based licence fee payers,⁸ the volume of adoption is strong evidence that Podcasting was already far stronger than anyone could have predicted. Today, the BBC makes 20 different programmes available as Podcasts, from film reviews and news programmes like 'Today', to edited highlights from the 'Chris Moyles Breakfast Show'. The latter programme is broadcast on youth network BBC Radio One and the Podcast version frequently tops the UK iTunes Podcast Chart. Reminiscent of the way Music Top 40 shows were videotaped, this suggests that audiences like the ability to download content and to time-shift it to suitable points in their day. Speaking at the Radio Festival in July 2004, Director of BBC Radio and Music Jenny Abramsky noted the success of the download trial of 'The Reith Lectures' and that it was 'an extremely encouraging pointer to the way BBC Radio's programme portfolio can become increasingly available in ways our listeners will demand' (Abramsky, 2004). This is a significant point, as traditionally a major stumbling point for broadcasters is the 'availability' of audiences to listen to programmes when they are broadcast. The spikes in listening during breakfast, lunch, 'drivetime' and late night indicate when audiences not only need to listen but can listen – and this is not an issue in the digital future.

The BBC is not alone in delivering public content to a Podcast audience. National Public Radio in the United States also offers programmes, as does its affiliate WGBH in Boston – whose 'Morning Stories' Podcast was one of the first broadcaster-led programmes to be made available in this format (WGBH, 2005). NPR has recently launched a spin-off service of Podcast-only content, titled 'alt.NPR'. The website describes the service as 'a place for experimentation and innovation, featuring dynamic, eclectic offerings from a variety of professional and non-professional contributors' (alt.NPR, 2005). It is an approach that does seem like an effective public service approach to the new medium and one that seeks out invention and audience interactivity. The network radio content offered clearly has already had an impact, with NPR reporting 4 million downloads during September and October 2005 (Paid Content, 2005). Other networks like ABC Radio in Australia also Podcast, with both local and national programmes being made available from RSS feeds or from easy-to-find links on their website at www.abc.com.au (n.d.). ABC was also quick to cover the birth of the medium, broadcasting the documentary 'Music of the Blogospheres' in October 2004. Their development of Podcasts has been assisted by the Canadian-based radio consultant and

Podcaster Tod Maffin, who had already worked with CBC to help bring in a new audience. Maffin argues that:

public radio tends to be strong in the 40 plus age range . . . and podcasting helps to open up an entirely new demographic . . . It is potentially a great way to introduce a younger audience to really intelligent discourse, and . . . to extend the brand of the public broadcaster. (Fargas, 2005: 65)

It is perhaps ironic to note the success of Podcasts produced by suspended CBC staff during a 'lock-out' in 2004, who used Podcasts and the web to produce their programmes 'in exile' during an industrial dispute before returning to work victorious.

Grassroots Radio?

Whilst large corporate broadcasters have found Podcasting to be a new way to access listeners and in new ways, often with new experiences, it is at the grassroots level that Podcasting offers the most significant challenge to the mainstream and exhibits the characteristics of a disruptive technology. Podcasting has its roots in open source technology and draws extensively on the world of the written 'weblog' and, unlike traditional broadcasters, the Podcaster does not require studios, transmitters or licences, making the movement from listener to producer easy. Podcaster Todd Cochrane describes his discovery of the medium as a revelation like 'being given the keys to my first car . . . it was obvious to me that everyday people with a passion were having fun creating Podcasts' (Cochrane, 2004: 6).

Unlike Cochrane, Podcast pioneer Adam Curry had already had a long career in broadcast radio and television (as an early MTV 'VJ') before becoming involved with internet start-up companies and then Podcasting. Whilst his skills as a broadcaster are clear (he is a relaxed oral communicator with a standard broadcaster's voice) he does not use a traditional studio. Using microphones, basic mixers, MP3 players and a laptop, Curry's 'Daily Source Code' is recorded and uploaded from wherever he is. His Podcast follows some traditional radiogenic conventions: they are linear in that what we hear happens in real time or is an edited and compressed version of real time. We hear music, DJ talk and programme jingles – including the opening sequence which proclaims 'We don't need no stanking transmitters' [sic] (curry.com, 2005). Whilst the programme is unscripted he publishes his 'show notes' online to give listeners an idea of what he talks about in each Podcast – again a slight departure from familiar approaches in 'broadcasting'. It is, however, the content that separates it from most broadcast radio and makes it more intimate, realistic and engaging. He talks directly to the listener, sharing his life, ranting about what annoys him without the concerns of a regulator dictating content, and it is that absence of a censor that allows him to use occasional profanities and to be open about his use of marijuana. It could be because this content is unheard of (certainly in legal daytime UK radio) that makes this an engaging listen or it could be Curry's skill as a communicator and self-promoter that makes his Podcast amongst the most listened to on the planet.⁹ Curry's Podcast has served its pioneer role well, providing content for developers to refine his early software attempts, as a forum for new Podcasters to promote their new content and as a vehicle for the new musical movement known as 'Podsafe' music – music where no royalties are due as the artists have agreed to waive

any fees in order to gain free exposure for their music. An early example of the pervasiveness of the medium is this transcribed extract of the Daily Source Code from 2004:

hey, hey . . . someone [laughs] is holding up his iPod, roll down your window [talks in Dutch] Dude, will you check that out a guy just drove up next to me and he's honking his horn and he's holding his iPod up and he said I'm listening to the Podcast. Goddam, I'm recording one right now . . . That's very cool this is what I mean that's what it's all about. ('Morning Coffee Notes', 2004)

