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MELTING INTO THE TEXTURE OF EVERYDAY LIFE

KIT MESSHAM-MUIR

In only the most recent years, communications technologies have evolved rapidly and now are at the centre of social life in Western culture. Technologies now respond to us in the most intimate ways and have become omnipresent to the extent that they are becoming invisible. This ubiquitous networked culture is in turn changing our attitudes to information and knowledge, and, importantly, our expectations of our participation within them. Knowledge is now understood less as a static entity to be transmitted and more as an active relational process, taking place within social connections. This chapter looks at the ways in which recent and rapid evolutions in technology profoundly impact attitudes and expectations at a social level, and in turn, affect the ways in which knowledge is sorted and synthesised in this emerging socio-technological paradigm. In what ways might these shifts be changing the relationship between audiences and contemporary art? This chapter begins to address this issue. Ownership of the responsive works of artist John Tonkin. Based in Sydney, Tonkin's works respond to the physical presence of their audience and, in the case of his public work Nervous System, acts as a catalyst for social connectivity. I will suggest here that our networked culture is actually becoming less about technology and more about synthesising knowledge at the social scale.

CONNECTIVITY

Just a little over a decade ago, the internet was optional. In the same way mobile phones were at the time; we 'opted-in' to using it. In 2006-07, only 67% of Australian homes had internet access, and 47% of those connections were via dial-up. That is, almost half the household internet usage in Australia involved making a conscious decision to dial-in through a modem from a computer. The percentage of internet access through mobile phones was in single figures and largely accessed through slow and expensive pay-per-download GPRS connections, displaying stripped-down mobile websites on postage-stamp screens. The internet was thus a discrete entity, part of the optional functionality of a computer. Adam Greenfield wrote in 2006:

A mobile phone is something that can be switched off or left at home. A computer is something that can be shut down, unplugged, walked away from. But the technology we're discussing here—ambient, ubiquitous, capable of insinuating itself into all the apertures of everyday life affords it—will form our environment in a way neither of those technologies can. There should be little doubt that its advent will profoundly shape both the world and our experiences of it in the years ahead.

By 2011, Greenfield's prediction was reality: 'Computing has leapt off the desktop and insinuated itself in everyday life.'

In 2011, 78% of Australian households had internet access, with 18.5 million users (88.8% of the population). Likewise in the United States: 78% of American accessed the internet in 2011; in fact, 94% of those between the ages 18–29, and 97% between the ages 30–49. But the real revolution has been in how we now access the internet. Dial-up had become dinosaur technology by 2011, and 44% of all internet connections in Australia were from mobile and wireless devices. The internet is becoming less a 'computer' technology. Ownership of desktop computers is steadily declining in America (88% in 2006; 55% in 2011), while smartphone ownership continues to rise (46% in 2012). As Don DeLillo's novel Cosmopolis prophetically suggested in 2003, 'Computers will die. They're dying in their present form. They're just about dead as distinct units. A box, a screen, a keyboard. They're melting into the texture of everyday life. This is true of not just the human, but the word computer sounds backward and dumb.' The computer mutated into the smartphone and the tablet: its hard disk became the cloud and its mouse became the touchscreen. 46 mobile internet penetrates city streets, and a café without wi-fi might as well not have coffee. The internet is no longer something we log-in-to; it has melted into the world.

Until recently, the "information architectures" of the internet persisted in a publishing and broadcasting model, in the "Web 1.0" mode as we now conceive of it. In exactly the same timeframe as mobile internet has permeated social spaces, we have seen the synergetic development of the social web, Web 2.0, the internet of social networks, of Facebook, Twitter, YouTube, Tumblr, or blogging, posting and responding. According to Kathryn Zickuhr and Aaron Smith, once a person has a mobile device, their internet activity tends to increase, not just via mobile connectivity but overall. In America, 67% of online adults in America use social networking websites. In Australia, it is 58.7%. In fact, in 2013 46.9% of the entire Australian population has a Facebook account (11.5 million); there are 11 million YouTube accounts, and around 3 million each of Blogspot and WordPress blogging accounts, 2.7 million LinkedIn accounts, 2.6 million on Tumblr and 2.1 million on Twitter. This confluence of mobile internet technologies and Web 2.0 has turned the internet into a vast array of social media.

