Uberveillance: Where Wear and Educatve Arrangement

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Abstract

The intensification and diversification of surveillance in recent decades is now being considered within a contemporary theoretical and academic framework. The ambiguity of the term “surveillance” and the surreptitiousness of its application must now be re-considered amidst the emergent concept of Uberveillance. This paper presents three cases of organisations that are currently poised or already engaging in projects using location enabled point-of-view wearable technologies. Reference is made to additional cases, project examples and testimonials including the Australian Federal Police, Northern Territory Fire Police & Emergency Services and other projects funded in 2010 and 2011 by the former Australian Flexible Learning Framework (AFLF), now the National VET E-learning Strategy (NVELS). This paper also examines the use of location enabled POV (point-of-view) or body wearable video (BWV) camera technologies in a crime, law and national security context, referencing cross-sectoral and inter-disciplinary opinions as to the perceived benefits and the socio-technical implications of these pervasive technologies.
[The Emperor] said: “It is all useless, if the last landing place can only be the infernal city, and it is there that, in ever-narrowing circles, the current is drawing us.” And Polo said: “The inferno of the living is not something that will be; if there is one, it is what is already here, the inferno where we live every day, that we form by being together. There are ways to escape suffering it. The first is easy for many: accept the inferno and become such a part of it that you can no longer see it. The second is risky and demands constant vigilance and apprehension; seek and learn to recognize who and what, in the midst of the inferno, are not inferno, then make them endure, give them space.” (Calvino 1972 - *Invisible Cities*)
Memory

Picture a domestic setting in the 1970s.

Sydney, Australia throbbed under the self-determination of the tune in, dropout culture and the soapbox debates strayed left and right as far as public tolerance would allow. Telephones were wired to the wall, spin dialled and publicly coin dependent. Dogs roamed free, unidentifiable until someone visited the local pound. The faux-wood panelled television set peddled sitcom have-it-now culture. Police officers wore two-way radios and carried Smith & Wessons.

Fast forward to 2012.

Parents know more of their family’s lives through an online website designed originally to unite college sweethearts. Everyone owns a mobile phone or two and sometimes even three. Dogs are chipped, de-sexed, voice-boxed and confined to yards as are children confined to their living rooms. Long division is a practice lost to the electronic calculator.

DIY drone hobbyists gather on local town ovals. Police officers and security agency personnel wear high definition location enabled video recorders for evidence gathering, as do teachers in educational organisations.

Have we progressed as a society over the last 30 years or have we lost the ability to think outside of the networked grid? Amidst our hyper-connectivity does anyone give himself or herself long enough to review what has been, what is happening and where we want to be?

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Surveillance

We could, upon reflection, conclude that we now live in a society besieged by a technological omnipresence born of dystopia and intense paranoia.

We might also draw conclusions that communities in all parts of the world are constantly teetering between peaceful citizenship and utter chaotic anarchy, as if in a state of schizophrenia so acute that the very architectures they inhabit have become cells of their own Orwellian incarceration.

In many countries camera surveillance has become commonplace and ordinary citizens and consumers are increasingly aware that they are under surveillance in everyday life. Camera surveillance is typically perceived as the archetype of contemporary surveillance technologies and processes. While there is sometimes fierce debate about their introduction, many others take the cameras for granted or even applaud their deployment. Yet what the presence of surveillance cameras actually achieves is still very much in question. International evidence shows that they have very little effect in deterring crime and “in making people feel safer” but they do serve to place certain groups under greater official scrutiny and to extend the reach of today’s “surveillance society”. (Doyle et al., 2011)

We could also, as optimists, consider that we have as a society developed a better sense of who we are as humans as a result of surveillance technologies, by being able to observe others at work, play and in public places volunteered to the interweb.

Some would say this developed “awareness” of self, our moral conscience before evil and malcontent, as impossible to attain given the depravities of inconsistency that humans exhibit when subject to a constancy of “unseen” supervision.

One of the goals of moral education is to cultivate a conscience – the little voice inside telling us that we should do what is right because it is right. As surveillance becomes increasingly ubiquitous, however, the chances are
reduced that conscience will ever be anything more than the little voice inside telling us that someone, somewhere, may be watching. (Westacott, 2011)

By feeding the interweb’s insatiable appetite for knowledge, this technology is now “us” - a manifestation of our biological milieu. This matrix of connection is what we have come to depend upon for everything we live by as humans and likewise systems and processes that we need to survive depend on the presence and connectivity of this global entity.