Curry has been an evangelist for the new medium, featuring in newspapers, magazines and traditional broadcast media to talk about the birth of the medium he helped to create and he has succeeded in developing his Podcast into a new business venture, 'Podshow.com' (2004–2005), a site where Podcasts can be heard, hosted and turned into businesses through the sale of the advertising space that he sells in the Podcasts. This success has, ironically, opened the door into broadcast radio, with Curry hosting a regular weekday programme on Sirius Satellite Radio across North America and showcasing his 'Podshow' content. Many label Curry with the title 'Podfather' and associate him with the creation of the medium. Whilst this is in dispute in the Podcast community, nevertheless, without the PR skills Curry has deployed, the medium may not have developed at the rate it has.

Another pair of leading grassroots Podcasters (and part of Curry's Podshow 'network') are Drew Domcus and Dawn Micelli, a married couple living on a former farm in Wisconsin, USA. The 'Dawn and Drew Show' (<http://www.dawnanddrew.com>) provides a pertinent example of the nature of Podcasting. The producers are not from a radio or a media broadcasting background but both were drawn to the internet and saw Podcasting as a new and engaging activity. The Podcast (or programme) itself features the hosts talking to each other and occasionally guests about a wide range of everyday issues and ideas. Inevitably the topic of sex comes up and is talked about openly, frankly and occasionally in graphic detail. Such exploits would be sure to outrage a broadcast audience but, it seems, in the world of Podcasting this is acceptable material. It comes across as unaffected radio, honest, genuine and occasionally very funny. Like many other Podcasts 'The Dawn and Drew Show' celebrates, promotes and engages in conversations with other Podcasters. There can be few media forms where producers of work communicate so freely with each other and persuade the listener to seek out the work of others. It is this network building that develops a sense of community within the grassroots Podcast movement and, as a listener, I find this a refreshing experience. So successful is their Podcast that Domkus recently resigned his job to become a full-time Podcaster (Domkus, 2005).

Other Podcasts worth noting include 'The Daily Download' (2006), a Podcast where we hear its creator going to the toilet and discussing the finer points of his bowel movements; 'The Commute' (commute.org, 2004) a (usually) daily or twice daily unedited recording of the journey to and from work by Voice One and Voice Two, commuting Podcasters who have decided to record the conversations they hold on their journeys – not necessarily because it will be interesting but because they can. This is not the territory of traditional radiogenic forms, yet the nature of Podcasting allows its existence and seems to cultivate it. Pornographers have adopted the new medium, and, inevitably, so has religion. Although not a 'Godcaster' as such, Father Roderick Vonhögen, a Catholic priest from the Netherlands, has enjoyed success in the new medium. His Podcasts from

the Vatican in 2005 made compelling listening as he shared a genuine insider's view of the feelings and events surrounding the passing of Pope John Paul II. His Podcasts now regularly draw 15,000 listeners in part due to the fact that, despite first impressions, he is not selling his faith, rather using it to discuss issues of modern culture. So successful is he that Vatican Radio has consulted him on their Podcast plans (Grant, 2005).

There is much in the style of these Podcasts that is shared with reality or access television, and much of the content at a grassroots level may be familiar to listeners of pirate radio, internet radio or community radio and, in that sense, it may be considered to be radiogenic in its broadest sense. However, Podcasters see their 'work' as doing what they want in a style that comes naturally to them. Some more esoteric content shares common ground with experimental radio services such as Resonance FM (London) or those projects, stations and programmes outlined by Lander and Augaitis (Augaitis and Lander, 1994). But whilst some Podcasters may share the 'audio as art' view, others would not consider what they do to be either artistic or experimental. One such example is 'Sound-seeing' tours recorded by a team of Podcasters, following in the footsteps of Adam Curry, who recorded the first Podcasters' audio-tour in Florida in 2004.¹⁰ There is much in common with the more relaxed, personal style of weblogs and, as some Podcasts started life as 'blogs', it seems logical that the style and tone will remain constant. Like pirate radio before them, Podcasters use the technology around them to create work and – like community radio also – are connected with their audiences by being listeners/subscribers themselves.

Podshow.com was the first to begin the process of commercializing Podcasting. Others like 'Radiotail.com' have followed, offering a similar service of hosting and advertising sales. There has been some doubt if this will succeed (given the lack of success for several web radio services) although, whilst listeners may turn off advertisements that are not targeted at them, the niche nature of Podcasting offers a very focused delivery mechanism, targeting smaller groups of geographically disparate yet like-minded individuals. Podcast advertising is in effect radio advertising but 'on steroids' (Bryant, 2005). Podcast consumers are, in effect, open to messages but only if Podcasters are telling (selling) them something that listeners are interested in. This commercial/sponsored approach seems to make the most sense, given the only commercial alternative requires users to pay for everything they download and, outside US satellite radio, that is something consumers raised on apparently free-to-air television and radio are not used to doing.

Other Applications of Podcasting

Much of the material discussed so far in this article comprises largely what one could describe as radio or at least features strong 'radiogenic' elements or characteristics. However, Podcasting is a medium that can do so much more, and so organizations and individuals are finding ways to exploit the characteristics and the benefits of the new medium for corporate gain, for self-help and for education.

