The Mirror-ball Effect: investigating channels, messages and participation levels.

A survey of digital networks and appliances used to deliver news and information content and an analysis of participation levels among journalists and their audiences.

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Abstract

Journalists have always used equipment which has been generally available in the communities in which they worked. This has been a result both of economy and necessity, since they found they had to connect with their audiences using means that were available to the audience, not just to the sender. Newspapers sold on street corners in the very early media days; SMS and email have become the rule for the early 21st century. This development also admits the possibility of the roles of the communication professional and the community merging during the "public journalism" process, and has become most recently evident in the areas around the Bay of Bengal, struck by the tsunami on December 26, 2004, especially in the Indonesian province of Banda Aceh, and in the Andaman and Nicobar Islands, where tiny portable radios, featuring solar panels and hand-cranked dynamos, have suddenly become part of a vital news media channel. In this article participant-observation and personal interview techniques are used to record and compare many of the digital channels used by news and information senders up to 2005. It also investigates the level of genuine participation which these new technologies have brought to the communications process.

Key words: public sphere, digital technology, journalism, communications, digital divide, participation

Introduction

The article documents an audit of new "general-purpose technologies" (GPTs, Forman et al, 2003:113) conducted from 2001-2005. The audit covered GPTs which have been applied to the task of transmitting journalistic messages since the late 1970s, the period when newspapers began to change their production processes from 15th-century Gutenberg methods (Man 2002:1) and to digital computing methods of production and delivery. Journalists have always used equipment which has been generally available in the communities in which they worked. They have instinctively understood that they have had to use technologies available and amenable to their audiences in order to make an effective connection with members of those audiences. Newspapers sold on street corners in the very early days; SMS, news feeds and email (and many others) are used in the 21st century. This is the physical embodiment of the traditionally close link between journalists, their audiences and the technologies which bring them together; the same link noted by Romano (2001:44):

> … Journalists attempt to reflect the diversity of community opinions about … issues and questions in a way that allows

community members to assess and appreciate the respective merits and weaknesses of each.

If "reflecting the issues in a way that allows community members to assess and appreciate" them means getting on the mobile, or texting someone or even displaying news on a roadside billboard or a computer touch screen, then the modern journalist needs to have those skills. Northrup (2003) notes that the average consumer in the United States in 2002 spent 3,599 hours using all forms of media, an increase of 1.8 percent from the previous year: "That works out to about 9.9 hours per day reading, listening, watching and surfing for any combination of professional and personal purposes". Northrup said this figure was expected to increase 1.5 percent annually, to at least 10.6 hours per day in 2007, but instead of reflecting a "mass-media" audience watching just a few channels, this reflected an "aggregate audience media model" (Northrup 2003):

> Forward-thinking news organisations are responding to this growth opportunity with strategies that invariably involve combining content formats and delivery channels to tap into the new aggregate audiences and to better mirror the way contemporary news consumers integrate print, video, online and mobile to satisfy their need to be informed.

But the application of these *in situ* technologies also must recognise Shannon's "Information Theory", as explained by Schramm (1966) and more recently by Benkler (2003), so that the mere presence of the technology with both senders and receivers is insufficient for truly effective communication; both ends of the communications process must know how to use the technology effectively, and the signal itself must travel through the connections well and arrive clearly enough to be understood. If understanding does not take place – and allow a meaningful response – then the information process will take on the nature of a disco "mirror ball", a meaningless parade of flashing lights intended to illuminate a community but which succeeds only in showing itself off. Measurement of this understanding and the capacity for response among receivers constitutes measurement of the level of genuine *participation* – "the process by which all stakeholders … negotiate power and openly reach collaborative decisions" (Griffin 2003, n.p.) – which new technologies and their diffusion through communities (Rogers 1995) have brought to the news communication process. The processes and technologies documented here are introduced to highlight the presence or the lack of – but in any case the importance of – these central features of the communications process. A limitation in this audit is acknowledged, in that it captures a snapshot of a particular geographical communications environment, Australia, along with some of the global computer mediated environment of the World Wide Web.

Theoretical background

In the 17th and 18th centuries, public sphere activity took place in the coffee houses, salons, clubs, English magazines such as *The Spectator* and *The Tatler*, reading societies and lending libraries (Poole 1989:14). This activity in the public sphere, defined in Habermasien terms as "a discursive, institutional, topographical space, where people in their roles as citizens have access to what can be metaphorically called societal dialogues, which deal with questions of common concern" (Dahlgren 2002:196) should logically have been enhanced by the emergence of relatively inexpensive communications technologies using the Internet. This progression had been true in the past, as verified by Kielbowicz (1989:180) who reported that postal subsidies for political journals had a direct and positive effect on the growth and influence of the newspaper industry in the United States during the 18th-19th centuries. The impact of price as a positive communications driver was further demonstrated when those same postal subsidies for political journals were extended to the popular press, magazines and eventually books (Kielbowicz 1989:180). This is supported by economist Eckert (2002) who demonstrates that price decreases result from battles over market share. That price is an important driver of demand even across commodities and services has also been demonstrated by Voxi and Amavilah (1995). These sources indicate that competition for market share in the technological communications sector drives down prices of technology items such as Internet-equipped computers, PDAs and

mobile phones, and consequently drives up innovation-adoption rates and future hardware sales. In practice, this is observed in the continual fall of computer, Internet and communications hardware prices since the advent of television in the 1950s in Australia. It is also demonstrated in the observed market response to practically all subsequent electrical and digital hardware, in which computers, game consoles, mobile phones, PDAs, DVD and media players launch on to the market as expensive then quickly reduce in price and remain relatively inexpensive. As Voxi and Amavilah's research suggests, a controlling factor on these prices would be the final connection and communications cost to the user. In the Australian market up to 2004, falling connection costs epitomised by the 2004 ADSL price war between Telstra and its wholesale Internet customer-competitors demonstrated the theory accurately by driving prices down and adoption upwards.

So now, instead of just coffee houses, salons, clubs, journals, newspapers and books, there are home Internet terminals, Internet cafes, chat rooms, discussion forums and email lists on the Internet, as well as a widening range of diversified digital production and delivery channels such as mobile phone, chat, and picture and audio-file swapping. The potential power of such modern public sphere activity can be judged quickly by a simple comparison. The number of coffee houses in 18th century London was between 2000 and 3000

establishments (Poole 1989:14), to serve a population of 600,000 (Old Bailey Online 2004), a ratio of one coffee house for every 200-300 individuals. In 2002, the number of individual Internet users, and thus possible chats, personal email transactions and discussions in larger forums, was 605 million worldwide (NUA 2004), in a world population of about 6,000 million (Population Reference Bureau, 2004). This suggests a ratio of one possible Internet connection for every 10 individuals, 20-30 times greater than the coffee-house coverage in 18th century London.

The scale of potential participation is magnified when the variety of opportunities for individuals to communicate and respond online is considered. As well as home connections, Internet users can visit Internet cafes in their home towns or while travelling. At just one EasyInternetCafé at Times Square in New York in 2002, Internet users could choose between 800 computer terminals, all rigged for chat use around the clock (Eng 2002). In the city of Shanghai, with a population of 170 million residents, there were 1,325 Internet cafés (BBC World News 2004). In Australia, the CyberCafé website (2004) listed 144 Internet cafés around Australia, with the greatest number, 40, in Queensland, followed by New South Wales (39) and Victoria (31). My observations put the number of available Internet terminals in such cafés at from 8-50 in each place, charging $2-$7 per hour for use. The audit documented here was conducted to investigate how much and how effectively new technologies have been applied in Australia and on

the World Wide Web to the process of communicating the specific product called "news".

The audit

In order to track and document some of the latest digital technologies available and appropriate to journalistic use, the international newspaper research association Ifra conducts the "Advanced Journalist Technology Project" (Ifra 2004). The 2004 edition of the project report lists 15 appliances which it says "assembles a complete package of cross-media capabilities into a custom technical backpack that today's multi-skilled journalist could carry into any news coverage situation" (Ifra 2004). Those 15 appliances were: a Toshiba Portégé M200 Tablet PC; an Apple *iSight* video-conference camera; a Sony DCR PC330 digital camera; Serious Magic Visual Communicator Pro; Archos AV320 video recorder; Nokia 6600 imaging mobile phone; Emergecore IT-100 network hub; D-Link DCS-1000W wireless webcam; DaKine Pod 1 urban backpack; Canon BJC-55 portable printer; Visioneer Strobe XP100 scanner; SmartDisk FireWire CardBus PC card; Logitech "Bluetooth" mouse; Zip-Linq retracting cables; and a Logitech QuickCam for Notebooks Pro (Ifra 2004). The total retail budget needed to acquire and set-up the NewsGear 2004 backpack (including the backpack itself) was $US9,030, equivalent in February 2004 to $A11,314. The present audit explores, outlines and explains some of the vast range of other digital news and information delivery channels

which have already been adopted (or at least, announced) by media organisations or individuals. It should be noted that since modern developed societies, and many which still sit in the "developing" list of world economies, have become enmeshed in digital technologies, it is for this reason that the observations included here follow only a general, speculative order, not any order of importance, theoretical or otherwise. Also, as the diffusion of news technology is taking place so quickly, this audit does not claim to be definitive; merely a snapshot in time and place.