As ordinary citizens we frequent numerous private and public spaces that all legitimize electronic surveillance for a myriad of reasons. We acknowledge and ignore its gaze when it suits us, an omnipresence that evokes all types of emotions, substantiated or otherwise.

Technology is a wonderful thing.

“...With advances in technology increasing at a staggering rate there are ever more options available for public safety agencies to increase operational efficiency”. (Kay 2007, pp. 49-50)

This paper presents recent examples of organisations employing the use of these technologies in the pursuit of educational excellence, posits considerations that need to be made by anyone seeking operational efficiency using surveillance in an educational or other context, and examines the greater social impacts these technologies may be having upon learners, educators and workforce trainers.

**Sousveillance**

Undoubtedly, this ever present state of electronic monitoring, static and now mobile, has altered the manner of how we can engage with each other in a social setting, how we interact with each other in the broader community, in vehicles as we travel, in our homes and now in places of educative arrangement.
Mobile phones equipped with high definition video recording have enabled citizen reporters to spread stories and realise an audience quicker than ever before. The panopticon of views support, debunk, twist and re-shape the way we understand things happening in our community, across the country and around the world.

Sousveillance activities benefit (as do surveillant activities) when networked connectivity permits synchronous participation, where the “smart-mob” of “know-where” massage an otherwise passive public with ambiguity and contradiction. As we enter an age of swift and monumental access to information at speeds and in volumes unthinkable a few years ago, we are now also subject to a shift in the very core of humankind as we embrace technologies as inseparable necessities beyond convenience.

One of the characteristics of change is that often we do not realise it has happened until we have had time to look back on it. Change can be gradual. But a series of small, incremental events can over time amount to a fundamental shift. Sometimes change can be swift and monumental, with an impact so profound that we quickly forget what life was like beforehand. (Howarth & Ledwidge 2011, p.1)

Until recently, in human terms, we had been subject only to the “eye of providence”, governed by spiritual beliefs and religious inculcation. As the unification of interaction in apparent real time is realised by the Internet, so too has the matrix of gaze, the digitisation and repeatability of what is seen, heard and traded.

Steve Mann, Professor at the Department of Electrical and Computer Engineering, University of Toronto, is attributed with coining the term "sousveillance", which typically involves community-based recording from first person perspectives. These formative activities do not necessarily have a political purpose whereas inverse-surveillance is known as a form of sousveillance that is typically directed at, or used to collect data to analyse or study, surveillance or its proponents.
As a “cyborg” in the sense of long-term adaptation, body-borne technologies, etc., one encounters a new kind of existential self-determination and mastery over one's own destiny, that can be learned, in the postmodern (posthumanism) context one might think of as the “cyborg age” in which many of us now live. (Mann, 2011)

We have, by choice and by design, broken the homo-social frameworks of ancient society and in the discordance of postmodernity emptied our fears into server farms bearing the insignia of clouds, mirrors to ourselves, heaven and hell now wrapped in plastic. In essence, the creation of a cyberspace has made it possible for humans to connect, create and repeat patterns for mutual benefit as much as for malevolent purpose.

Users interactions, locational whereabouts and other transactional data is now of great interest to service providers interested in selling advertising space, governments protecting national interests and corporations seeking to influence the behaviours of consumers.

We have tapped into the resonance of electronic transmission and in doing so have evolved as humans now immersed, connected and embedded. As we look at what is presented from others in online social media spaces, as they “shoot back” recording civil disobedience, appreciative inquiry and the seemingly banal, we see our own future and the rapid difference of society in the past. Sousveillance activities broaden the process of digitisation, as mobile activities are captured and then transmitted live to the internet. In replication, we better understand our own contributions as nodes in architectures of networked participation. Examining these behaviours allows us to better understand our own motivations for sharing and may shape the understanding of others as to who we are as human beings.

“...Welcome to the Social Media Classroom and Collaboratory. It's all free, as in both “freedom of speech” and “almost totally free beer.” We invite you to build on what we’ve started to create more free value. The Social Media Classroom (we'll call it SMC) includes a free and
open-source (Drupal-based) web service that provides teachers and learners with an integrated set of social media that each course can use for its own purposes—integrated forum, blog, comment, wiki, chat, social bookmarking, RSS, microblogging, widgets, and video commenting are the first set of tools.” (Rheingold, 2011.)

As the Rheingold example elucidates, engendering reflective and proactive digital literacy into existing curriculum activities to bring about awareness for those who may seek recourse in uncertain futures is now a core consideration of educational organisations worldwide. Given the myriad of laws and by-laws that defend the right for businesses and organisations to retain such data flows, it is the responsibility of educators to at least attempt to inform their learners of the dangers of their disclosures to the web.