Sci-Fi TV used Podcasts to provide Executive Producer commentaries to the first transmission run of 'Battlestar Galatica' (similar to actor/director commentary features for film releases on DVD). This exemplifies the use of the auditory nature of Podcasts to supplement another activity, to promote a product and provide content of value to fans. Richard

Branson's Virgin Atlantic has also adopted the Podcast as a new way to serve their customers. The airline has produced a series of Podcast guides to the various international destinations it flies to including New York, Cuba and Shanghai. Audio content in this format has so many possibilities, from providing step-by-step help to learn a language (such as 'Trying to Learn Spanish') to providing briefings and information within companies or organizations.¹¹

Podcasting has been enthusiastically adopted in the public sector with large bodies like NASA using the new medium. The space agency has been using Podcasting to build its educational work, with scientists giving talks on various topics and even a Podcast from the Space Shuttle in 2005. In the UK, organizations like St John Ambulance, the Scottish Tourist Board and South Yorkshire Police are also using Podcasts to offer information in this new, accessible format. Podcasting has also not gone unnoticed in politics. American Vice-Presidential candidate John Edwards was the first to Podcast recorded talks with his wife at their kitchen table, reminiscent of former US President Franklin D. Roosevelt's 'Fireside Chats' in the 1930s. Edwards' example has been followed by City Mayors and Californian Governor Arnold Schwarzenegger. Even George W. Bush makes interviews and weekly radio addresses available as Podcasts.¹²

In education, Podcasting has found an unexpected yet potentially valuable home. Schools, colleges and universities in many countries have taken to the new medium to deliver content to students, to share ideas, deploy communication skills or to get students to discuss ideas with each other. Leading the field has been Duke University in North Carolina, USA. In 2004 the University grabbed headlines by giving out free 16,250 iPods to new students (Duke University, 2005). The idea was to allow students to record lectures and download course content from the internet; to record themselves or location interviews for projects. The University has since rolled the project back to a few key subjects but is still committed to the new outlet. The University has embraced the movement to such an extent that they held the first academic symposium on the subject in 2005. Other institutions such as the University of Florida, Georgetown University, Southern Cross University (Australia) and the University of Lancaster (UK) are just a few known to be using Podcasts. Their application of the technology is multifarious, including giving students the option to download lectures (a listen again option, somewhat like cassettes previously provided through distance learning), as a way for students to give presentations, or as a way of researchers publishing their findings. Like grassroots Podcasting, Podcasting in education could be (and is, at some institutions) a two-way dialogue between student and academic:

In the past, the paradigm was essentially a one way transfer of knowledge . . . The new paradigm involves the student much more . . . students like Podcasting. They relate to it . . . I think there is a definite role for it in education. (Fargas, 2005: 74)

Whilst the adoption of such a new technology could feel alien in an academic environment, it must be acknowledged that our younger students are the 'iPod Generation' and as such take to new technologies easily and often with enthusiasm. Interviewed for the *Education Guardian* newspaper, Casey Alt of Duke University argues, 'The average first-year student shows up . . . with more tacit digital literacy than many of their lecturers combined' (Adenekan, 2005). These comments are perhaps not unexpected: as technology moves it is mostly the younger generation who adopt it first. Alt's comments are

echoed by the authors of a report into the opportunities offered by Podcasting at the University of Missouri who contend that:

the rapid evolution of audio-photo-video recording capabilities through phones and inexpensive hand held devices will create a flood of multimedia content. They will be immediately adopted by the current class of students and will be looked at with disinterest or uncertainty by many members of the faculty. (Meng, 2005: 10)

Following this argument, it is apparent that the same issue of generational divide occurs in both education and broadcasting. Like many learning establishments, the university I work in uses a Virtual Learning Environment to deliver course content to students, such as lecture notes, PowerPoint presentations or exercises.¹³ This type of environment could also contain Podcasts of lectures, allowing students to make clearer notes by listening to lectures again in their own time and in their own space. Interviewed in 'Secrets of Podcasting', Richard Lucic, an associate chair at Duke, cites this as one of the key selling points of Podcasting in education.

I think something that surprised the students the most was when they realised they could turn 'dead time' (like commuting) into productive learning time . . . They eventually stopped taking notes during lectures and paid more attention to the speaker. (Fargas, 2005: 74)

Other institutions have taken a step further, with Stanford University launching a branded version of iTunes (the online music store run by Apple) offering 'lectures, campus events, performances, book readings, music recorded by Stanford students and even Podcasts of Stanford football games' (Stanford University, 2005). Podcasting will also have a role to play in conferences and research work, where papers can be recorded and then published online. The Radio Conference of 2005 at RMIT University in Melbourne recorded all papers with a view to making them available as Podcasts. This means academic papers have the chance to exist as 'live', linear artefacts long after the session has ended. An argument yet to be had is whether or not this counts as (academic) 'publication'.

Defining the New Medium: Is It Radio?