4.1. *Media players (Windows, QuickTime and RealPlayer) and associate digital applications for program production*

Media players are software applications which allow users of computers and other general-purpose technologies to listen to audio, or view and listen to audiovisual news and entertainment content, both online and offline. Listening and viewing is the most appealing of the World Wide Web experiences, and the most common versions of media players are supplied by Microsoft ("Windows Media Player"), Apple ("QuickTime") and Real Networks ("RealOne Media Player"). Delegates to the 2003 International Consumer Electronics Show in Las Vegas, the United States, were told that "more than 40 new devices supporting Windows Media are being unveiled by leading consumer electronics manufacturers" (Microsoft 2003). In a press statement Microsoft

officials said the "total number of devices that support Windows Media (is now) more than 200 … (including) DVD players, CD players, car stereos and portable audio devices" (2003). Portable audio devices called *DiscMan* retailed in Australia in December 2003 for $179, with the sought-after ability to play compressed MP3 files downloaded from the Internet. I frequently listen online to classical music and news broadcasts from the Australian ABC as well as the BBC. A feature of both players which is not shared by other domestic general-purpose software is the "visualiser" or "audio analyser" which allows users to choose from a range of colourful patterns which display in synchronisation with the audio (see Figures 4.1 and 4.2 *below*). While serving no audio function whatever, this feature displays the entertainment function which is common among many general-purpose technologies. (During experiements I have conducted on a new Apple Macintosh notebook computer, however, the "visualiser" function has not been available.)
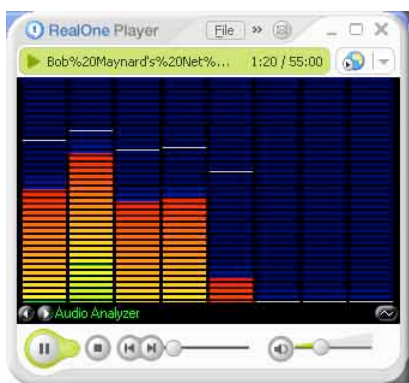

Figure 4.1: *RealOne player "audio analyser" visualisation of*

http://www.abc.net.au/classic/audio/ <viewed 9/5/04>

Figure 4.2: *RealOne player "fire" visualisation of*

http://www.abc.net.au/classic/audio/ <viewed 9/5/04>

Media players also let computer users (including those with mobile phones and PDAs) watch and listen to audiovisual presentations such as games and news bulletins, by decoding and displaying special file types such as RealMedia (*.ram* extension) or SMIL (synchronised multimedia integration language, with the *.smil* extension). By 2004, games had become an integral part of publishing and marketing of entertainment as well as news and informational content. The movie *Van Helsing* was released theatrically in May 2004, at the same time as game versions were released for the PlayStation 2, XBox and GameBoy Advance game platforms. Marketing took place using an interactive website www.vanhelsing.net which demonstrated all the features by launching media player software (Fig 4.3, *below*).
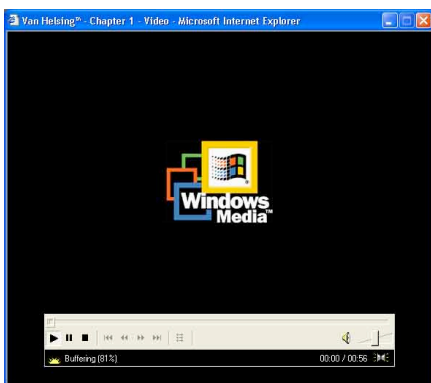
Figure 4.3: Use of Windows Media Player to promote Van Helsing game download, www.vanhelsing.net, <viewed 24/5/04>

The Australian Broadcasting Corporation's online news bulletin for Monday May 10, 2004, is captured in Figure 4.4 as an example of how an Internet user would view a news bulletin using RealOne media player.
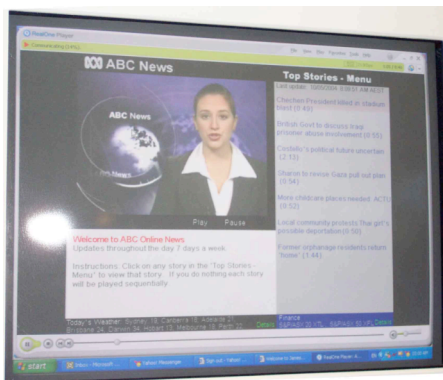

Figure 4.4 *ABC News broadband bulletin, on PC desktop <viewed 10/5/04>*

Artists and journalist-producers are able to capture audio and video for these presentations using digital video recorders and mini-disk audio

recorders, then edit and combine them with other material using digital tools such as *Flash*, *Director*, and *Fireworks* distributed by the Macromedia Corporation (2004), or Adobe *Premier* and Avid *ProTools*. Still pictures and graphics including text can be incorporated after editing in products such as Adobe's *Photoshop* and *Illustrator* (Adobe 2004). Once complete as multimedia productions, these journalistic artefacts can be incorporated into hypertext mark-up language (HTML) using HTML editors such as Microsoft *FrontPage* and Macromedia *DreamWeaver* before being uploaded to websites using file-transfer protocol (FTP) software. This allows the development of what is now known as "rich-media" websites (see 4.14, *below*) as well as news and informational content for automatic teller machines and computer kiosk displays (see 4.15, *below*).

Apple *QuickTime* has been expanded with a plugin known as VR (Virtual Reality) which has been applied by (among others) the Australian Antarctic Division (AAD). The Division's website www.aad.gov.au/default.asp?casid=1966 (2004) allows Internet users to display panoramic pictures of scenes at Australian bases on the south polar icecap, taken and produced by photographer and artist, Wayne Papps (who died while filming in 2003). This application of digital photography and media player technology shows the way for journalistic photographers who could display murder scenes, courtroom scenes and crowd scenes online using these techniques (Fig 4.5 *below*).
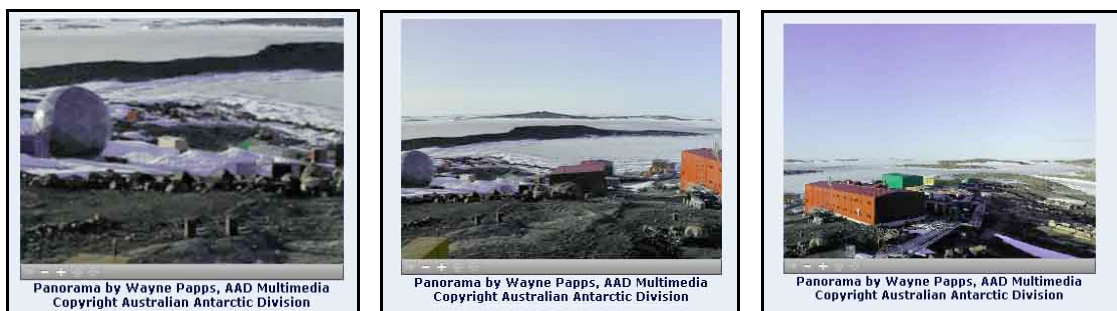
1. → → → → → → → 2. → → → → → → → 3.

Figure 4.5 *Stills from a QuickTime VR show displayed on the Australian Antarctic Division's website, May 2004. Produced by Wayne Papps, the panorama allows computer users to see a 360° view of the Mawson base in one sweep, controlled by the user's mouse and cursor. Users can also zoom in and out. Panorama by Wayne Papps, Australian Antarctic Division Multimedia, © Commonwealth of Australia 1999 (used with permission).*