Therein lays, at the core, a privacy concern that transcends generations who currently post drunken soirees to the web with little or no recourse to delete such compromising data in the not so distant future. To what extent must we re-consider our educative practices and policies given this inter-connected and hybrid state of singularity?

Have we, as Mann suggests, entered a dawn of posthumanism? And is it hive-mind formed as a “cyborg” if we begin to consider where technology exists in our everyday human ecology? To what extent can we choose to engage in activities of the everyday, of the private sanctuary, the cultural spaces and places we declare taboo without the ever-presence of the “other”?

**Dataveillance**

“The Digital Persona and its Application to Data Surveillance” (1994) by Roger Clarke states:

The “digital persona”, as a tool in the analysis of behaviour on the “net”. It applies the tool, together with data surveillance theory, to predict the
monitoring of the “real-life” behaviour of individuals and groups through their net behaviour. (Clarke, 1994.)

Our personal data, our identity, and our navigation may become “their” data and our choices rapidly influence those of others outside our preferred filter bubble, none more evident than location-enabled push-services we subscribe to through our mobile cell phones.

We have entered an age where technologies are as important to an individual's identity as culture is to a nation fighting to be recognised amidst the carnage of others' attempts at co-sovereignty. We are now, as consumers, nodes in a web of algorithms, as citizens in a state of constant transmission and as people of many nations unified in our geographic impermanence.

Our relationship with the Internet is, as it is with the retailer - a journey, connection dependent and increasingly intertwined in a marriage of networks. Checkout operators have given way to surveillance assistants; shopping transactions now have become a simple robotic process of swipe, pay, pack and go.

Attitudes to interruption and preference permissions to digital communication have shifted, in the behaviours of humans of all ages and in places where the tolerance for such perfusion previously did not exist. The open circuit of the mobile device positions telecommunication providers as the new lawmakers, their customers wallowing in the quagmire of their own acquiescence.

No longer is an idle conversation with the taxi driver an exposition of friendly satire unheard. Our banter with unknown baristas, airport terminal staff and with service providers in call centres in far flung countries all become part of the larger cacophony of networked, recorded and very often data-mined conversation.
**Uberveillance**

Uberveillance is, in essence, an embodiment of all “veillances”, in totality.

At its core, is an apex of composites - *triquetra* - that of surveillance and all its nuances, that of dataveillance and its multitude of feeds and that of sousveillance with its manifestations of recalcitrance.

The emergent term coined in May 2006 by former UoW Honorary Senior Fellow Dr M.G. Michael is described as:

“… an above and beyond, an exaggerated, an omnipresent 24/7 electronic surveillance. It is a surveillance that is not only “always on” but “always with you” (it is ubiquitous) because the technology that facilitates it, in its ultimate implementation, is embedded within the human body. The problem with this kind of bodily invasive surveillance is that omnipresence in the “material” world will not always equate with omniscience, hence the real concern for misinformation, misinterpretation, and information manipulation.” (Michael, 2007)

Michael & Michael (2009) in their seminal publication titled “Innovative Automatic Identification and Location Based Services: From Bar Code To Chip Implants” cite Steve Mann’s (2001) *Axis of Existentiality* as a fundamental diagrammatic depiction of the trajectory of human interaction with technologies and the subsequent consequentiality of collision between the wearability of technology with that of the control one has over that technology.

This emergent concept gained entry into the Macquarie Dictionary in 2008 and has since challenged all who consider its emergent themes, as we all, irrespective of our role in the community, consider the implications of any action that encourages, supports or indeed advocates sub-dermal infusion of technologies.
In the context of educative arrangement, where students / learners / people from all walks of life frequent architectures of knowledge accreditation, there are increasing examples in Australia of the use of wearable technologies that capture from the first person perspective, are hands-free, continuous and in some cases automated and remotely modifiable.

This gradual but incremental shift in tolerance to the constancy of the worn technology as part of education activities, workforce practices and social interactions needs now to be at the centre of consideration by organisations as they articulate and defend the privacy, security and ethical dimensions of the identity of employees and learners.

We now must contemplate a near future that positions the carriage of our identities and our privacy as more heavily mediated by consortiums and in doing so, we need to determine what “part” we are playing in that future by our present advocacy of hurried and non-reflective advocacy of these technologies. Uberveillance is what we all “know” as the inevitable, as metaphorically present already in technologies such as heart pacemakers and infused prosthetics that permit mobility simply by thinking or as real and as present as humans chipped by choice claiming DIY autonomy.