If we take the classic definitions of radio, as laid out in key texts like Crisell's *Understanding Radio* (1986), then we can classify lots of Podcasts as 'radio'. Yet in some ways to identify Podcasts as 'radio' might be ignoring some of the qualities of each medium and perhaps terms like 'radiogenic' or 'radioesque' are more useful. Black (2001) contributes to this in his discussion of radio streaming on the internet and the debate over what it should be called, asserting that:

Listeners have a lot to do with it. A medium's identity stems in part from how it is received and treated by its users. Listeners may of course be nudged in this or that direction by the industry. But if, for whatever reason, Internet audio is treated as if it were radio, then to some irreducible extent it is radio. (Black, 2001: 398)

Podcasts like 'The Daily Source Code' (dailydownload.com, 2006), 'Coverville' (2004) and the '\$250 Million Radio Show' all 'sound' like radio, with DJ talk, identification jingles and music tracks interspersed with speech. However, unlike radio, they vary in their

duration, and they do not always appear at regular times or days and fit around the routines of the producer. Other Podcasts such as 'The Dawn and Drew Show' (dawnanddrew.com, 2006) are still auditory but have fewer radiogenic features, whilst Podcasts such as 'The Sound of Silence' (2006) and 'Sound of the Day' (2004) could be classed as experimental radio or even sound art.

Nevertheless, I argue that Podcasting is a unique form insofar as it has distinct characteristics that it can play to. Unlike broadcast radio it is moveable, with the listener not being fixed to a timed schedule. Perhaps more importantly the listener is not fixed to a defined format of content and can mix genres, styles, formats and even languages. There remains some tendency to use the reference points of older media like radio as a way of understanding Podcasts although there is much that is new and that requires a new perspective. Writing on the transfer of content from print to the internet in the 1990s, Microsoft founder Bill Gates said:

Whenever a new medium comes on the scene its early content comes over from other media. But to take best advantage of the new electronic medium, content needs to be specially authored with the new medium in mind. (Gates, 1996: 144)

If broadcast radio is a 'push' medium and internet radio is a 'pull' medium, then that raises an interesting debate as to how Podcasting is defined, given that it lies somewhere in between. Whilst the listener selects the content they want to subscribe to, the content arrives by a 'pushed' mechanism and the user ultimately decides when it is played ('pull'). Podcasts are therefore defined as content with the lazy benefits of push media but with all personalization features of pull media. This makes Podcasting 'personalized media' or, as BBC 'In Business' presenter Peter Day would have it, 'Radio-Me', meaning a medium that is more accessible than web radio and more in tune with the needs of some audiences than broadcast services (Day, 2005).

Like a lot of radio, Podcasts are consumed alone and, like radio, they tend to be linear in their nature in that the content is heard as though it were live but with the added convenience of being able to pause or rewind if desired. It is this feature that led many industry observers to call it 'TiVo for Radio' (Day, 2005). One of the problems of radio (certainly in the UK) is that scarcity of frequencies available on the radio spectrum forces stations into the mainstream to chase the greatest number of listeners to single channels (or multiple channels in the same market under common ownership). This is not the case for the internet, which can cater for a wider range of choices of ever decreasing popularity on what has become known as 'The Long Tail': a term coined by Chris Anderson, editor of technology magazine *Wired*. Anderson says that online retailers like Amazon are not limited by shelf space like physical bookshops: they are able to stock books which may only sell one copy but that doesn't matter as the margins and the profits are the same. Anderson observes:

unlimited selection is revealing truths about what consumers want and how they want to get it . . . As they wander further from the beaten path, they discover their taste is not as mainstream as they thought (or as they had been led to believe by marketing). (Anderson, 2004)

He argues that many of the assumptions made about taste are actually due to poor matching of supply and demand. On a global scale small niches in Podcasting could

generate enough revenue to operate. The Long Tail shows 'the difference between push and pull, between broadcast and personalized taste. Long Tail businesses can treat customers as individuals, offering mass customization as an alternative to mass-market fare.'¹⁴

Implications and Conclusions

The term 'Podcasting' implies the use of an iPod or, indeed, any MP3 player but, whilst the term may become redundant, the concept will not. A demand has been proved for audio content delivered to users (by subscription) for time-shifted playback on portable media devices. The next step will be content designed and delivered to mobile phones, hand-held personal devices (PDAs), games consoles or connected media players, potentially using the – newer – smaller and higher quality MP4 or AAC format (the format used in iPod offering improved quality over MP3). The current 'next generation' or '3G' mobile phones do offer the capacity to access the web with speeds capable of sustaining audio streaming, and downloadable applications already exist to run Podcasting clients on 'smartphones'. This could be a step forward, bypassing the computer altogether and capturing content on the playback device. In 2006 global mobile operator Vodafone announced a partnership with Sony to offer 'Vodafone Radio', a personalized 'over-the-air' music service for its customers. There are also rumours of a wireless-enabled iPod in development. It seems inevitable that others will develop this, adding speech, personal-ity and advertising content.

Many cities are now looking at wide area (or Wi-Max) wireless networks (rather than small 'hotspots') that would give enabled media devices a means to capture content on the move, without the cost of connecting via a mobile phone network. Handsets with MP3 playback capabilities already exist, such as the Motorola E1 with iTunes and the new range of 'Walkman' branded phones from Sony Ericsson, both of which still require a computer to access and transfer content and so only offer the convenience of storage. In 2005 Nokia was due to release the N91, a 3G mobile with 4Gb hard drive that can download music (and therefore Podcasts) over-the-air and even access Wi-Fi (Rose, 2005). This type of convergence, although created with paid-for music content in mind, could be a big step for Podcasting, and it is likely that more 'all-in-one' devices will be available in the future. With the drive to online living Podcasting was inevitable but it was the way in which technologies have converged that has been the biggest development and is the medium's biggest asset (Buckley, 2000; Lehman-Wilzig and Cohen-Avigdor, 2004).