Notwithstanding all the advantages which digital computing brings to a publisher's ability to manipulate editorial, illustrations and advertisements quickly and relatively easily into website packages, the technology has not changed one problem which print journalists have been aware of for decades: the possibility of unfortunate juxta-positioning of a breaking story with advertising on the same topic. The May 31 edition of the *Sydney Morning Herald* website www.SMH.com.au proved a timely example of this problem, as illustrated in Fig 4.6, *below*:
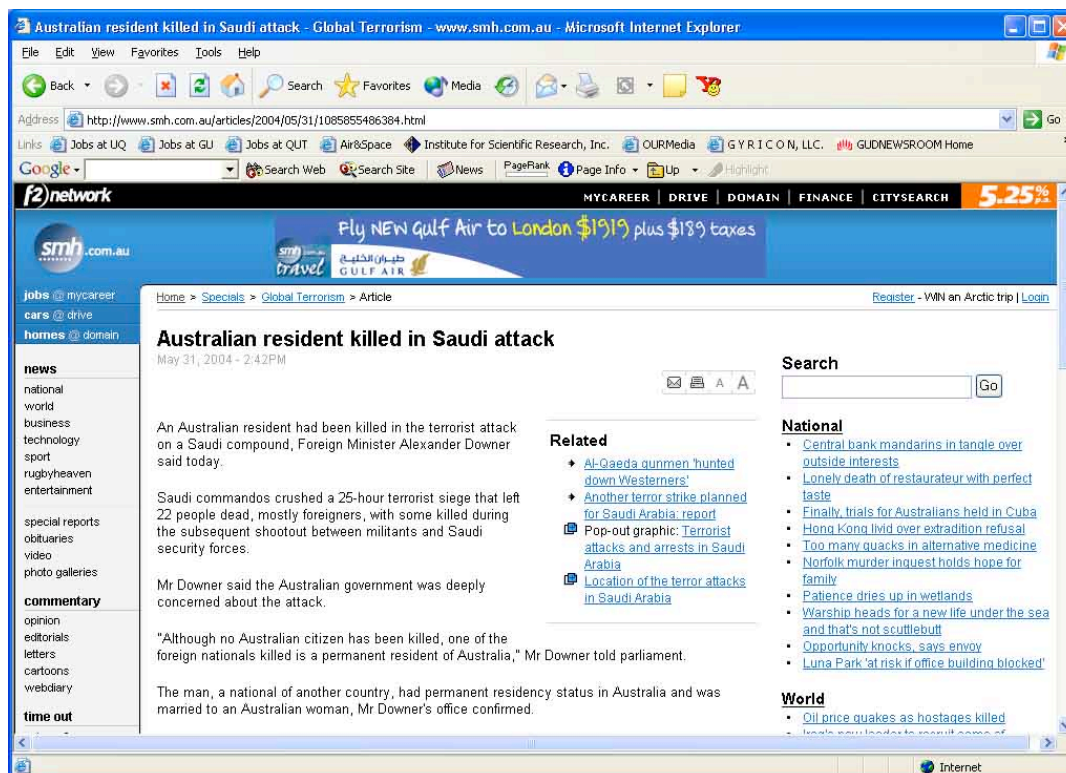
Figure 4.6 *SMH.com.au news web page of May 31, 2004, carries an animated advertisement for Bahrain-based Gulf Air right above a news report of a hostage crisis in Saudi Arabia.*

4.2. PDF publications

"PDF" refers to a kind of computer file marketed by the Adobe Corporation which mimics characters and fonts available in most commercial word-processing applications but which stores them in a "read-only" format, barring ordinary readers without the more sophisticated programs such as Adobe Acrobat from making any editorial changes. As the Adobe corporate website (2004) explains:

Portable Document Format (PDF) is the defacto standard for the secure and reliable distribution and exchange of electronic documents and forms around the world, with a ten-year track record. PDF is a universal file format that preserves the fonts, images, graphics, and layout of any source document, regardless of the application and platform used to create it.

Part of the success of the PDF format has been due to the successful diffusion tactics which Adobe adopted since the mid-1990s.

Adobe PDF files are compact and complete, and can be shared, viewed, and printed by anyone with free Adobe Reader software. To date, more than 500 million copies of the software have been distributed (Adobe 2004).

The chief tactic which the corporation adopted was to distribute PDF as what's called "an open file-format specification", which allows "anyone who wants to (to) develop tools to create, view, or manipulate PDF documents". More than 1,800 vendors now offer PDF-based solutions (Adobe 2004).

One of those 1,800 vendors is a news service called TEAM*talk*, operating in England, which has used Adobe PDF format to transmit regular bulletins to subscribers around the world, including to ships at sea and

to Australian researchers in Antarctica. More fully known as TEAM*talk* Satellite the company is based in Liverpool, England, with a subsidiary office in Fort Lauderdale, Florida (Henney 2002).

TEAM*talk* Satellite is part of the TEAM*talk* Media Group, also based in Liverpool but with offices in Charlotte, Chicago, Glasgow, Fort Lauderdale, Leeds, London, Munich and Stockholm (TEAM*talk* 2002*)*. TEAM*talk* Media Group was taken over in July 2002 by UKBetting Plc and now promotes TEAM*talk* as one of the brands with which it intends to drive revenue, which, for the six months to June 30, 2002, was reported at £17.5 million (then $A49.5 million). The company was formed as "IMC" in Liverpool in 1985 by Bernie Thomas and Tim Whalley. Both men were ex-seafarers and had been Maritime Studies lecturers at Liverpool Polytechnic (Henney 2002) and conducted government-funded research on use of communications systems and computers by ship crews. This resulted in the development of a ship-to-shore messaging system and, later, a news service for cruise companies including P&O Cruises and Cunard, using material sourced from Associated Press, the Press Association, Agence France-Presse and Australian Associated Press. Stories are selected by editors who then impose computer coding on them to form collected bulletins in the various languages offered in the service. The TEAM*talk* subscriber list for 2002 included 55 news products daily, in 10 languages. They claimed approximately 85 percent of the world's cruise line companies

as clients and also sent news to crew on cargo ships, to some remote hotels and to safari camps in Africa, as well as to the Australian Antarctic stations Mawson, Davis, Casey and Macquarie Island (Henney 2002).

An Australian equivalent editorial service, albeit serving a different market, is the *GoAuto e-news*, developed and distributed by publisher John Mellor in Melbourne. Mellor's background (Mellor 2004, personal communication) includes 37 years as a publisher and writer. Having founded the *Automotive Business* section in *The Australian* newspaper in 1990 and producing and editorially directing it until 1998, his motoring team was then appointed to produce the automotive content for the Yellow Pages web site: "GoAuto Online was launched three years later". He notes (2004, personal communication) that *GoAuto e-news* had grown to circulate to about 22,000 subscribers: "Our syndicated online service provides content to 13 web sites and delivers between 130,000 to 160,000 stories and car reviews a month to readers".

Mellor said (2003, personal communication) that Adobe PDF technologies had allowed him to transfer the biggest costs to his customers and by doing so, reduce his own production costs and stay in business: "The main change (in our business) has been that the customer now pays for the ink and the paper". The use of digital technologies such as network channels, PDF and HTML technology to

develop websites, allowed Mellor to control variable business costs such as ink, paper, transport and delivery, as well as some of his fixed costs, such as office infrastructure and wages. They also allow him to embed hypertext mark-up links within those PDF documents so that when Internet users receive and view the Mellor publications online, they can click on advertisements and visit marketing and other corporate websites seamlessly. This illustrates Brill's proposition (1999:159), that "the integration of editorial matter – 'news' – and advertising has long been an accepted practice in the United States and much of the democratic world". Finally, journalists (including Mellor) are able to work from distributed locations such as home offices and at times which suit them and the business, rather than turn up for regular office hours. Mellor (2004) had 12 journalists and artists on staff; by the end of 2004, only three of these would work from the central office.

Also in Australia on a larger scale, newspaper publishers were able to centralise the production of national tabloid and other-sized magazines in Sydney and Melbourne and distribute them around the country as PDF files using FTP software. Previously teams of reporters and editors had been employed to produce similar versions of these magazines in each capital city.

Worldwide, the NewsStand Inc organisation (2004) has adapted the PDF format to enable it to distribute and sell online more than 50

newspapers, magazines and newsletters, ranging in size and reach from the US daily *The New York Times* to the Townsville monthly *Fish and Boat.* The special "NewsStand Reader" – a variation on the Acrobat Reader used to decode standard PDF documents – allows a subscriber to save and read editions online for up to a year after publication. It also incorporates a useful new feature which allows readers to operate a "pen tool" and complete crossword puzzles in the same way a traditional newspaper reader would do so. Readers of *The New York Times'* NewsStand Edition can thus directly compare this method of completing their favourite crossword with the Java-script and Cookies method described below (see 4.10 and 4.11, *below*).

Telephony, radio and television

Residents of Australia have been going through a complicated and potentially confusing process of shifting from analogue to digital systems for control of its mobile telephony, and radio and television broadcasting. Between 1987 and 1993 the only mobile phones available in Australia operated on the so-called Advanced Mobile Phone System (AMPS) in the 825-890 megahertz range (Australian Academy of Science n.d.). In 1993 the "Global System for Mobile Telecommunications" (GSM) digital system was introduced to run alongside AMPS. Then in 2000, AMPS was withdrawn, leaving only GSM and another new digital system, Code Division Multiple Access (CDMA) which runs in the same frequency range as AMPS. At that time, AMPS users were compelled

either to migrate to GSM or CDMA or go without mobile telephony. Users of the Australian domestic television signal, which began analogue transmissions in 1956, face similar changes and challenges. These analogue transmissions continued unchanged until the late 1960s when the Phase Alternating Line (PAL) system of analogue transmissions was introduced, a system not compatible with the United States' National Television Standards Committee (NTSC) system. In 2001, Australian television stations began broadcasting binary (digital) television signals concurrently with existing analogue (waveform) signals. This procedure has been set down to change again in 2008, at which time analogue signals are due to cease and digital only will become the standard (Ritter 2000). On March 14, 2004, pay-TV operator Foxtel (a joint subsidiary of the US-based News Corporation and the Australian telco Telstra) launched its own version of digital television in Australia for its subscribers. The system offered 44 video channels (16 of them new to the Foxtel network) in the 16:9 wide-screen format, including 12 channels featuring enhanced sound quality employing the Dolby Digital 5.1 surround system, and 30 digital audio channels (Walsh 2004:5-6). Industrial disputes among Foxtel installers acted as an immediate, if temporary, impediment to the diffusion of this innovation.