It is apparent that our right to remain “unmarked” or “unfound” amidst a sea of veillances fades into a distant utopia or dystopia depending on what we see. Uberveillance has already “become” us when we deliberately stop for a moment or two and think deeply about our inability to inhabit this earth without some form of electronic mediation.

**Location Enabled Wearable Technologies**

As consumers, we are fed a soup of service, technology access and interconnectivity for those who can afford it, amidst marketing organisations refining their ability to know where an individual frequents in order to present products and services as seamlessly as possible.
Michael & Michael (2009) interrogate the social implications of the Auto-ID trajectory, the role location based services are having as part of that development and the myriad of technologies that are encompassed within the scope of this techno-social paradigm.

Irrespective of the developed or developing status of any nation, mobile telecommunication or wireless services have exploded around land bound Internet access and mobile phones have become Internet enabled mini-computers. These pervasive and networked technologies endear themselves to humans as they navigate, communicate and contemplate, and it is in this attachment that marketers consider the location-enabled suite of services that can be ubiquitously sewn into these wearable devices.

Dependency on access, connection status, range and re-powering of personal mobile telephones has permeated all practical daily activities; so too has the plethora of applications that permit Global Information Systems (GIS) services to inform and enhance the capabilities of the device.

The consideration of how to embrace the shift to a “hand-held curriculum” gave rise in the late 1990s and early 2000s to the short-lived mobile learning, or m-learning, fraternity world wide as educators across all sectors grappled with the disruptive effects of an always-on generation of learners.

The rapid adoption of cell phone-enabled social media platforms in the last decade as a means to communicate en masse has robbed educational technologists of a substantiation through academic discourse of separation in learner style seen only in younger people enamoured of such technologies. Sold short on intergenerational discontent, pro-active educational organisations now embrace these devices in educational settings, signalling recognition that the cell phone is a socially acceptable wearable prosthetic, as much as it is a vital source for many curriculum activities.

With this shift, mobile learning or m-learning, as a moniker of differentiation or “new” methodological intervention, has now lost its catch-cry and also its potency amongst aspiring educational technologists.

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Point-of-view (POV) Technology

The use of point-of-view (POV) technologies across the entire primary, secondary, vocational and tertiary Australian education sector over the last decade has developed from DIY prototypes to a recognisable and integrated workforce practice. This device type is also known as body worn video (BWV) in the policing context.

The term “POV” originated from an expression by cinematographers to denote the capture of perspective from the “third-eye” or “first-person” of the wearer. Reference to the use of POV in cinematography is well documented, and evidenced in works by Alfred Hitchcock.

One of the prime examples of Hitchcock’s use of optical point-of-view shots is his 1954 film, *Rear Window*. There are two main purposes for his use of optical point-of-view shots in *Rear Window*. One has to do with the story itself. The point-of-view shots help to pull the audience into the film and to identify more with the characters, most notably the main character, L. B. Jeffries (Jimmy Stewart). The second reason is much more universal, having to do with the nature of film itself, and the essence of cinema. (Charnick, 2012)

Its most controversial use in contemporary history is the production of pornography, closely followed by its place in armed services and community policing history.

The new generation of police recruits are highly adept at using new technologies. Indeed, there is evidence that some police carry their own personal audio and video recorders and use them to provide independent evidence of “difficult” interactions with citizens. Indeed, some jurisdictions are now trialling the use of miniaturised wearable point-of-view (POV) cameras attached to police officers’ uniforms. (Bronit et al., 2010, pp. 3)
Application of these technologies in a variety of contexts and many differing sectors suggest that the concept of first person perspective digital capture and location enabled data tagging are becoming more of an accepted and integrated activity for knowledge or skill acquisition. The “forensic” nature of evidence gathering takes place within the context of accreditation for competencies or outcomes that meet a learning objective.

The very same nomenclature also exists in parallel across policing, the biological sciences and agricultural sectors, among many.

Geoff Lubich, Automotive Lecturer at TAFE WA Pilbara College, is acknowledged as a lead innovator in custom created video camera and digital video recorder devices to capture first-person processes for educational purpose. His innovation in this area commenced as early as 2004.

Flexible learning workshops and conferences funded by the Department of Education and Training Western Australia quickly ignited an interest in other educators, including Sue Waters, Challenger TAFE Western Australia, to adapt the concepts for other training areas including aquaculture.