In the radio world Podcasting is competing with DAB radio on roughly equal terms, with similar numbers of DAB radios and portable media devices being sold in the UK during 2004 (Piggott, 2005). There is, of course, the potential for these technologies to collide. In the UK a trial has already been conducted to stream live video to mobile phones via data capacity on a DAB multiplex although, ironically, volunteers used the devices to listen to digital radio rather than the TV channels on offer (Timms, 2006). Many DAB broadcasters and developers have been looking at ways of offering content via DAB, such as music downloads or radios that can read 'flagged' content and store it for time-shifting. As DAB can offer faster download speeds than 3G the option is also there to send audio content (as data) directly to devices for playback at times (and places) that

are convenient to the listener. This suggests that broadcasters are now realizing that they are in the content business and not just the radio business.

Podcasting allows anyone – individual or corporate – to produce content for audiences who do not particularly care where it comes from. MacFarland (1997: 22) identifies this as being a key element to success in the digital age: ‘The answer will lie not so much in technical improvements to audio reproduction as in improvements to the product the audience is seeking – programming that is responsive to the listener’s needs.’ It is likely that with the increased choice, digital content (whether via DAB, satellite, webcasting or Podcasting) that is ‘in tune’ with audiences, using formats and styles other than mainstream music, will develop. Linked to this, a role for speech-led content may develop (Berry, 2004).

So what does the future hold for traditional broadcast radio (even those services on DAB)? My contention is that it will (should) return to basics, do what it does best on the understanding that the world is changing. Stations operating ‘more music’ formats cannot succeed in an environment where listeners have access to large libraries of music on iTunes, Napster or Kazaa. Variety-led radio formats like ‘Jack FM’ have been launched in the US to offer greater diversity, and KYOU Radio has launched an all Podcast format in San Francisco in which listeners submit Podcasts for FM broadcast. These are the exceptions and will probably remain so. Podcasts may not only reconnect audiences (as seen by CBC in Canada) but may also result in a rise in audited listening, as audiences have access to material at any point in time (rather than at time of transmission or production) and consequently slowly regain the radio habit. However, there still remains a challenge for the reinvention of broadcast radio. Interviewed by ABC Radio in October 2004, Nick Piggot of the GWR (now GCap) Group in the UK said radio stations have some rethinking to do: ‘The main job will still be to produce a radio station that people recognise . . . and is a good listen’ (ABC Radio National, 2004).

I suspect that, like other trends before it, aspects of Podcasting will wither and disappear as the next ‘new’ medium is launched. It may be the grassroots Podcasters who lose out the most in this process, although some more committed individuals may continue. Podcast pioneers Curry and Winer disagree about what Podcasting will do to radio. Curry feels its effect will be profound whilst Winer is more sceptical, arguing in his weblog:

It'll become radio and vice versa. Airwaves are just another method of distribution . . . What will change is who's talking and who's listening. Now the conversation will flow in all directions, with broadcasters listening to people they used to think of as 'audience'. Blogs changed the architecture of written-word-journalism in the same way. (Winer, 2004)

If the commercialized Podcasters keep up with technology they could provide content alongside large media groups and I would suspect that a degree of consolidation will happen here, with the likes of AOL Time Warner, Sony or News International entering the market and buying into established independent producers. Whilst some observers feel that Podcasting is the end for radio and others claim it will be a short-lived fad, it is more likely to prove a first step on a long road of change. Radio must accommodate the changing landscape and demands of audiences. Maffin argues that ‘Every art form has its moment of revolution. The Podcasters may indeed provide radio with its [moment]’

(Maffin, 2004). It seems that this is not just a technological revolution but a revolution in who is able to produce and distribute content to a mass market.

If the entire content produced by a radio 'station' is available to hear at any point, then listeners are always available to listen and so theoretically overall listening can increase. Industry research in the UK suggests that listening online and purchase of MP3 players is increasing whereas overall listening to commercial radio is down.¹⁵ The UK industry regulator shows an awareness of this phenomenon in its *Preparing for the Future* consultation report, which argues that the radio industry needs to 'innovate and adapt to listeners' changing expectations' (OFCOM, 2005b). Whilst this does mean some changes to (audience) research methodology the indications are that audience researchers are mindful of this already. The alternative production methods Podcasting offers could mean producers are able to focus on fewer content items and so drive up investment, quality and focused opportunities for clients. This is potentially good news for the listener.

The shared experience of live radio (social listening at breakfast time, large sporting events and so on) should secure a place for broadcast radio in the digital future. However, in the future live broadcasters will need to become more interactive, more drawn to speech-driven or excitement-driven formats, offering content not available on other platforms. In the UK the broadcaster Chris Evans demonstrates this by involving his audience in every facet of his highly produced live programme which is then edited into a weekly Podcast.¹⁶ Whilst live broadcasting could remain central for some listeners they will also have continual opportunities to catch up with missed features via delivered audio content. In the future there will still be a role for (live) broadcast radio but as a medium it needs to consolidate and rediscover its strengths and its 'liveness'. On a professional level, producers will deploy 'Long Tail' principles and offer 'sidechannels' (specialized audio downloads) to cater for spin-off niches. More non-broadcast businesses will use audio on the new platform to connect with their customers, whether they are students or airline passengers. The ability of grassroots Podcasters to compete on a level playing field with big business is refreshing and means that more than ever it is content that is important rather than brand, heritage or frequency position. That's the lesson, the revolution the radio industry needs to take away from Podcasting. The iPod has not killed the radio star (yet) but radio may require some retuning.