4.3.   Radio

The transmission technology of news on free-to-air radio changed little between the earliest days (Miller 2002) and the late 1930s, when Frequency Modulation (FM) broadcasters joined Amplitude Modulation (AM) radio. Australia caught up with FM in the mid-1970s. Short-wave radio, with its higher frequency, allows a longer range and has persisted throughout the history of radio news broadcasting but with relatively small audiences. The latest moves by the Australian Government until 2004 included running a series of operational tests on the new delivery channels available, including Eureka 147, IBOC, Digital Radio Mondiale and digital satellite and hybrid satellite/terrestrial services (Australian Broadcasting Authority 2004a). These tests were being conducted during 2004 on VHF channel 9A in Sydney and Melbourne for up to 18 months (Australian Broadcasting Authority 2004a).

I have observed that VHF (very-high frequency) and UHF (ultra-high frequency) radios have another quite different interpretation in rural areas of Australia. Most pastoral property homes in the outback contain as standard equipment a VHF and a UHF radio transceiver, as well as television, telephones, AM/FM radio and fax machines (not to mention Internet connections in some areas). UHF is used for communications between vehicles in localised conversations and for communication between families on properties or in vehicles, while VHF is used for more distant or formalised communications or across a wider network,

such as for fire fighters and emergency workers including police, as Cripps (2004) explains:

> VHF was used for bushfires once - you can speak to people zillions of miles away and thru (sic) smoke. Its downfall was that Rural Fires Boards controlled its use and there was just one channel so it wasn't much good for other communication: messages from the shearing shed, requests for smoko brought out to the lamb markers, etc. Not everyone wanted to hear everyone else's business. So property and townspeople started using UHF, which has 40 channels and that's still not enough. It has a "line-of-sight" range so repeater stations are needed if you want to contact someone on the other side of the shire. Some shire councils have installed repeaters in strategic locations for this purpose. We have a base set in the house, two mobiles mounted in each vehicle and two handheld sets for (husband) Bill mustering on a bike, and whomever he might employ.

Yet another radio band has also been used for information delivery in the Australian Outback – HF (high frequency) radio – used to deliver education as part of the "School of the Air". This was phased out in 2004 in favour of telephone and online delivery of classes (Cripps 2004). Scientists at the Research School of Physical Sciences and Engineering and the Faculty of Engineering and Information Science of the

Australian National University report that they are developing a new wireless technology to exploit the above VHF capacity in rural Australia: the Bush Local Area Network, known as "BushLAN" (Conboy 2002). As the scientists explain (Australian National University 2004): "BushLAN allows a one-hop route to connect remote users … There would be no large-scale infrastructure (since) VHF TV does not need expensive repeaters or satellites!"

Radio took on a crucial developmental communications role in the countries around the Bay of Bengal after the December 26, 2004, tsunami disaster. Hogan (2005) reports that aid agencies made extensive use of small, inexpensive hand-cranked dynamo radio receivers, with solar collecting capacity as well, in the Indonesian province of Banda Aceh, and in the Andaman and Nicobar Islands, to revive community media networks during the disaster recover period.

4.4. *Free-to-air, satellite, cable and digital television*

Transmission of news, current affairs, entertainment and advertising by television arrived in southern Australia (Sydney and Melbourne) in 1956 and extended north to Brisbane in 1959. For the next 17 years, Australians saw their news and television entertainment in shades of grey on a monotone signal. But when change came, it came with a rush: black-and-white pictures acquired colour using cumulative patterns of coloured pixels of varying intensity (in 1976 in Australia but earlier

overseas); the previously single-channel sound signal developed to allow stereophonic reception; and in 2001 the largest Australian transmitters moved to dual-signal, carrying analogue as well as the new digital, "wide-screen" signal. Current Australian legislation dictates that the analogue signal will be discontinued in 2008 in favour of digital signals but industry sources maintain that the dual signal could continue for several years beyond that deadline (Ritter 2000; Nash 2002). Other "television" opportunities for news delivery include Direct-to-car TV (telematics) and Web TV, neither of which have diffused to Australia at time of writing. Television signals also contain the capacity to deliver teletext and closed captions.

4.5.   Teletext and closed captioning

In the early 1970s a new kind of delivery channel opened up on television screens around the world: teletext (Cook & Brown 2004). It was delivered as lines of crudely designed text scrolling from bottom to top of the receiver's television screen, and controlled by what was known as a "decoder". The customer's experience – indeed the sales pitch – was of information being sent "in a hitherto unused part of the television signal" (Cook & Brown 2004). It was the first time Australians had been offered the chance to buy extra content on their free-to-air televisions. This occurred around the same time as the Whitlam Labor Government abolished the practice of television and radio owners having to pay a licence fee to the government (Caslon Analytics 2004)

and offers one reason why the networks offering teletext in Australia saw a commercial opportunity to take up that revenue stream. The experience of most people, however, was that teletext was every bit as "popular and successful" as the Beta videotape format and 8-track cartridges for home music (i.e. so *un*popular they became commercially unviable media systems). There has been a revival of teletext in the digital TV environment both in Australia and Great Britain (Cook & Brown 2004) and I observed advertisements for teletext services begin to air again in Australia during 2003.

Robson writes: Closed captions "present the dialogue and sound effects of television programs and pre-recorded movies as text on a television screen" (2004). Elsewhere he continues "closed captions are captions that are hidden in the video signal, invisible without a special decoder" and "open captions are captions that have been decoded, so they have become an integral part of the television picture, like subtitles in a movie. In other words, open captions cannot be turned off." (Robson 2001). Both open and closed captions are used on many television transmissions including news but open captions are used exclusively on the Qantas in-flight news and entertainment video service "On Q" (see below).

4.6.   News tickers on billboards and websites

Outdoor advertising retains one of its major assets over other advertising media by being available to thousands of viewers per hour on national and local road networks, or on buildings in high-traffic locations. In Brisbane, a large billboard, inbound near the corner of Ann Street and Commercial Road, Newstead, had been hired by the Nine Network to publicise its nightly television news service. As a value-adding component, a light-emitting diode (LED) electronic strip at the bottom of the billboard displayed current Channel 9 news headlines for the passing traffic. Another of these ticker-boards had been installed outbound from Brisbane on the Warrego Highway near Gailes, in the city of Ipswich.

Further innovative possibilities are being explored by outdoor media companies, such as the French company JCDecaux (2004a), now with offices in England and Australia. JCDecaux, which claims to have built the first bus shelter sponsored by advertising (JCDecaux 2004b), has placed moving and illuminated advertisements on bus shelters in Sydney as part of its launch into Australia. Its website, however, reveals far more adventurous projects in Europe and the UK, including bus shelter panels which viewers can touch to activate media-player software to listen to popular music, advertising spiels or telephone ring-tones (for the mobile phone client Nokia) and in some cases view short movie clips (including *Star Wars*), also using media-player technology

(JCDecaux 2004b). Other players in the outdoor advertising market – and by extension, the outdoor news and information delivery market – include Australian Provincial Newspapers' Digital Division in Australia, and a group of students at the University of Western Sydney, who supplied short movies in 2003 to the New South Wales CityRail network at the Wynyard railway subway station in Sydney. These movies were projected from above the platform on to the subway wall when trains were not in the station.

4.7. Fax

During a study of how Australian researchers in the Antarctic received their news services in 2002 (Cokley 2003), survey data showed a strong first preference for the relatively old-fashioned method of having "printed newspapers copied and sent or distributed to you" (mostly by fax). Of the 80 researchers surveyed, 16 said they mostly received news "relayed by fax or letter". Fax is the exact kind of equipment often found at scientific research stations, as well as at remote pastoral properties. Information in written, diagrammatic or pictorial forms can be transmitted easily and this suits the newspaper format precisely. Before the introduction of the large digital network, and indeed before news pages were distributed using PDF technology, the preferred method for distributing broadsheet or tabloid news pages around large continental distribution regions (used by *The Australian* newspaper between Sydney and the other capital cities) was the "press-fax" system which I observed

in operation regularly during production work for News Ltd publications.