The Australian Flexible Learning Framework (AFLF), an Australian federally funded FLAG initiative (Anon 2012a), now the National VET E-learning Strategy (NVELS) also provided funding to support projects including the ‘TxtMe’ (Bateman, 2004) project lead by Swan TAFE Western Australia, ‘Digital Outback’ by Pilbara TAFE, Western Australia and the ‘Engageme’ project at TAFE NSW, Sydney Australia. These projects explored the use of mobile messaging systems amidst other infrastructural capability development for vocational learner engagement.

The 2009 AUPOV conference in Wollongong, NSW Australia provided a valuable insight into the challenges faced by organisations seeking secure and sustainable data management particularly as new and emergent video technologies increased in use. This conference provided a timely reflection for cross-sectoral educators, trainers, workplace assessors and
representatives from a broad field of sectors, including the Australian armed forces.

The adoption and applied use of this technology, as a result of these two main support initiatives, spread quickly across vocational settings in the Australian trade areas of refrigeration mechanics, bricklaying, roof carpentry and hairdressing, and has continued to grow at an exponential rate.

The rapid uptake of body worn, location enabled mobile network accessible solutions for rich media creation and connection in extreme sports, military and medical sectors is now also challenging the mobile learning / distance education stereotype. The re-purposed application of these technologies in the education and training sector is now opening up new domains for connecting learners with educators, which in turn poses substantial challenges for organisations as they grapple with the implications that this technology undeniably imbues. (Hayes, 2010, p.7)

A limited “snapshot” review of the use of these technologies by Hayes (2010) has further informed project outcomes from all Australian states supported again by funding from the Australian Flexible Learning Framework.

In the two years since that review, in many workplaces across Australia, people are now employed by educational organisations to engage with learners and to collect evidence of recognised prior learning or current competencies using more informal, repeatable and accessible forms of interaction; in many cases without having to attend the workplace at all.

Educative Arrangements

The Australian education sector, in all its forms and sectoral permutations, has over the last decade transformed itself through osmosis of these information communication (ICT) technologies.

The Internet is becoming an open source library, especially for the young. All that is left to be opened is the classroom. For some they can pursue
knowledge on their own, others need structure to attain it. As more of the self-taught and self-motivated involve themselves with networking, traditional schools and their certifications should become less important. What will be important is a reputation for integrity, action, creativity and applied knowledge. (Blackall 2007, p.153, cited, Peter Allen)

Our educational institutions are no stranger to the power of this connection and harness the Internet as one of its core tools in engaging with a cohort sometimes spread far and wide across continents and remote communities.

The traditional classroom setting has remained until recently a sacrosanct zone, a last moral bastion where the teacher didactically engaged with learners and prepared young people for the servitude of timetables or the freedoms of knowledge unfettered. This engagement has largely been unrecorded yet this privilege is also changing.

Open the door in a contemporary classroom setting now and note the lack of apparent teacher's desk, the multiplicity of digital screens, absent learners and distant crescendos of mobile ring-tones. As the architectures for educative arrangement have crumbled, so too has the manner in which knowledge engagement joined the zillion-headed electrophorus, communicable, networked as a core learning dependency (Blackall, 2011).

The shift in these previously physical architectures of participation has had a profound impact on the manner of educator and learner engagement, moving from an unmediated role differential to that of ‘connectivism’, a state in which connections form networks and forge new curricula activity unlike groups seeking conformity and new dogma.

Behaviorism, cognitivism, and constructivism are the three broad learning theories most often utilized in the creation of instructional environments. These theories, however, were developed in a time when learning was not impacted through technology. Over the last twenty years, technology has reorganized how we live, how we communicate, and how we learn. Learning
needs and theories that describe learning principles and processes, should be reflective of underlying social environments. (Siemens, 2005)

Despite the apparent groundswell of acceptance amongst educationalists worldwide of Siemens’ position on contemporary learning theory, Kop & Hill (2008) question whether the proposition of Connectivism as a 21st century theory of learning in a post-constructivist paradigm is valid and noteworthy.

The role of the educator is mooted as that of facilitator, where the networked connection of the individual, tethered by peers to a multitude of feeds and unseen audiences, influences the shape and chronology of events that unfold in a learning setting. As the manner in which learners engage with organisations changes, so to do the visions of the academic fraternity, more anxious than ever to shipshape connection as the king of accreditation over what once was revered content.

Contemporary educational philosophers Mann (2011), Blackall (2011) Siemens (2005) posit the “learn-by-being” Kierkegaardian state where the individual is at the center of consideration for pedagogical development, where the organisation must make way for the dis-organisation and open state of knowledge aggregation.