EXPECTATIONS AND ATTITUDES

It would be a mistake to see this development of social media as simply a new communications technology. Bill Cope and Mary Kalantzis identify the changes brought about by the 'social web' as actual 'changing knowledge ecologies.' They say, 'These are ideal conditions for the development of ever more finely grained areas of knowledge, cultural perspectives and localised applications of knowledge. So significant is this change, that knowledge itself may change.' Accordingly, particular sets of expectations and attitudes have emerged, which have been identified in recent research.

One expectation is that information comes easy: 76% of the teachers surveyed by the Pew Research Center in the United States 'strongly agree' that internet searching has conditioned students to expect to find information quickly and easily. Information is certainly abundant: at the time of writing, a Google search on the phrase 'abundance of information' returns 'About 59,600,000 results (0.27 seconds). Almost 60 million potential sources, retrieved in less than a third of a second: if I clicked on every result for only 12 seconds, it would still take me from now until I retire (23 years from now) to get through them, as long as I didn't leave my computer to sleep, eat and live. Of course, Google's algorithms sort this abundance of information on 'abundance of information' for me. Interestingly, Wikipedia's page on 'information overload' comes up number one. In the face of this information overload, an important 'meta-skill', as George Siemens calls it, is 'the rapid evaluation of knowledge.' Skin reading, once a specialist skill of overworked academics, is now a common practice, as is the capacity to quickly digest information and evaluate it potential worth.
The important shift here is from acquiring knowledge to managing it. Thus, the "just-in-case" model of knowledge, which has historically been an axiom of all education, is beginning to seem less appropriate. For example, I went through the Welsh secondary education system in the 1980s. One of the routine tortures that was a supposedly vital pillar of learning was the multiplication table, or the "times tables" as we called it. Even as rote learning was becoming seen at the time as questionable, even anachronistic, learning the multiplication table was generally accepted as one exception in which rote learning was still valuable. In Mr. Jones' mathematics class we recited that "one-two-are-two, two-tens-are-two, three-sixes-are-six" and so on, in a kind of perverse abridged iambic pentameter. As an inordinately cynical and admittedly lazy twelve-year-old, I could not see the point: I had a calculator if I needed to know what seven-sixes were, so the effort and time learning the "times tables" mantra seemed like a waste. But, teachers would berate, what if I didn't have a calculator here? And you should know this "just in case". As it happens, in the 30 years since, I've never once been in a situation where I needed to work out a multiplication and either didn't have a calculator or wasn't with someone who had learned the multiplication table. In those situations, the information was retrieved "just in time", not learned "just in case".

When information on just about any topic is available within 0.2 seconds, we are surely shifting from a "just in case" model of knowledge to "just in time". Mobile devices enable this — iPhones, Androids, iPads and other smartphones and tablets. 62% of the entire adult population in the US are likely to have used the mobile internet for "just in time" information in the last 30 days. That is, 98% of smartphone owners used their phone in the past month to make real-time queries to help them meet friends, solve problems, or settle arguments. In fact, 27% used their smartphone to get information to settle an argument. Of course, just-in-time information cannot substitute for deeper and slowly acquired knowledge, such as learning to read music or write computer code, or the manual skills of flying an airplane or playing a guitar. As John D. Cook puts it, "The difference between just-in-case and just-in-time is like the difference between training and trying. You can't run a marathon by trying hard. The first person who tried that died. You have to train for it. You can't just say that you'll run 26 miles when you need to and do nothing until then."