Information can also be retrieved from distant databases using the fax procedure known as "polling", in which the intended receiver dials a number on his or her fax and a fax is sent back from the remote database and call and fax costs are debited to the initiator's account. The Australian Bureau of Meteorology (2004) gives detailed instructions about how to use this aspect of its service. Cooking and gardening television shows often distribute recipe and planting information using poll fax services. Before such electronic services were available, I often included this kind of reader adjunct-news information in newspapers and magazines on which I worked as a journalist.

4.8. Corporate radio and television:

4.8.1: "On Q" (Qantas)

Qantas aircraft have been showing a video-based service and a tape-based radio presentation called "On Q" on its aircraft since 2001. I have observed the video presentations on long flights between far north Queensland and Hobart, Tasmania but they go all over the world. I recall a similar service on Ansett Airlines but that stopped when the airline collapsed in 2001. "On Q" includes news bulletins prepared by TCN9 (the Nine television network) and television entertainment programs from various other distributors' networks (including *The*

Nanny and *Everybody Loves Raymond* from the Ten Network). The executive producer of Qantas in-flight entertainment, Mr Michael Freedman, said that the service was produced in two parts: (1) news and (2) non-news material (2004). The news segments were produced at TCN9 Sydney by "reversioning" daily news bulletins emanating from Channel 9 in Sydney. Three bulletins were supplied daily at 5am, 12.30pm and 2pm. The 5am and the 2pm bulletins were packaged for the Qantas domestic fleet and the 12.30pm bulletin was packaged for the international fleet. Mr Freedman said the two domestic bulletins ran in 40-minute packages with 20 minutes of news at 5am and 10 minutes of news at 2pm (2004). The international bulletins ran in 30-minute packages with 25 minutes of news. The non-news Qantas and "On Q" material packaged with the news was delivered to TCN9 at the start of each week for inclusion in the pre-mastered packages. Delivery of the packages from TCN9 to Qantas took place by real-time video feed, either by fibre-optic cable or by satellite uplink from the Nine Network studios in Sydney. Qantas staff at each of nine Qantas ports (Brisbane, Sydney, Canberra, Melbourne, Adelaide, Perth, Cairns, Gold Coast and Townsville) used a satellite-dish downlink facility on the terminal roof to retrieve program content and record it directly to video cassette. Mr Freedman noted (2004) that Darwin was omitted because the airport was considered a defensive zone and as such a satellite footprint has not been permitted by the military. "It saves time if staff members retrieve the satellite feed by playing it direct to the video cassette," Mr

Freedman said (2004). Other non-news programming outside the bulletin slots was produced and mastered at Qantas facilities in Sydney and delivered to airports weekly and staff at terminals placed this onboard aircraft over weekends. Sometimes things go wrong, as happened on one flight on December 3, 2003, when I observed "On Q" host (and Channel 9 presenter) Deborah Hutton urge viewers to enter a competition for seats to the Rugby World Cup final, which had been held on November 22, more than a week previously. "On Q" also includes open captions on the news programs.

Audio-only content is supplied by "On Q radio", delivered to passengers by head-sets, and carrying "news content" other than the Nine Network bulletins. Mr Freedman said the radio content was produced in Sydney and shipped on cassette tapes monthly and played in a two-hour loop (2004). The cassette tape format was being phased out during 2004 in favour of compact-disk storage and delivery. On December 3, 2003, an onboard radio segment called *The Qantas comfort zone* displayed the system's potential to deliver health news. A segment was aired featuring a Sydney physiotherapist Anna-Louise Bouvier instructing passengers in some simple exercises designed to reduce discomfort on long-distance flights. Anna-Louise Bouvier had recently published spoken-word tapes through the network of ABC Shops (ABC 2004). Health news and information is now routinely presented on Qantas flights, especially focussing on the dangers of deep-vein thrombosis. As one means of

evaluating the quality and effectiveness of the programming, "On Q" won the World Airline Entertainment Association's "Avion Award" for best in-flight entertainment in 2002 (from 41 entrants) and again in 2003 (from 43 entrants). The award announcement said prizes were "determined by a 22-member international media panel that evaluated in-flight audio, video and print entries from 43 leading passenger airlines worldwide" (WAEA 2003). Mr Freedman compared the "On Q" service with another terrestrial video/radio service he said was operating on New South Wales government buses, in which "little television monitors drop from the ceiling of each bus and passengers can view and listen to programming during their trips" (2004). "Everything is easy on the ground," he said. "It's the movement of the content into the air that makes things hard." (2004)

4.8.2: "Channel C" (Commonwealth Bank)

The Commonwealth Bank has been presenting video programs inside its branch offices since 2003. I observe that these programs include no entertainment content or news content outside the bank's sphere of operations, but are restricted to promotional and advertising segments designed to sell the bank's financial products and services. However they are presented in a quasi-news, documentary style, clearly using journalistic and filmmaking techniques to increase customer interest. The merchandising manager in the Commonwealth Bank's Marketing & Information Services section, Lisa Whelan, said "Channel C is simply a

VHS tape played through a VCR and TV monitor. Channel C is used to both inform and entertain our customers whilst they are in a queue. Originally it was more corporate in style and more recently has changed to the more 'lifestyle' feel. We aim to give our customers information and tips on financial management. We also use Channel C to demonstrate the bank's sponsorships within the community." (2004)

4.8.3: Kmart radio; SupaCheap Auto Radio, SkyBus video

In December 2003 I observed that both Kmart (a part of the Coles Myer Ltd retail chain) and Super Cheap Auto retail chains had begun broadcasting what each called "radio" within stores. Branded "Kmart Radio" and "Super Cheap Auto Radio" the programs carried music, news and promotional-sales segments. In the time I devoted to making these observations I was unable to detect any news network affiliation for the journalistic content: news was read by the same presenters who played the music and read the advertisements. It appears to me that both are digital signals carried to each store probably by ISDN (Integrated Services Digital Network) lines supplied by Telstra. It was unclear whether this was a "live" or streaming feed from a central network server, or merely a replay of a sound file delivered to each store periodically during each trading day. The presence of news bulletins indicated that it was a "live feed" but the lack of time calls and weather updates conflicts with this position. The method of delivery might be similar to "On Q" and "Channel C": that is, by audio tape or CD

delivery, hand-installed. In June 2004, I also observed the same kind of news, advertising and music "radio" being played inside the HMV music store at Carindale in Brisbane, indicating that the phenomenon was spreading, since "HMV Radio" was not playing in December 2003.

On December 3, 2003, I observed a news and promotional video presentation on a *SkyBus OnBoard* transit service between Spencer Street railway station in Melbourne and the city's Tullamarine Airport. The program (which I later observed was the "outbound" version and different from an "inbound" version) started with a male announcer introducing himself and the SkyBus service. This was followed by an advertisement for a shopping centre in Melbourne and what appeared to be a community service announcement urging Melbourne residents and visitors to conserve water. Hard on the heels of this "community service announcement" was a segment entitled *A Minute with the Minister*, in which a man who might have been a Victorian Government minister but who carried no identifying caption spoke about tourism in Victoria. Finally in the presentation, the male host returned and introduced passengers to the facilities at Tullamarine Airport, telling passengers which terminal to choose to alight from the bus, according to which ticket they held: Virgin, Qantaslink or Qantas. The program was well timed and concluded on schedule just as the bus stopped at the first (Virgin and Qantaslink) terminal. The program credits said it had been produced by Sauci Marketing Services, apparently of Melbourne.

According to the website Destination Melbourne (2003): "(the) 12-minute audio-visual program … (would) be aired on a four-weekly cycle on the new Super Shuttle rapid transit link between Melbourne Airport and Melbourne CBD".

The same website said "the program will be both entertaining and informative and will be limited to six product segments in each cycle" (2003). It said the SkyBus OnBoard offered advertisers "a captive and targeted audience" and identified that audience as including more than 30,000 inbound customers each month. The website explained: "The majority of travellers are international (35.3 percent) and NSW (22.4 percent) visitors with over 84.1 percent from outside Victoria. Nearly 60 percent are aged between 21 and 40 years of age. The major reason for travel is Holiday (53.4 percent) and VFR (visiting friends and relatives, 34.6 percent) with an average stay of 5.14 days and over 55 percent staying in city hotels" (Destination Melbourne 2003).

The cost to advertisers for participation in this targeted campaign ranged from $5,750 for a 1-minute segment on the bus for 12 weeks, to $33,000 for a 3-minute segment run for 24 weeks.

4.9   Mobile phones:

4.9.1   Email to SMS (and vice versa) – short message system,

160 characters

On Wednesday, February 18, 2004, staff on the Seven Network morning news television program *Sunrise* announced that they would be launching "new technology" to allow viewers to send SMS messages direct to the show's producers and have them displayed on screen at the same time. They called the technology "7smsTV" and said viewers could "now interact with live Sunrise broadcasts in real time using SMS on your mobile phone" (Seven Network 2004). In the weeks following, the 7smsTV service was displayed as a scrolling type array in a colour box to one side of the television screen, while announcers David Koch and Natalie Barr continued with a commentary (including sometimes reading what was on the 7smsTV screen) at the same time.