Highly charged discussions take place across educational organisations in Australia, questioning whether connected classrooms are nothing more than a hybridised and consortium travesty intermediated by a nationalist curriculum. Without a doubt, in Australia, the nomenclature of educators, teachers, and trainers is now as much at threat of extinction as are past teaching practices that demanded uninterrupted didactic attention.

To what extent have we developed a curriculum that uses connectivity as a means to broaden the learning horizon, build life skills and honour the unique abilities of an individual over that of grade-driven productivity? What state of mind will exist in people post our current landscape of technological prosthetic?
The Digital Education Revolution

Educational institutions find themselves placing ICTs at the very core of curriculum, diversifying the learning experience beyond the confines of the organization's traditional catchment profile, as this omnipresence affects the community at large.

New tactics beget new technologies and vice versa, and this has informed the digital education revolution in Australia.

The Digital Education Revolution (DER) aims to contribute sustainable and meaningful change to teaching and learning in Australian schools that will prepare students for further education, training and to live and work in a digital world. In this context, the Australian Government is investing over $2.4 billion to support the effective integration of information and communication technology (ICT) in Australian schools in line with the Government’s broader education initiatives, including the Australian Curriculum. (Anon, 2012b)

As the cases in this paper evidence, workplace settings in the vocational education and training sector now stretch between cooking classes in metropolitan secondary schools through to remote mining camps in the arid deserts of Western Australia.

To meet such widely dispersed cohorts, educational organisations unify learner digital identity with flexible modes of delivery and, in doing so provide the opportunity to gain accreditation where geographical or circumstantial challenges otherwise prevented access to accreditation.

Policy makers in educational organisations now pay close attention to technology market forces on an international stage, expounding the rhetoric of catering for individualisation, equity of access, privilege and knowledge nation economics.

Meanwhile local communities struggle with the shift from facility oriented learning settings to workplace and home-based virtual attendance. As the
place for learning diversifies so too has the manner in which organisations now clamour to monetise interactions as content. Connected, conferenced, multiplicity of “place” is now a prerequisite skill for the educator to demonstrate to maintain employment in the contemporary training landscape.

The premise for an educative experience has undoubtedly shifted, and the boundaries vaporized, as exclusivity has shifted away from traditional centres of excellence.

A recent discussion with an Australian independent e-learning consultant provides evidence of this shift across the Australian Vocational Education & Training (VET) sector:

“...In the last 2 years in my role as eMentor for practitioners in VET and ACE [Adult Community Education] there has been an increase in the use of mobile devices for connectivity with web-based courseware. More organisations are exploring the uptake of e-learning using such devices as tablets and cell phones. This has meant a deeper consideration of the type of learning management system (LMS), social media and communication tools to be included in the blend for learners using iPads, as an example. A change is happening in the instructional design of learning experiences for the learners on the move and another change is being embraced in the accessibility of learning through massive online open courses. A new breed of self-directed learners, clamouring for free, open and networked learning experiences, are emerging who prefer the benefits of cloud computing for most of their professional development. In the field of e-portfolios this has become an important issue for the ownership and portability of their evidence of learning and employability.” (McCulloch, 2012)

The “call-to-arms” discussion by McCulloch also included the future “shape” of learning and teaching. There is a need to expand the user's skills in contexts that we have yet to experience - a swing away from teacher led instruction to self-managed networked and collaborative learning. The all-pervasive “hive mind” approach can now tap into this new terrain of mobile
devices, cloud computing and learner curated content in ways we never previously imagined. (McCulloch, 2012)

Is there a danger of losing learners to the web or in fact do educators now need to consider their role more closely because of it? What effect is an always-on expectation having on the quality of an educator's output in a blended delivery curriculum?
CASE 1

Title
Point of View (POV) Cameras: Assessing their Validity and Reliability as an Adjunct for Formative Assessment of Remote Medicine Vocational Trainee Doctors.

Researchers
Principal Investigator: Amber Thornburrow
Supervisor: Professor Stephen Margolis
Additional Investigators: Professor Sabina Knight: Director - Mt Isa Centre for Rural and Remote Health James Cook University; Dr. Stephanie DeLaRue: Deputy Director - Mt Isa Centre for Rural and Remote Health James Cook University; Dr. Pat Giddings - CEO - Remote Vocational Training Scheme

Collaboration
Mount Isa Centre for Rural and Remote Health (MICRRH), James Cook University; Remote Vocational Training Scheme (RVTS)

Funding
Primary Health Care Research, Evaluation and Development (PHCRED)

Description
Our research project will utilise POV cameras to capture a range of clinical skills by medical vocational trainee doctors. The doctors will be performing a series of clinical skills in a controlled environment, and will be assessed using standard summative assessment rating forms on-site (face to face) by an accredited medical educator. The video footage from the POV cameras will then be sent off-site to a remote accredited medical educator, who will assess the clinical skills using the same standard summative assessment rating forms. The resulting data will be analysed using correlation coefficient and Cronbach’s alpha.