Concurrent with the rise of this just-in-time knowledge-management approach to information is a shift in attitudes towards knowledge and the nature of our participation within it. Social media is turning knowledge into a social process. Knowledge is understood as less a static thing, possessed by the knowing and given to the unknowing; rather, knowledge is a creative and relational process in which information, abundant and constantly updated and shifting, is synthesised through social networks and knowledge sharing, with promise for supporting knowledge creation. Thus, social networks create knowledge, not simply transmit it. The old transmission model of mediated knowledge, which has existed since the invention of the Gutenberg printing press in the mid-fifteenth century, in which authors create and readers receive, is currently giving way to an emerging participatory model, in which the roles of creator and consumer are interchangeable and audiences and authors are the same people. As Susan Cain says, "The core focus of Web 2.0 is participation, rather than publication." Participation takes many forms. It can mean simply posting a textual status update or tweet. And it can mean posting substantial original content, like blogs, photographs and videos: 48% of adult internet users in the United States post original photos or videos online that they have created themselves.

In the grey area between creators and consumers, many social media users are also "curators": 41% of American internet users repost photos or videos found online. We're not just sharing pictures of cats, we're selecting and sharing information and knowledge and, importantly, editorialising knowledge. The Web is full of "meta" media, such as The Times, The New York Times and The Sydney Morning Herald, carry "share" buttons that allow us to repost to social media sites with our own comments. Fifteen per cent of Americans now get most news from personal connections on social media sites, and this rises to nearly a quarter among 18- to 29-year-olds. Content aggregators, such as Google News and The Huffington Post, glean news stories from multiple sources and, in re-presenting them together, fragment the authority of the traditional mainstream newspapers, which are in rapid decline.

For the younger generations that dominate social media, knowledge sharing is perhaps less about simple redistribution and more about a co-creative, crowd-sourcing, creative commons approach to knowledge. Cairns notes a "swing away from dissemination and toward mutualization." This swing is perhaps registered more acutely in the field of education. According to Susan D. Blum, one impact is a significant rise in plagiarism which, she argues, is not simply because the internet facilitates the easy cut-and-paste of text; rather, "It has changed how[students] think of texts." Similarly, Trip Gabriel says, "The internet may also be redefining how teachers and students who are connected with each other, are doing so now." The potential for systems of content aggregators, such as Google News and The Huffington Post, to be redefining the concept of authorship and the singularity of any text or image. Maybe the emerging generations will eventually reject the present paradigm of Intellectual property. In the earliest period of the printing press, known as the "incunabula" (1450-1501), conventions of publishing were still in formation — tables of contents, page numbering, chapter headings and copyright simply did not exist. It took 250 years for ideas of authorship and intellectual property to consolidate into copyright laws for the world of the printing press. In 2010, we are moving rapidly through a "digital incunabula," and we cannot know at this point where these ideas will settle. Nevertheless, what we are registering is changing ideas of knowledge, moving away from knowledge as a thing that is held and owned to a connective relational process.

CONNECTIVISM

George Siemens was one of the earliest education theorists to recognise the potential ways in which the social capacities of internet technologies could radically change approaches to knowledge, creating the term 'connectivism'. Bruce Neubauer, Richard Hug, Keith Hamon and Shelley Stewart say, "Connectivism is an emerging explanation or theory of learning regarding the significance of networks (nodes and connections) as related to individual learning and the collective generation of knowledge." Jerry Anderson says, "Connectivist theory adds the dimension of peer-to-peer interaction in investigating and developing multiple perspectives." In forming the theory, Siemens identifies three epistemological traditions in learning:

Objectiveism (similar to behaviorism) states that reality is external and is objective, and knowledge is gained through experience. Pragmatism (similar to constructivism) states that reality is interpreted, and knowledge is negotiated through experience and thinking. Interpretivism (similar to constructivism) states that reality is internal, and knowledge is constructed.