A variation on the web-mobile interaction took place in the first week of March 2004, in which mobile phone users and web participants attempted to create a fantasy "treasure hunt" called *I like Frank* in the streets of Adelaide, explained by a press release from the federal Minister for Communications, Information Technology and the Arts, Daryl Williams (2004):

> *I like Frank* is a cross between a treasure hunt and hide-and-seek
> and connects participants across the country via mobile wireless

technology. Players explore Adelaide using voice messages and SMS to communicate with their online counterparts using 3G Motorola handsets.

Williams said participants in the m.Net network included Adelaide University, Agile Pty Ltd, DSpace Pty Ltd, the Playford Centre, Telstra Corporation, Austereo, the City of Adelaide and the University of South Australia (2004).

4.9.2 News on mobile phones

News is now commonly available delivered to consumers' mobile phone and wireless devices, such as handsets, Personal Digital Assistants (PDAs) and wireless-equipped laptop computers. I observed three mobile phone networks' offerings and report that Telstra (through its Communic8 service) offers the PocketNews text and picture service (Communic8 2004a), Optus offers what it calls MmsVideoNews (Optus 2004) and the newer "3" network offers text, audio and video news to its subscribers (Three.com 2004). Short audio messages and short multimedia messaging are included in many mobile phone customer packages, subject to network availability and bandwidth.

Conversely, news content can be delivered by reporters, photographers and even members of the public *back* to news publishing organisations as events happen. In May 2004, a fire started at the Morrison Hotel in

Brisbane and *The Courier-Mail* newspaper reported the next day (Thompson 2004:9) that many of its readers (as well as a reporter who lived nearby) took photographs of the fire on their new mobile phones before sending those pictures straight to the newspaper's email address. The transnational sports news agency, Infostradasports.com, based in Nieuwegein, Holland, but with an office in Sydney, Australia, run by former Australian Associated Press journalist Steve Dettre, collects and supplies news and information from more than 60 sports worldwide, and publishes this using FTP, XML and database, potentially for "Web, WAP, SMS, I-mode/GRS, multimedia CD-ROM, digital television, MMS or print" (Dettre, personal communication 2004; Infostradasports.com 2004). Along with students and other journalism educators, I encountered Infostradasports.com and Dettre in 2003 during the Rugby World Cup events in October and November. Dettre had managed the media information system at the Sydney 2000 Olympics, and since then had worked on other large-scale events such as the Manchester Commonwealth Games and the Soccer World Cup in Korea and Japan during 2002. The organisation had been commissioned by the Australian Rugby Union to supply player biographies, sports details and training and match reports, known as the Rugby News Service (RNS), for distribution to ARU-accredited media organisations other than the host broadcaster Channel 7, which had acquired "access-all-areas" rights. During the three Townsville matches (Japan v Scotland, France and Fiji) four of my James Cook University journalism students, a

freelance journalist from Melbourne and I attended training runs, pre-match and post-match press conference and the matches themselves to compile our reports. Like other groups at match venues around Australia, we then connected (using dial-up laptop computers or hard-wired desktops in the stadiums) to the RNS network, with username and password privileges to create and edit stories. This network was part of a national grid, controlled from an office in Sydney where Dettre's sub-editors (averaging four on match nights) worked on copy from the venues and published the stories to a web-based interface used by accredited "news" journalists at each venue and, occasionally, on the web at their offices. In practice, RNS journalists would obtain and publish quotes and story leads before, during and after matches, which subscribing journalists could then incorporate into their stories for news bulletins and publications, or at least use them as background for further interviews.

4.9.3 Vending machines operated by mobile telephones

In 2001, the Coca-Cola company formed a relationship with Telstra to allow rail commuters in Sydney to purchase soft drinks from a vending machine at Sydney Central Station using their mobile phones (Communic8 2004b). The transaction was executed by the mobile phone holder standing in front of the drinks machine and dialling a number displayed on the machine. The purchaser was able to follow electronic prompts on the mobile phone to instruct the drinks machine to deliver a

can of Coke and debit the price to the caller's mobile phone account (which was also debited for the price of the call). Since then the facility has been extended to 20 locations around mainland Australian states (Communic8 2004b). There is clear potential for the same dial-up sales process to deliver a thermal printout of the latest news headlines to commuters. Brenda Maddox foreshadowed this 30 years ago when she forecast the delivery of daily newspapers to the domestic home by fax (Maddox 1972:16).

4.10. Java

The *Sydney Morning Herald* newspaper's online site has had to deal with developing technologies, or at least the availability of those technologies to all its readers and screen viewers. In February 2004 I observed that the *SMH Online* site was presenting the following FAQ (*Frequently Asked Questions 2004*) information to its crossword followers:

> The crossword software uses the java language. If you cannot see the crossword, then the Java software is probably not present or working properly on your computer.

I sampled the SMH.com.au "premium crosswords" offering on May 26, 2004, and learned that I could input answers simply by typing into the clue grid, a different and easier process than that offered by the

NewsStand PDF (described in 4.2, *above*). Simplicity helps in delivery, since crosswords are among the most traditional and popular pastimes for newspaper readers. Although they carry no news content at all – in common with the daily astrology column, bridge notes and the comic strip, among others – they are often placed into the newspaper pages by journalists. Having to explain how these "new crosswords" work is a task that editors less than 20 years previously would never have imagined. I know I didn't, and managing the crosswords page at *The Sunday Mail* newspaper in Brisbane was just one of my editorial roles in the 1990s (along with the bridge notes, the comics, the social and weddings pages and the index section at the front of the newspaper, all of which remained journalistic roles at QNPL at least until 2003). Other "services information" which journalists are required to include in editorial sections of newspapers includes obituaries, tide and weather information and forecasts, sports results, turf and dog racing results and future fields (in tabulated details form) law lists, historical events (*Today in History*), lottery results, the newspaper index, shipping and flight arrivals and departures, stock reports and agricultural market reports. In the first years of the 21st century, every one of these types of information became available online independently of newspaper organisations and began to attract audiences in their own right. Journalists at publishers such as News Ltd were able to receive data from racing, weather, the stock market, agricultural and transport authorities via Internet file transfer (FTP) or were given digital

permissions to allow them to enter secure corporate sites to harvest materials themselves for inclusion in the relevant publications.

4.11. Cookies

The New York Times Online website producers encountered a similar problem with their crosswords and in 2004 presented the equivalent of "pages" of information and instructions about how to load and install the appropriate software to view its crosswords (New York Times 2004a). The *New York Times Online* also had to explain to its Internet audience the meaning of the computing term "cookies" and how these little pieces of code affected their experience of the online newspaper, because it is possible for computer users to exclude cookies from their systems and thus defeat the delivery mechanism intended by the newspaper publisher:

> A 'cookie' is a small piece of information that a Web site can store in a designated file on your computer. It can be used, among other things, to identify you when you log in to a Web site. When you visit a site, that site can access only the information which it stored in your cookie – not information put in your cookie by other sites. The New York Times on the Web is one of many sites that use cookies. The cookie helps us determine, for example, whether you are a paying subscriber to our crossword puzzles. (New York Times 2004b)

4.12. PowerPoint presentations

In October 2001, as part of the editorial development team at Queensland, I participated in a novel journalistic publishing venture involving the use of the Microsoft PowerPoint application and image capture devices. A reporter on *The Courier-Mail,* Michael McKinnon, presented the development team with a problem: how to capture more than 280 pages of legal documents and publish them unedited within three days. McKinnon had specialised in reporting topics discovered under Freedom of Information legislation and had been fighting a court battle with the Australian Tax Office for documents. As he related to us in the newsroom, and later reported in *The Courier-Mail,* October 25, (2001:1), the Tax Office defence in the Administrative Appeals Tribunal hung on its contention that News Ltd would selectively edit any documents the Tax Office handed over and would possibly distort the facts contained therein. McKinnon chose not to argue whether or not any distortion would take place; instead he argued to the tribunal that the newspaper would indeed publish articles about the documents but would also publish the entire, unedited set of documents, and quickly, so that the public would be able to see the Tax Office's information for themselves and arrive at their own conclusions. He argued this position having discussed the feasibility of this strategy on *The Courier-Mail's* website with myself and the online editor at the time, Mr John Grey. I said it would be possible to obtain the documents – no matter how many pages – and scan the information into TIFF (tagged image file

format) computer files. Once the TIFF files were secure in the Queensland Newspapers Pty Ltd network, we could compress ("optimise") the image files so as to occupy less computer data space without distorting the typescript, and then include them in a simple Microsoft PowerPoint document, resulting in the equivalent of an online slide show. We would then upload the PowerPoint document to the QNPL website and invite the web audience either to run the PowerPoint online or to download and save it to their own computers and view it at their leisure. The tribunal agreed with McKinnon's (and our) novel proposal and the entire set of documents (approximately 286 pages A4) was scanned by the newspaper's computer graphics operators, optimised and installed into a PowerPoint by me and published to the World Wide Web by Grey within two days. The methodology for the above innovative approach to publishing news was developed by my students and I during the "East Timor Press project" at the Queensland University of Technology in 2001 (Cokley et al 2000; Tickle 2002). The staff-student team came up with the idea of scanning and optimising copies of the struggling *Timor Post* newspaper so that the images could be published in indigenous and local languages on the World Wide Web. The task was completed successfully.