We hypothesise that high definition POV cameras are a reliable adjunct assessment tool and will be valid for formative assessment of remote
vocational trainee doctors. Currently, remote vocational doctors are disadvantaged when it comes to assessing their clinical skills.

Doctors who are geographically isolated have limited access to accredited medical educators, usually seeing a medical educator once every 3-6 months. The clinical skills are then usually assessed in a simulated environment, and discussed. This causes a clear gap in the ability for trainee doctors to be signed off on their clinical skills in a timely manner. In comparison, doctors from tertiary centres can be assessed in “real time” and their supervisor is able to give feedback immediately.

The advantage of high definition POV cameras is that the technology is lightweight and sturdy enough to be used in outback conditions. The cameras that we are using are dust resistant, shock resistant and weather resistant. These cameras are also able to capture images in low-level light, which means that the trainee doctors can take them to a large number of emergencies and use them in adverse conditions. If our hypothesis proves to be correct, a field trial will be exercised across select RVTS sites, before eventual rollout across Australia.

Notes
Amber Thornburrow, Principal Investigator stated in conversation with the Author on January 13, 2012 that the project focus was upon “… proving or not proving whether remote assessment using these technologies is as effective as face-to-face assessment, cognisant that most assessment activities occur within a blended delivery framework of learner engagement.”
Case 2

Title
Angurugu School

Context
Angurugu School is located on remote Groote Eylandt, Northern Territory, Australia. This school is 1 of 4 schools that sit under the Ngakwurra Langwa College model (the other 3 being Alyangula in the special purpose mining town; Umbakumba (a 1 hour drive away) and Milyakburra on Bickerton Island (a 10 minute flight from Angurugu). The College is committed to the creation of professional learning communities and to share expertise on a regular basis.

Setting
Angurugu School has an enrolment of 326 students from pre-school through to senior secondary. Students are Warnandilakwayn people who speak Anindilyakwa as a first language. English is at best a second language.

The school has a strong partnership with Groote Eylandt Bickerton Island Enterprises (GEBIE), Groote Civil and Construction (GCC) and the social and economic development arm of the peak Indigenous body (the Anindilyakwan Land Council) who are dedicating a teacher and offering contextualized literacy and numeracy programs to students and GEBIE and GCC employees.

Funding
Funding for this project came from the Smart School Awards 2011 won by Angurugu for Excellence in Partnering. More information about this funding body is available at http://www.det.nt.gov.au/events/schoolsawards

Technology Use
The planned uses of Point of View (POV) technologies in the school setting include:
● Senior students many of whom are completing vocational education and training components, including Conservation and Land Management.
● School based traineeships and GEBIE and GCC employees
● Filming work processes in the (training) workshop and out in the community
● Creating training materials and resources in the Anindilyakwa language
● Creating a portfolio of evidence for students if assessor is unable to visit (isolation factor)

**Notes**
Pamela McGowan, Senior Teacher of Information Communication Technologies stated in a conversation conducted by web conference on the January 12, 2012 with the Author that the Angurugu School was:

“…well positioned to take advantage of these technologies, as the access to technologies that have industry equivalence is very important in the development of skills that the school students can then apply in their employment.”

During the conversation Pamela spoke of the prospects of this technology being used in a community based setting and the appreciation that the Indigenous community had for:

● Ownership of the creation process – access to the technology first-hand;
● Learning resources that are technology based - accessible, practical technologies;
● Learning in their first language – relevancy of learning content and experience;
● Privacy, security and cognisance of cultural context - data created and retained by the Community
CASE 3

Title
Body Worn Video

Context
The following case draws upon an article written by an officer serving in the Australian Police Force at the time of publication. The article also refers to technologies employed in policing in the United Kingdom and the United States where officers wear a video recorder as part of their operational duties.

This case, based upon this article, brings to light operational practices in the Australian Police Services which squarely position technology at the core of corroboration, at the centre of debate and perhaps at the periphery a much bigger socio-technological discussion yet to unfold. Lyell (2010) coins the term ‘body worn video of BWV in preference to that of POV or point-of-view video. The difference between PoV and BWV and the manner in which it is used, is perhaps a sector driven distinction, to create a distinction or in some cases a direct comparison with hand-held to pocket-worn technologies.