Notes

- 1 Apple does not own the rights to the name and in fact kept very quiet about the whole movement until they added Podcast support in their iTunes software in 2005. Speaking at the corporation's developers' conference in 2005, CEO Steve Jobs described Podcasting as 'the hottest thing in radio' (Jobs, 2005).
- 2 There are several competing software options available. Nearly all are free: however, some such as 'Blogmatrix Sparks!' also offer Podcast production tools and hosting for a fee. Podcast support is also finding its way into other products such as 'Mozilla Thunderbird', an open source email and RSS client.
- 3 RSS – Really Simple Syndication – is a method by which web pages or other content can be distributed automatically to dedicated readers. This allows users to subscribe to content and then to view (or download) website content from a single piece of software without revisiting websites.
- 4 Compared to product data from Digital Radio Development Bureau/Digital One 'DAB Digital Radio 5 year forecast' (October 2004). Industry publication no longer available at <http://www.drdb.org/>.
- 5 See <http://www.ofcom.org.uk/media/mofaq/rcomms/itrip/?a=87101> (accessed February 2006).
- 6 The Radio Festival is an annual event run by the Radio Academy, an independent body that organizes conferences, regional events and the annual Sony Radio Awards. In November 2005, the academy

- hosted 'Radio at the Edge', a one-day event on the future of radio that featured frequent references to and discussions of Podcasting.
- 7 Unlike earlier media consumers who were offered choices although in very different modes and technological formats: radio, newspapers, cinema, records and so on.
 - 8 The BBC is paid for via the statutory television licence fee and as such all TV viewers in the UK pay for the BBC, even if they do not watch or listen to any BBC programmes. To date there has been no public discussion or data to suggest how many downloads or streaming hours are sent to non-UK destinations. However, this may become an issue in the future requiring resolution via rights management options or access restrictions.
 - 9 Podcasting News (2005) 'Top 25 Podcasts', http://www.podcastnews.com/forum/links_tophits.htm (accessed 8 November 2005). Note, however, that research data into non-Anglophone Podcasting statistics has not been readily available.
 - 10 Soundseeing Tours are audio recordings of a walk around an area, using portable media devices as recording devices. Podcasters describe what they see and may stop to chat to people as they walk.
 - 11 Virgin Atlantic <http://virginatlantic.loudish.com/> (accessed February 2006), and 'Trying to Learn Spanish'. <http://ttspodcast.blogspot.com/> (accessed February 2006).
 - 12 Californian Governor. <http://www.photos.gov.ca.gov/radio1.html>. NASA. <http://science.nasa.gov/podcast.htm>. Scottish Tourist Board. <http://www.visitscotland.com/sitewide/edinburghpodcast>. South Yorkshire Police. <http://www.southyorks.police.uk/podcasts/>. St John Ambulance. <http://www.sja.org.uk/firstaid/info/>. White House. <http://www.whitehouse.gov/radio/> (all accessed February 2006).
 - 13 Virtual Learning Environments such as Blackboard or Web-CT offer a secure server method of delivering content to students. They are used to offer support materials or deliver remote and online courses.
 - 14 The Long Tail derives its name from a graphical impression of how products are stocked in depth at the popular end of the market but thinly at the opposite end. Issues of volume cease to matter in digital environments as conventional rules of supply and demand cease to apply. Anderson is currently writing a book on the phenomenon but has been maintaining a detailed and fascinating weblog on the topic. The first post explains his thoughts in more detail: http://www.thelongtail.com/the_long_tail/2004/10/index.html (accessed February 2006).
 - 15 In broadcast radio, the availability of listeners to hear a programme has always been a limiting factor. Whilst a station may reach a large number of people, the actual number listening at a given point may be significantly lower. With Podcasting all content is always available and can be picked up and listened to at any point in the day. Future audience research methods are likely to include Podcast listening, given that the potential to reach more people more often is hugely increased. See the OFCOM Sector Report for Radio 2005 (OFCOM, 2005a), which reported the lowest commercial radio figures since Q1 1999 for Q4 2004 despite a greater number of services available (p. 48). OFCOM reports that 19 per cent (of those with web access) of their tracker group listened to radio via the internet and 36 per cent listen via digital TV (p. 41). This suggests a move away from traditional broadcast models to platforms offering greater choice and interactivity.
 - 16 In the UK, stations in the former GWR group use SMS to tell listeners who have requested songs via text when their track will be played on the air.

References

- ABC Radio National (2004) 'Music of the Blogospheres', (TX 31 October), transcript, URL (accessed February 2006): <http://www.abc.net.au/talks/bbing/stories/s1255531.htm>
- abc.com.au (n.d.) URL (accessed February 2006): www.abc.com.au
- Abramsky, J. (2004) 'BBC Radio in the Second Digital Age', speech to the Radio Festival 2004, URL (accessed July 14 2004): http://www.bbc.co.uk/pressoffice/speeches/stories/abramsky_ra.shtml
- Adenekan, S. (2005) 'A Soundtrack to Study', *Education Guardian*, URL (accessed November 2005): <http://education.guardian.co.uk/print/0,3858,5263776-108234,00.html>
- alt.NPR (2005) URL (accessed 7 November): <http://www.npr.org/rss/pod/alt-npr.html>
- Anderson, C. (2004) 'The Long Tail', *Wired*, 12 October, URL (accessed November 2005): http://www.wired.com/archive/12.10/tail_pr.html
- Augaitis, D. and Lander, D. (1994) *Radio Rethink: Art, Sound and Transmission*. Banff, Canada. Walter Phillips Gallery.