4.13. Streaming data and internal networks such as Corporate, Educational and government intranets

The commercial website AustralianIntranets.com (2004) describes "intranets" as "a private space that gives employees in a company the ability to organise information, readily access that information, manage documents, share calendars and enable efficient collaboration, all in a familiar, browser-based environment". In 2004 the above concept of an intranet is familiar to many people who work inside companies, educational institutions and wide area networks. But according to Rhonda Garmo, Bill Hagar and Meghin Wojtowicz at the University of Michigan-Dearborn (Garmo et al 2004) the earliest printed documentation of the existence of "intranets" was as recently as 1995. Now large intranets in such organisations as government departments, universities and news publishing corporations stretch across whole continents and connect tens of thousands of people. When I performed design and editorial development work on the News Ltd intranet in Brisbane from 1999-2002, I had a very clear understanding that the words and pictures I was publishing could be seen from Perth to Townsville and nearly every large and small News Ltd site in between (possibly also by News Ltd chairman Rupert Murdoch in New York). The distributed network described in Chapter 5 of this thesis allowed for quick and easy – and essentially accurate – publication of company and general interest news to employees, all within the safety of password-protected environments.

4.14. Rich media promotions and advertising

At the same time as journalism has been developing and adjusting to new digital technologies, advertising has been doing the same, but using far more advanced tools, especially a range of technologies known as "rich media" which John Bowen describes as "the use (or combination) of video, voice, data, and other technologies, such as animation over IP networks, to create an otherwise unattainable user experience" (Bowen 2001). These applications have become well known to users of the Eudora email client software, especially the free version available to academic users, which delivers messages complete with coloured, moving and sometimes audio advertisements. Rich media is also employed on many free email websites, such as Yahoo and MSN, to allow the delivery of exciting and different styles of advertising.

4.15. ATMs and kiosks

Around the turn of the 21st century, the National Bank began serving text and coloured graphics and images to its automatic teller machines in Australia along its national network. I observed this at the branch on the corner of Abbotsford Road and Montpelier Road, Bowen Hills, Brisbane. Other banks have followed suit in ensuing years, depending on the colour and graphics capacity of each machine. Some banks in north Queensland still displayed only yellow text on a black field in 2004. The field of kiosks with touch-screen facilities is developing much faster. I have observed touch screens delivering: historical information

at the Hyde Parks Barracks Museum in Sydney and at the Museum of Tropical Queensland in Townsville; community land-care information in the council offices of the Burdekin Shire; and most recently (2004) in Shell petrol stations installed with the new "Shell Touch" kiosks (including one observed at Aspley, on Gympie Road). These kiosks have come the closest I have observed to news delivery stations because they feature regularly updated fishing and recreation information as well as movie screenings ... of course, customers can convert this interest into cash by purchasing tickets online there and then.

4.16. Other web casts (also streaming media)

The world knows about web casts thanks to comedian Lenny Henry who appeared at the Royal Jubilee "Party at the Palace" celebrations in London in June 2002 and waved to the crowd ... then waved jerkily again and said "that's how they're seeing me on the Internet!" Web casts are commonly used for corporate meetings instead of videoconference meetings, and can be used to deliver product announcements as well as training seminars such as those hosted by Microsoft and the OSISoft Corporation (2002). Web casts typically are delivery channels rather than interactive channels of communication.

4.17. Keno and lottery networks

According to the Jupiters website (2003), Keno was launched in NSW registered clubs in September 1991 and it is now one of the largest

networked Keno games in the world, operating in more than 1000 clubs in NSW and at Star City Casino. Keno now operates in most Australian states and has been observed operating in the Wrest Point Casino in Hobart, Tasmania, for example. Since mid-1997, Jupiters Keno has spread to clubs, hotels, TABs and casinos throughout Queensland. The Jupiters website said Keno was available in more than 1800 clubs and hotels in NSW and Queensland and played in most states and territories. The clear demographics of the Keno gambling audience make it an attractive news delivery vehicle for journalistic publishers. The audience can reliably be described as aged 18-80+, including both male and female participants, and possessing a level of disposable income which can be measured by Keno turnover at any venue and across the whole network. I have observed Keno players and they are highly focussed viewers who are able to participate in a complex game at the same time as they watch a screen filled with moving numbers, complete betting coupons, talk to their friends and drink beer, wine or other beverages. They are attracted to the Keno screens by the lure of winning money as well as the sense of participation with their friends. They can participate while consuming legal drugs (alcohol and in some parts, tobacco) and since Keno games are transmitted from 9am-2am daily (except Christmas) there is an audience watching almost round-the-clock. The delivery device is a cable television network onto standard television screens, with text and colour image capacity. The Cowboy's Leagues Club in Townsville has already integrated its Keno screen with

a sports news television station on a separate screen just below the Keno device. At Wrest Point in Hobart, a space at the bottom of the Keno game screen has been converted to display scrolling information about hotel events and conference news for guests, and at the Mount Gravatt Hotel in Brisbane, the same crawling "news ticker" space has been devoted to displaying special bargains in the hotel liquor shop.

4.18. Game Boy Advance, PlayStation 2, XBox, Game Cube

Gaming and news are still largely at arm's length but researchers at the University of Indiana Mime Project (Gillespie, Thom n.d.) have produced unusual and thought provoking storytelling websites such as *The Zone* (www.zonecomics.com). However, chief among the capacity of game consoles such as the Sony PlayStation 2 is its ability to read and play back DVDs, the medium on which video and even news clips are best stored. Game consoles are portable, less expensive than televisions, and have a built-in draw for younger audiences. Willcox (2002:75) argues for the adoption of computer gaming within journalism training itself, noting that "fun, fast-paced computer gaming, complete with full sensory feedback, missions and guilt-free actions" might engage students' imagination while "teaching them the tools and skills necessary for modern journalism". Willcox's proposal is generally supported by the learning theories described by Biggs, especially "constructive alignment" (1999:25) and would be a fertile area for future research.

4.19. USB Memory Sticks and "Thumb Drives"

I have observed people using the 21ˢᵗ century phenomenon of the thumb drive – also known as memory sticks and by other names (Direct Connect CD 2004) – to share information and other data around schools and university lecture rooms. Owners of these devices, which feature a single-click installation into the Universal Serial Bus (USB) ports of computers in both the Windows and the Macintosh environments, view them and use them as the latest and easiest way to carry and share information. The capacity of such devices had reached 2GB by mid-2004 and would probably increase with time. I suggest that these devices could easily be used to capture daily news content for a fee at your local news agent's shop, replacing some newspaper sales.

4.20. Register docket and EFTPOS bulletins

Large supermarket chains such as Woolworths have used register-docket tape carrying advertisements since the mid-1980s. The advertisements mostly come pre-printed from advertising wholesalers such as the Shoppadocket company. I have observed that other retailers such as Coles have switched to thermal printed register dockets and EFTPOS machines such as those from the ANZ Bank and the National Bank also use thermal printed paper for their customer receipts. Since modern supermarket and large retail checkouts (such as Coles Myer [Mahler 2003] and Bunnings Warehouses) are actually enormous integrated digital networks with the capacity to deliver all kinds of

different information, I suggest these would make the ideal delivery system for instant news headlines delivered to customers as they proceed through check-outs. Marketing potential exists for such companies to offer current news headlines to their customers as they leave the stores, as it does for news delivery services such as Australian Associated Press (AAP) as well as the Australian Broadcasting Corporation (ABC), News Ltd and Fairfax to supply that news to those retailers on a subscription basis. This is already the practice among (and even between) some of these companies. Both the Nine television network and News Ltd publish AAP reports on their online sites, preferring the pre-packaged and edited agency copy for breaking stories to those from their own in-house journalists.

4.21. CD-ROMS and DVDs (passed hand-to-hand, rented, or posted)

Meadows (1993) relates how remote groups of indigenous Australians in the 1980s passed video tapes from community to community to transmit, but at the same time preserved the integrity of sensitive cultural material. I suggest less remote metaphors for this observed practice include the suburban (or rural town) video and DVD rental store and the videos and DVDs available for loan at municipal libraries. In fact people have been sharing information using video tapes, CDs and DVDs since these units became available in the mid-1970s and it remains a popular mechanism for children and others to share music,

electronic games and movies. There is clear potential for application to news delivery.