Siemens argues that common to these models of thinking about knowledge is the tenet that learning occurs inside a person. Yet, he argues, knowledge occurs between people; it is 'stored' and actively constituted within social connections. And, in a networked world, "The capacity to form connections between sources of information, and thereby create useful information patterns, is required to learn in our knowledge economy." Connectivism, Siemens argues, is the theory that knowledge is formed when information flows between the nodes of social and technological networks, which are "heinous environments of shifting core elements". Thus, knowledge is continually changing. "While there is a right answer to a question, it may be wrong tomorrow due to alterations in the climate affecting the decision." The ability to sort and evaluate information is therefore a core skill. Siemens' approach has been criticised, largely for his over-claiming that it represents a whole new learning theory. Written in 2005, there is no mention of social media in Siemens' "Connectivism: A Learning Theory for the Digital Age", but other theorists have since considered more specifically how social media can transform scholarship into social scholarship. In this new paradigm, knowledge is defined as the single-direction transmission and reception of knowledge; instead, it becomes about creating the conditions, spaces and opportunities for knowledge to be created, to collide and to synthesize. The important thing is that the key to connectivism is not technology, but people and the connections between them, which are hyper-enabled by technology.
Technologies such as The Cube at Queensland University of Technology (QUT) assume a technologically enabled socially networked audience. The Cube, activated in 2013, is essentially three large panoramic screens wrapped around the four sides of an L-shaped structure at the QUT’s Science and Engineering Centre in Brisbane. It is a publicly accessible space, which is also used for teaching and research. The screens are responsive to multiple touch, which allows many users to point, move, tap to open, pinch and zoom, and other movements which seem natural for a contemporary audience. The Cube has a number of different applications, such as a large interactive animation resembling a Virtual Reef, the Physics Playroom in which certain properties such as gravity can be varied and the Flood Wall, based around the 2011 flood that inundated large areas of Brisbane’s waterfront. It combines the earth science surrounding the flood with its social dimension as an experience shared by the people of Brisbane. The public can upload their photographs, videos and written pieces to the wall, place them on a timeline and a map, and see similar posts left by others. The scale of the wall opens up the virtual space into the physical and social space of The Cube—people can share stories, point to their homes, show others their photographs—so the social networking takes place on both the virtual and real sides of the screen.

**Nervous System**

In 2011, Sydney-based artist John Tonkin completed a responsive light and sound installation called Nervous System in a public park for the Southport Broadwater Parklands Redevelopment in the Gold Coast, Queensland. The work consists of 20 steel poles lit with a vertical strip of LEDs that emit brightly coloured moving shapes and electronic blips. Both the sound and lights of each pole respond to light, sound, temperature and motion in their immediate environment, as well as the movement and proximity of people present. Each pole responds to its immediate proximity and is also connected to the other poles. Each function as a node in the networked whole, hence Tonkin’s title Nervous System. Like an organic nervous system, the work senses its environment and responds. And when the social dimension is added, the work becomes reflexive.

Nervous System is removed from the immediate contextual frame of art and all that implies. Sure, aficionados of contemporary art familiar with Tonkin’s work are likely to see Nervous System in the context of Tonkin’s practice, his stated concerns with phenomenology, embodiment and thinking; but what does the work mean to a jogger, a dog walker or a group of teenagers on BMxs who don’t bring this frame to the work? Watch people respond to the work, and vice versa, in the evening twilight: the ad-hoc investigations and experimentation that Nervous System provokes—"the way the work "plays" its audience and, in turn, their responses to each other—activate this public space as a connected social space. When its audience reaches a critical mass, Nervous System becomes analogous to a digital social network.

**Like Nervous System, much of Tonkin’s work responds directly to its audience. Unlike Nervous System, much of his work looks more like video art: flat screen monitors mounted on walls in a darkened gallery space. The video images on Tonkin’s screens are nearly abstracted incidental moments that move just enough not to be considered as still images. Their soundtracks barely rumble and whisper. There is perhaps just enough of a visual hook to draw you closer, and it is at that moment that we realise these videos are responding to our physical movements. From the screen of Tonkin’s Selective Attention, 2011, we hear rain pouring. The image is a green and white blur, moving minutely, until we approach it. As we close in on the screen, the narrow depth of field of the image pulls in and the focus sharpeners to reveal heavy rain seen through a window. When we approach another work, meta-cognition, our movements fast-forward images that rush through a forest, a blurred forward view from a moving car, and the same images pictured on other screens. We see another figure watching these images, just like us, in a gallery space and sometimes in a surrealistic curved room. Moving back and forth in front of the work, we scratch at high speed through this montage.

**Interactive VS Responsive**

Tonkin’s interactive videos actually resist the designation of either “interactive” or "video":

"I’ve been really interested in exploring somewhere between those two things, something that’s more like a video work but is still interactive. I coined the phrase ‘responsive video’."