- BBC (2004) 'BBC Radio MP3 Takes Off', URL (accessed 17 December 2004): http://www.bbc.co.uk/pressoffice/pressreleases/category/radio_index.shtml
- BBC (2005a) 'BBC Internet Radio Users Up 70% on 2004', press release, URL (accessed 28 February 2005): http://www.bbc.co.uk/pressoffice/pressreleases/category/radio_index.shtml
- BBC (2005b) 'New BBC Radio Player Brings Record Results', URL (accessed 29 March 2005): http://www.bbc.co.uk/pressoffice/pressreleases/category/radio_index.shtml
- BBC (2005c) 'Podcasting Set for "Huge Growth"', *News*, URL (accessed 7 July 2005): <http://www.news.bbc.co.uk/go/pr/-/hi/technology/4658995.stm>
- Berry, R. (2004) 'Speech Radio in the Digital Age', in Andrew Crissell (ed.) *More Than a Music Box*. New York: Berghahn.
- Black, D.A. (2001) 'Internet Radio: A Case Study in Medium Specificity', *Media, Culture and Society*, 23: 397–408.
- Brecht, B. (1993) 'The Radio as an Apparatus of Communication', in Neil Strauss (ed.) *Radiotexte*, 6(1): 15. New York: Semiotext(e).
- Bridge Ratings and Research (2005) 'Press Release: Podcasting to Hit Critical Mass in 2010', URL (accessed December 2005): http://bridgeratings.com/press_11.12.05.PodProj.htm. See also 'Data', URL: http://bridgeratings.com/Images/The%20Future%20of%20Podcasting%20Slides_files/frame.htm
- Bryant, S. (2005) 'Yes, There is a Market for Podcast Advertising', URL (accessed 12 November 2005): <http://www.publish.com/article2/0,1895,1884779,00.asp>
- Bryce, G. (2005) 'In My View: Hearing the i-Pod Hype', *Broadcast* (24 June): 16.
- Buckley, S. (2000) 'Democracy and Popular Communication in the Digital Age', *International Journal of Culture* 3(2): 180–7.
- Careless, J. (2005) 'Radio Seeks Profits from Podcasts', *Radio World* (November).
- Carter, S. (2005) 'Certainty of Security? The Path to Digital', the *Guardian* Lecture at the 2005 Radio Festival, URL (accessed February 2006) <http://www.ofcom.org.uk/media/speeches/2005/07/radiofestival>
- Cochrane, T. (2004) *Podcasting*. Indianapolis: Hungry Minds.
- commute.org (2004) URL (accessed March 2006): <http://www.thecommmute.org>
- Coverville (2004) URL (accessed March 2006): <http://www.coverville.com>
- Crissell, A. (1986) *Understanding Radio*. London: Routledge.
- Crofts, S., Dille, J., Fox, M.A., Retsema, A. and Williams, B. (2005) 'Podcasting: A New Technology in Search of Viable Business Models', *First Monday* 10(9), URL (accessed February 2006) http://www.firstmonday.org/issues/issue10_9/crofts
- Curry, A. (2005a) in Xeni Jardin, *Wired News*, URL (accessed 14 May 2005): <http://www.wired.com/news/culture/0,1284,67525,00.html>
- Curry, A. (2005b) URL (accessed 3 November 2005): <http://www.iPodder.org/history>
- curry.com (2005c) URL (accessed March 2006): <http://www.curry.com>
- dailydownload.com (2006) 'Daily Source Code', URL (accessed March 2006): <http://www.dailydownload.com>
- dawnanddrew.com (2006) URL (accessed March 2006): <http://www.dawnanddrew.com>
- Day, P. (2005) 'In Business', *BBC Radio 4* (TX: 8 May), URL (accessed March 2006): http://www.bbc.co.uk/radio4/news/inbusiness/inbusiness_20050508.shtml
- Domkus, D. (2005) URL (accessed 12 November 2005): <http://www.dawnanddrew.com/drew/archives/001267.php>
- Duke University (2005) 'Press Release: Duke to Give Apple iPods to First Year Students for Educational Use', URL (accessed November 2005): http://www.dukenews.duke.edu/2004/07/iPods_0704.html
- Fargas, B.G. (2005) *Secrets of Podcasting*. Berkeley, CA: Peachpit Press.
- Gallie, G. and Robson, J. (2005) 'The Digi-life Generation', presentation at the Radio Festival. Author's notes.
- Gates, B. (1996) *The Road Ahead*. London: Penguin.
- Grant, C. (2005) 'Catholic Podcast Makes Waves', *BBC News*, URL (accessed November 2005): <http://www.news.bbc.co.uk/go/pr/fr/-/1/hi/technology/4734807.stm>
- Hammersley, B. (2004) 'Audible Revolution', *Media Guardian*, URL (accessed 12 February 2004): <http://technology.guardian.co.uk/online/story/0,3605,1145689,00.html>
- Jenkins, H. (2004) 'The Cultural Logic of Media Convergence', *International Journal of Cultural Studies* 7(1): 33–43.
- Jobs, S. (2005) 'Steve Jobs on Podcasting', *Podcasting News*, URL (accessed 18 June 2005): <http://www.podcastingnews.com/archives/2005/06/>