> *4.22. Email, discussion lists and forums, World Wide Web browsers and hypertext*

While many people in westernised and non-westernised countries now communicate almost effortlessly using email, Internet discussion forums and by publishing information on HTML-driven web browsers, others have been putting their now-mundane software applications to specific uses. One such operation is the People First Network (Biliki n.d.) in the Solomon Islands, north-east of Australia, which applies short-wave radio signals as the transmission channel for email and Internet data to be carried between central and remote, or remote-to-remote points in the distributed island group of the Solomons. The power comes from aggregated solar panels connected to batteries. A simple example of how this works in the community sense is that while an email passes between two computers, recipients can further transmit the contents of each email, discussion posting or web page orally to a much wider community group according to local traditions and customs. Journalists at the *Timor Post* in Dili, East Timor, have also applied simple email and World Wide Web browser technologies since the successful completion of the "East Timor Press" project at the Queensland University of Technology in 2002 (Cokley et al 2000; Tickle 2002).

The Google Corporation operates a news division, at http://news.google.com/, which claims to use advanced computing and web browsers to augment and publish news which it says is customised for readers in various territories around the world. In this way it follows the lead established by Gruhl and Bender (2000) who proposed computerised filtering of news articles based on metadata and other filters applied to the articles by human editors. This proposal proved a popular one among respondents to that survey conducted among researchers in Antarctica (Cokley 2003).

4.23. Online database retrieval systems such as news-media pay-per-view archives

Journalists in major newsrooms around the world have become accustomed to paying for access to large database retrieval systems, such as LexisNexis in the United States. In Australia, journalists working at the larger newspaper publishers such as News Ltd and Fairfax Ltd enjoy the use of a large suite of databases containing articles published in both participating news stables and all their affiliates, making a search of most of Australia's newspapers possible as well as many in New Zealand, the UK and several in the US. Since 2002 this has become a small but important revenue stream for both publishing companies as they are selling access to stories as far back as 1984 to the web-browsing public. These are at www.newstext.com.au for News Corp and http://newsstore.f2.com.au/apps/newsSearch.ac

for Fairfax. Such database mining of news reports is well known among US and UK newspapers companies as well.

At the News Ltd affiliate in Brisbane, Australia (Queensland Newspapers Pty Ltd) journalists have also enjoyed access to a range of more complicated, password-access level private and government operated databases such as ABR (Australian Business Research), ASIC (the Australian Securities and Investments Commission) and CITEC, the Queensland-government owned but corporatised database which allows journalists to look up land titles and car registrations (at least until early 2001 and the Sheppardson Inquiry) and other otherwise confidential details about people and organisations such as land valuations. ABR, for instance, allowed journalists (and other users who paid a subscription) to investigate whether named individuals owned shares in particular of any companies, or in reverse, who were the principal shareholders and/or office bearers in named organisations. There are privacy issues involved in the handling of this kind of information. Journalists at QNPL had been in the habit of searching for motor-vehicle registration details using CITEC and during 2001 managed to collect "incriminating" evidence (in the light of other evidence at the Sheppardson Inquiry) on several top political figures in Queensland. Soon after, the motor-vehicle registration searches were dropped from the available menus on the CITEC site and officials told journalists such data would no longer be available "for privacy reasons".

Discussion

Poole (1989:14) notes that while it was a convention of the coffee house that differences of rank did not count and that all within had the right to speak, the social organisation of the time excluded working class men and all women and was merely a bourgeois public sphere riddled with competitiveness and discrimination (Poole 1989:15). This happened in the United States as well, documented by Kielbowicz (1989:180) who notes that postal subsidies initially extended only to political journals because "Congress deemed publications other than (such) newspapers less deserving of support". The realisation that social organisation within the public sphere was restricting membership of that space eventually moved Habermas to retreat to a more specialised understanding of the public sphere as the "ideal speech situation" (Poole 1989:16). This has prompted more recent commentators to move even further away from the topographical, spatial nature of Habermas' idea to something more notional called "public life" (Craig 2004:53). As Huesca notes (2003:281), the "ideal speech situation" is also compatible with participatory communication research. However, even the modern public "sphere", "life" or "domain" (Craig 2004:53) is not an "ideal speech situation". Recent information-technology research in Australia by Hallinan (2003:1) demonstrates how Internet chat exhibits some of the hegemonic problems of the coffee houses:

A self-organised social network derived from Internet Relay Chat (IRC) channel interactions exhibits measurable hierarchical modularity, reflecting an underlying hierarchical neighbourhood structure in the social network.

Meyer (2002:120) notes wider negative aspects of the technological revolution, the largest of which has become known as the "digital divide", predicted by Umberto Eco and identified by Australia's National Office for the Information Economy (2002) as a key inhibitor of economic development. The digital divide is also the great enemy of the effective diffusion of communications innovations, since "in all likelihood a considerable number of people will lack the skills and willingness to develop basic competence in the use of network communications" (Meyer 2002:120). In the long run, many people will find themselves shut out of the Net, either by lack of competence or lack of equipment, and this will encourage a two-class society of users and non-users (Meyer 2002:121). The Internet tends to be used as an additional means of communication by previously existing social and political networks (Meyer 2002:121) rather than a new forum for the otherwise disenfranchised:

Even when conversations in the interactive zone of net communications include many people, they still have the air of exchanges between private persons. What is missing is the

opportunity for the individual to emerge from the private sphere into a public space, and join in discussions guided by the social rules regulating discourse about public affairs.

These private/public discussions need to be "subject to rational debate and criticism" and "to the extent that they are informed by this process, and survive it, they cease to be merely private and become matters of public opinion" (Poole 1989:13-14). But Meyer (2002:123) also notes that broad-gauged, intensive Internet use leads to the fragmentation of the public sphere into a series of partial publics. Habermas himself recognised that "truth-oriented conversations among the denizens of the life-world do more than merely build consensus on issues of common concern … the social act of trying to reach consensus by deliberation also generates social cohesion or solidarity" (Meyer 2002:135-136). Dahlgren takes this solidarity a step further and says civil society can begin "to stimulate both a renewal of the mass media in the direction of more appropriate reporting and the emergence of other complementary forms of public communication" (Meyer 2002:137). This leads to a discussion of the place of modern journalism in public sphere activity.

Craig (2004: viii) notes that "public life is a mediated phenomenon" and that "the media are not 'outside' observers but … integral components of politics and public life" and involved in the various performances which take place within the public sphere, because as Dayan and Katz

demonstrate, "media events are organised by public bodies with which the media co-operate" (in Craig 2004:119). In many parts of rural, regional and remote Australia and elsewhere, however, this performance has lately adopted the message-transmission characteristics of Plato's Cave (Cohen 2002) in which chained audiences facing away from the entrance to a cave see messages as shadows projected on the wall of the cave by diffused sunlight filtering in from the outside world. Cohen writes (2002, explaining Plato):

> The prisoners may learn what a book is by their experience with shadows of books. But they would be mistaken if they thought that the word 'book' refers to something that any of them has ever seen.

This is also the situation of people on "the wrong side" of the digital divide in the world of 2005: they might think that they can participate in public sphere activity but it's really an illusion.

Conclusions

It is clear from the preceding audit that in 2005, "state-of-the-art" refers not to upgrades or incremental changes – or even new backpacks and equipment for reporters – but rather to a difference of kind in the systems available both to journalists and their audiences. Instead of journalists and their corporate bosses using what was previously called

"advanced technology" to produce newspapers, radio or television broadcasts, the journalistic world of 2005 is embroiled in a game of "catch-up", trying desperately to connect with the general-purpose technologies their audiences are already using, such as mobile phones, digital gaming consoles and PDA handheld computers. News providers have been forced to adopt technologies as soon as they hit the showroom floor, and sometimes before they're completely suited for the traditionally understood journalistic environment. The audit has demonstrated just how tightly the processes of communication are bound up with the technologies used to carry that communication (Silverstone 1998) and how dependent modern civilisations have become on them (Ball-Rokeach and DeFleur 1976). Mobile telephony and wireless communications head the list of technologies that have acquired strong cultural meaning, especially among teenagers and the business communities, and these communities have emerged as the biggest sales market for companies supporting these technologies. However, the penetration of mobile audio and video signal carriers into everyday life – into banks, billboards, vending machines, shopping centres, aircraft and government-operated public transport – suggests that this sector is the next one deserving of further research, especially the development of news delivery environments for touchscreen kiosks, gaming consoles and on gambling networks such as Keno. It is also suggested that, notwithstanding the roll-out of technologies which provide the potential for general two-way participative communication,

there is still no strong evidence of this participation in the news media field.

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