True enough, his works do almost nothing without the engagement of their audience, yet ‘interactive’ no longer seems like the right term—not only for Tonkin’s work, but also for the kind of engagement of today’s audience. Although interactive multimedia is still relatively new, the term itself already carries certain baggage. It summons to mind the information retrieval of a touch-screen directory in a shopping mall or airport, or the didacticism of educational museum technology, such as the interactive timeline of the life of Winston Churchill at the Churchill Museum, London: projected onto a large tabletop, museum visitors touch and manipulate the screen to open years, months and dates in Churchill’s life, to open maps and expand images and documents. ‘Interactive’ implies an invitation to a particular audience to interact for a particular purpose, interactive interfaces have often been passive and manual: a two-dimensional touch screen awaiting the hand of the user. The narrative route through many interactives can be plotted on a flow chart as a series of questions, providing one set of options that lead to another set, and so on.

Tonkin’s responsive videos, on the other hand, do something different. The works set traps that lay dormant until their audience, often unknowingly, trigger a response by their physical proximity to the works. When we become aware of the connection between our own bodily movements and the movement on screen, we become consciously aware of the feedback loop that is created by our movements and the effects of the video. Even if we are familiar with Tonkin’s other responsive works, we approach a new work not knowing how the work will reward our presence. For some works, our varying proximity will cause the image to blur or sharpen; others will cut between different scenes; others will scrub back and forth at different speeds. Each works responds differently, and with certain works each encounter with the same work will create a different response. There is no predictable flow chart of responses. Although it becomes quickly apparent that the works are responding to the movement of our bodies, it is not obvious how. Tonkin’s audiences in the gallery space often attempt to provoke different responses by waving arms, lifting legs, walking towards the works and backing away. At this point, audiences ‘play’ Tonkin’s work with their trial-and-error movements in space: I move closer to the screen, the bottle on the escalator slows down. Am I causing that? What’s happens when I step backward or move my arms? The audience’s embodied performance in proximity to the work is necessary for the work to perform in response. Tonkin says that his audience plays his works ‘like a musical instrument’. Perhaps the musical instrument closest to Tonkin’s work is the theremin. Like an organic nervous system, the theremin is a technologically enabled socially networked audience. The theremin, the kinetic electronic instrument played only by the gestures of a musician. When a musician plays a theremin, the instrument demands that they perform certain movements to create certain sounds and, in effect, the instrument ‘plays’ the musician. Tonkin’s responsive videos likewise ‘play’ their audience. The roles of both the work and its audience shift into a more active performative mode.

In this way, Tonkin’s responsive works reconceive interactive multimedia from its usual asymmetrical flow of information, from media to receiver, to a more collaborative synthesis. As Tonkin says, ‘I’ve always been interested in this idea of blurring the boundary of who’s making the art’. The process becomes less about information retrieval and more a creative and improvisational process. Or, to put it another way, unlike the usual approach of interactive multimedia, in Tonkin’s work information is not gained by the audience, but is instead generated in a process of co-creation.
Tankin’s Nervous System is different in many respects from The Cube at QUT. It is much more abstract and much less didactic. However, similar to The Cube, Nervous System generates a technologically activated social space that takes place between those engaging with the technology. Visitors to The Cube and the public that engage with Nervous System are practically the same people—the audience, in the broader sense, is certainly exactly the same. It’s the same audience setting arguments using their iPhones, sharing news stories on Facebook, sorting information, curator their lives, posting videos and photographs. Tankin’s responsive works intuitively address certain inclinations in the audience to engage technology in a participatory and social way. Like social media, the work is activated within social connections as much as it activates. What happens in Nervous System, and in so many other emerging communication technologies, happens person-to-person as much as it does between people and technology. All of Tankin’s responsive works, to some extent, push us back out of technology and into the social space. That may be where our future with technology lies—not within virtual reality, but with the virtual in reality.