- Lehman-Wilzig, S. and Cohen-Avigdor, N. (2004) 'The Natural Life Cycle of New Medium Evolution', *New Media and Society* 6(6): 707–30.
- MacFarland, D.T. (1997) *Future Radio Programming Strategies*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Maffin, T. (2004) 'How Podcasting Will Save Radio', blog posted 5 October, URL (accessed February 2006): http://radio.blogware.com/blog/_archives/2004/10/5/155523. See also Tod Maffin's site (accessed February 2006): <http://www.iloveradio.org>
- Meng, P. (2005) *Podcasting and Vodcasting: A White Paper*. University of Missouri, URL (accessed April 2006): http://edmarketing.apple.com/adcinstitute/wp-content/Missouri_Podcasting_White_Paper.pdf
- Miles, S. (2005) 'Podcast Makes the Dictionary', URL (accessed 1 November 2005): <http://www.pocket-lint.co.uk/news.php?newsId=1524>
- 'Morning Coffee Notes' (2004) RSS feed, URL (accessed February 2006): <http://matrix.scripting.com/blogs/gems/secrets/podinterrupt.mp3>
- OFCOM/The Knowledge Agency (2004) 'The iPod Generation (July 2004)', URL (accessed March 2005): http://www.ofcom.org.uk/research/radio/reports/ipod_gen/?a=87101
- OFCOM (2005a) 'The Communications Market 2005: Radio', URL (accessed November 2005): <http://www.ofcom.org.uk/research/cm/cm05/radio.pdf>
- OFCOM (2005b) 'Radio-Preparing for the Future. Section 4.7: The Public Purpose of Radio', URL (accessed February 2006): http://www.ofcom.org.uk/consult/condocs/radio_review/radio_review2/radio_review.pdf
- Paid Content (2005) 'NPR's Podcasting Numbers Touch 4 Million Downloads', URL (accessed 7 November 2005): http://www.paidcontent.org/pc/arch/cat_podcasting.shtml
- Piggott, N. (2005) 'APRU for Radio', presentation to the GWR Group digital seminar 1 February, URL (accessed February 2006) <http://www.gwrgroup.com/news.cfm?nid=185>
- podshow.com (2004–2005) URL (accessed February 2006): <http://www.podshow.com>
- Priestman, C. (2002) *Web Radio*. London: Focal Press.
- Radio Advertising Bureau (2004) 'RAB Guide: The Nature of Radio Relationships: How Listeners Use Their Repertoire of Stations', URL (accessed February 2006): <http://www.rab.co.uk/rab2004/showContent.aspx?id=261#Habitual>.
- Rainie, L. and Madden, M. (2005) 'Podcasting Data Memo', *April 2005 Pew Internet and American Life Project*, URL (accessed October 2005): http://www.pewinternet.org/pdfs/PIP_podcasting.pdf
- Rose, F. (2005) 'Battle for the Soul of the MP3 Phone', *Wired* 11(November), URL (accessed November 2005): <http://www.wired.com/wired/archive/13.11/phone.html>
- Sound of Silence (2006) URL (accessed March 2006): <http://www.silentpodcast.com/>
- Sound of the Day (2004) URL (accessed March 2006): <http://soundoftheday.blogspot.com/>
- Stanford University, (2005) 'Press Release: Stanford, Apple Team Up to Offer Content through iTunes', URL (accessed 20 October 2005): <http://www.stanford.edu/dept/news/pr/2005/pr-itunes-102605.html>. See <http://itunes.stanford.edu>
- Tacchi, J. (2000) 'The Need for Radio Theory in the Digital Age', *International Journal of Culture* 3(2): 290–8.
- Terdiman, D. (2004) *Wired*, URL (accessed 21 December): <http://www.wired.com/news/technology/0,1282,66133,00.html>
- Timms, D. (2006) 'Vodafone Teams Up with Sony for Downloads', the *Guardian*, URL (accessed 9 January): <http://media.guardian/radio/story/0,,1682605,00.html>
- Twist, J. (2005) 'Podcasting Cries Out for Content', *BBC Online*, URL (accessed 1 November): <http://news.bbc.co.uk/2/hi/technology/4269484.stm>
- Virgin (2005) 'Virgin Radio', URL (accessed November 2005): <http://www.virginradio.co.uk/thestation/podcasts/podvertising.html>
- Wall, T. (2004) 'The Political Economy of Internet Radio', *The Radio Journal*, 2(1): 27–44.
- WGBH (2005) URL (accessed November 2005): <http://main.wgbh.org/wgbh/about/history/2000.html>
- Winer, D. (2004) 'Scripting News', URL (accessed November 2005): <http://archive.scripting.com/2005/03/25#When:5:03:44AM>

Richard Berry is a senior lecturer in radio studies at the University of Sunderland, UK; teaching radio production, theory and history on undergraduate and post-graduate degree courses. He is a member of the Steering Group of the Radio Studies Network, co-owner of the radio-studies email list and has previously published work on digital and internet radio.

Address The Media Centre, University of Sunderland, Sir Tom Cowie Campus at St Peters, Sunderland, SR6 0RJ, UK. [email: richard.berry@sunderland.ac.uk]