Setting
What is clear is the message Sgt. Mark Lyell makes regarding the use of these technologies in core operational policing in the state of Queensland, Australia. Body Worn Video (BWV) describes a device or system that captures images and audio recordings and is worn by the officer. BWV is a technology that offers important benefits to the Queensland Police Service (QPS) and individual police officers and significantly contributes to the achievement of the core function of the QPS. After briefly reviewing the use of technology by the QPS this article will advance five reasons why the QPS should issue BWV to all operational officers. (Lyell 2010, p. 29)

Lyle paints a picture of a police force using all manner of evidence gathering technologies, with access only on an ad hoc basis to current or emergent audio and video recording technologies.
Individual officers have over the last ten years at their own expense purchased tape recorders, and more recently digital audio recorders to assist in the collection and gathering of evidence and to protect themselves from false complaints. (Lyell 2010, p. 30)

Lyle also notes that the QPS have been instrumental in supporting the installation of CCTV in community settings, vehicular recording devices in taxis and GPS technologies in their own vehicles to enhance presence, thwart criminal behavior and improve operational efficiencies. At the same time it can be acknowledged that the QPS has a good record of embracing and implementing technologies in other areas such as OC spray, Taser, Comfit, Livescan and DNA collection and analysis. (Lyell 2010, p. 30)

This article poses five main reasons as substantive claims for supporting the roll-out of BWV across the entire Queensland Police Service, including evidence quality, protection against false complaints, modifying behavior (officer safety), professionalism and accountability as well as its place as an effective training tool.

Issues noted as needing to be examined and addressed include limitations of the video and audio range, cost of the device, storage of data collected, privacy as well as perspective and perception.

“...The experience of police using BWV has been overwhelmingly positive. Officers report saving a significant amount of time preparing their own evidence for Court.” (Lyell 2010, p. 31)

Lyle provides comprehensive examples of pilot trials in the UK and the US, cites statistics from studies into reduced aggression as a result of in-car and body worn video by officers and provides numerous points in support of police officers being equipped as part of their operational duties with BWV.

Lyle concludes with claims that:
“...BWV provides a significant tool that can assist police in performing their core function of law enforcement through preventing offences and detecting and prosecuting offenders. Additionally it protects officers from vexacious complaints, deter offenders from abusing and assaulting police and increase public confidence in the integrity and professionalism of police officers.” (Lyell 2010, p. 35)

Interestingly, within the conclusion Lyle reinforces in smaller italic font the following statement:

“In the meantime it remains a decision for individual officers whether they purchase their own BWV digital recorders to assist them in discharging their duty and to protect themselves from false complaints.” (Lyell 2010, p. 35)

Conclusion

This state of awareness of the omnipresence of technology and its plethora of permutations in all parts of our lives presents society at large with some very real challenges. As this paper reveals, technology provides avenues to protect its citizens on the one hand and on the other provides information about those citizens to networked corporations and consortiums unseen.

The lack of totality to the increasing array of surveillant, sousveillant and dataveillant technologies that make up our community fills some people with an Orwellian dread and for those who have the foresight to investigate Uberveillance, an even more urgent course of investigation.

In some contexts, surveillance helps keep us on track and thereby reinforces good habits that become second nature. In other contexts, it can hinder moral development by steering us away from or obscuring the saintly ideal of genuinely disinterested action. And that ideal is worth keeping alive. (Westacott, 2011)
Educators now find themselves in a position of making or even endorsing meaning amongst the accounts of others, paradoxically navigating around in the same maddening array of digital spaces and places that learners inhabit, perhaps with fewer skills than those they seek to educate.

Academically we interrogate the effects of technology as it widens the scope for possibility in an ever-changing world and acknowledge the anxiety that the gaze of the network causes for its inhabitants as they grow up inside this human made machine. Like an autistic child, we create a pattern of movements to control or hold closer that of which we have little understanding and we occasionally arrive upon a state of peace.

That peace is an understanding that in living, we are part of a greater form that we cannot control. This understanding occasionally presents discords to the continuity of an otherwise regular existence as we go about our daily routines.

By avoiding techno-evangelist complacency, as POV or BWV inhabits educational settings educators must now question their own purposeful intent of the use of these technologies in an educational context and acknowledge the broader social implications that other sectors more thoroughly interrogate.
REFERENCES