ENDNOTES

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Dr Rob Saunders is a Senior Lecturer in the Faculty of Architecture, Design and Planning at the University of Sydney. His primary research interest is the development of computational models of creativity. The development of computational models of creative processes provides opportunities for developing a better understanding of human creativity, producing tools that support human creativity and possibly creating autonomous systems capable of creative activity. His approach to developing computational models of creativity is to develop curious agents and to use these agents to simulate creative systems.

Associate Professor Mari Velonaki is the director of the Creative Robotics Lab at the National Institute for Experimental Arts, the University of New South Wales. Velonaki is also an Adjunct Associate Professor in the Faculty of Engineering and Information Technologies at the University of Sydney. She has worked as an artist and researcher in the field of electronic art, since 1995. Her work creates intellectually and emotionally engaging human–machine interfaces incorporating movement, speech, touch, breath, electrostatic charge, artificial vision, light, text and robotics. In 2009 she was awarded an Australian Research Council Queen Elizabeth II Fellowship (2009–2013) for the creation of a new robot in order to develop an understanding of the physicality that is possible and acceptable between a human and a robot.

Associate Professor David Rye is a co-founder of the Australian Centre for Field Robotics, which was established in the School of Aerospace, Mechanical and Mechatronic Engineering at the University of Sydney in 1999. He holds a PhD in Mechanical Engineering from the University of Sydney. He has conducted extensive research in fields related to automation and control of machines, including applied nonlinear control, container-handling cranes, excavation, and autonomous vehicles. Since 2003 he has worked in the field of social robotics, designing and implementing autonomous robots that can interact with people in social spaces. Rye is recognised as a pioneer in the introduction and development of university teaching in mechatronics, having instituted the first Australian BE in mechatronics in 1999.

Professor Dan Louvall is at the University of Sydney Business School and is a Senior Research Fellow at the Institute for Innovation Management and Organization at the University of California, Berkeley. His research is concerned with psychological aspects of strategic decisions and has appeared in the American Economic Review, Management Science and the Harvard Business Review. He received his PhD from the Haas School of Business at the University of California, Berkeley. He is a member of the Editorial Board for the Strategic Management Journal and the McKinsey Finance. Dan is currently leading an ARC discovery project titled 'Behavioural Strategies for Selecting Innovation Projects'.

John Tonkin is a Lecturer in the Digital Cultures program in the Faculty of Arts and Social Sciences at the University of Sydney. He is also an artist and interactive designer and programmer. He exhibits artworks both nationally and internationally. In 1999–2000 he received a fellowship from the New Media Arts Board of the Australia Council for the Arts. Tonkin is currently working on a number of projects that use real-time 3D animation, visualisation and data-mapping technologies. These include 'Strange Weather', a visualisation tool for making sense of life, and 'time and motion study'. Tonkin has worked as an educator in a number of capacities, including lecturing in multimedia at a number of Sydney institutions including TAFE, Metro Screen, UTS and the Australian Film Television and Radio School.

Dr Kit Messham-Muir is a Senior Lecturer in the Faculty of Education and Arts at the University of Newcastle, where he is the Program Convenor of the Bachelor of Fine Art. He graduated from Sydney College of the Arts, the University of Sydney, with a Bachelor of Visual Arts in 1994. In 2000 he was awarded a PhD in Art History and Theory from the University of New South Wales. He was a full-time academic in the Museum Studies unit at the University of Sydney in 2002–2005, and continued to teach at the University as a sessional staff in 2005–2007. He has won several awards for his teaching, publishes frequently and works internationally on the Studiedrather video project. Messham-Muir's research examines the ways in which interpretive practices in galleries and museums impact upon visitors' experiences, particularly by evoking memory and emotion. He is currently working on a book that explores the role of imaging technology in contemporary warfare through the video installation work of Shawn Gladwell, one of Australia's Official War Artists.

Dr Alex Gawroski is an artist, writer and Lecturer at Sydney College of the Arts, the University of Sydney, from which he also holds a PhD. Much of Gawroski's research is concerned with investigating the gallery as a type of self-generating narrative space in which discourses of representation and power collide. His work has been exhibited at the Museum of Contemporary Art Australia and the Art Gallery of New South Wales. Gawroski is also a co-founding director of the Institute of Contemporary Art Newcastle (ICAN).