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Cultural Anxiety 2.0

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Introduction

> The spirit of 'Web 2.0' is that individuals should open themselves to collaborative projects instead of seeking to make and protect their 'own' material. (Gauntlett, 2007)

Since the naming by Tim O'Reilly of 'Web 2.0' to signify a new phase in web development and user experience, the '2.0' suffix has been applied in a number of disciplines to indicate a similarly new direction in that field. However, this borrowed branding can fail to transfer the culture of development and original intentions of the 'Web 2.0' label, and may therefore be applied without detailed knowledge of its origins. There is a case for examining the technical and cultural meaning of Web 2.0 in order to determine whether a deeper understanding of the history and original context of the label—and the technology behind it—have anything to offer toward a more intelligently informed '2.0' metaphor, or—fundamentally—whether its use in other contexts is meaningful in any case beyond the current phase of the web. To this end we explore the contrast between what may be termed 'technology-independent' applications of the metaphorical suffix and those that may be termed 'technologically-dependent' in their degree of accuracy to the tenets behind the original concept. Additionally, we explore the drivers behind the rush to adopt the 2.0 suffix, and in particular its relation to contemporary discussion regarding how Media Studies needs to be ‘upgraded’ to Media Studies 2.0 in order to deal with new media.

1.The '2.0' suffix

> While the patterns that constitute Web 2.0 are far from completely understood, there's a kind of intuitive recognition of sites that are expressing the new model. (For example, at Esther Dyson's PC Forum last March, after presentations by two startups showing shared calendaring services, I overheard one attendee say to another, "xxx is so Web 1.0, and yyy is so Web 2.0" and the other attendee knew exactly what he meant. A meme is a pointer, and as long as it points in the right direction, so that the listener recognizes what is being pointed at, it works.) (Bray, 2005)

Shortly after Dale Dougherty and Tim O'Reilly added the 2.0 suffix to the word 'web' and made the 2004 'call to action' after the dot com crash, there has been a flurry of anxiety amongst those nervous about their ability to keep track of advances being made in internet technology and culture, not least from those involved in teaching it. In fact, it was the paper by David Gauntlett 'Media Studies 2.0', that prompted our

examination of the '2.0 suffix' phenomenon (Gauntlett, 2007). Yet some fundamental misapprehensions are perpetuated in this reaction, elements of which are also fuelled by presumptions about what the 2.0 suffix actually signifies.

With the blossoming of social software applications, the increased capacity of processors and bandwidth to handle video streams, plus certain innovative combinations of existing technologies, the potential of the web became markedly different sometime around the early part of this century; a difference marked most significantly by changes in web use. However, one of the original motives behind the 2.0 suffix was to help Open Source expertise and ethics integrate with commercial interests, and thereby to keep the web invigorated by software free from the constraints of profit and in-house programming policies.

It is mistaken to presume that technological advances prompted the advent of Web 2.0. For example: until recently MySpace operated on an old proprietary framework, generating HTML in the style of the mid-90s. Facebook's dependency on Javascript is nothing new, despite a recent opening up of Ajax functionality to developers (a move that caused MySpace something of a security headache (Norton, 2006)). Neither does blogging software like WordPress or MovableType achieve anything more exceptional technologically—they all take user input, process it, and feed updated results back to your browser using standard CGI protocol or variants (Stein 1999) developed in the early days of the web. The '2.0' part lies in the collaborative and communicative elements, in the human interactions that grows these sites semi-organically, allowing for emergent social coherence and communication. The only significant technological change facilitating this usage is the increased bandwidth of home connections; a gain, however, that is rapidly being countered by the consequent increase in sizable and poorly-optimised contributions from an increasing number of contributors (the accumulative nature and consequent sluggishness of some MySpace and Facebook pages is the most obvious example).

So where lie the roots of social software? Both Ben and Mena Trott's MovableType (Trott, 2006) and David Heinemeier Hansson's Ruby on Rails framework (Trott, 2006-2, Hansson, 2007) were initiated as solutions to their own in-house needs:

> We thought we could do a good job building a tool for people like ourselves. (Trott, 2004)

Jesse James Garrett coined the AJAX acronym (Asynchronous JavaScript and XML) in 2005 to indicate a method of gluing together elements from existing languages to provide a more immediate user experience on the web, reinvigorating the role of JavaScript to provide faster response times ('lower latency') than existing web pages (Garrett, 2005). Ward Cunningham's original Wiki, the 'Portland Pattern Repository' (Cunningham 1995a), was launched in 1995 (with standard, but well-crafted, Perl and CGI) to capture the collective knowledge ('people, projects and patterns') of a programming community that had as one of its facets the extreme programming movement (Cunningham, 1995b). This movement informed the concept of agile programming (Cunningham, 1995c, Beck, 2001) with it's four tenets:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation

- Customer collaboration over contract negotiation
- Responding to change over following a plan

These tenets have become axiomatic to the technological development of some of the critical technical elements of Web 2.0 web applications and sites, and hint at the adoption of the concept of 'emergence' from complexity theory (for an introduction see Gell-Mann 1995) informing the movement's approach.

To return to O'Reilly's ethical move to introduce Open Source initiatives to the commercial mainstream:

> To avoid a future outcome where the open-source community gets mowed down like a cavalry squadron charging a machine gun parapet, O'Reilly has proposed a peaceful solution. Companies such as Yahoo and Amazon can grow, devour and assimilate to their hearts' content. The only catch is that they have to give something back.... 'We have to build a rich ecosystem' (O'Reilly, 2007).

This move highlighted the ideological distinction between the idealistic Richard Stallman (Free Software Foundation founder and programmer behind several crucial Unix tools) and the more pragmatic Eric Raymond (author of The Cathedral and the Bazaar and O'Reilly ally in re-branding Open Source to commercial enterprise. See Raymond, 2006), a history well-documented throughout the web (see Leonard, 1998 or Kidd, 2000).

The term 'Social Software' more accurately describes the Web 2.0 phenomenon, and removes the impression of 'progress' (questioned below). The development of social software applications led to significant changes in the use of existing technologies (and to the advent of 'frameworks' like Ruby On Rails or Python's Django that create shortcuts for web developers). These changes weren't driven by technological progress but by the need to repurpose existing technologies—through a process of iterative 'agile' responses—to the demands of social software users (Trott, 2004).

2. Imitation, ownership and control

2.2 To envy is to imitate (technology-independent metaphor/theory)

In the use of the 2.0 suffix in other fields, are we witnessing a quest for validation based on pseudo-technological terminology (see Paul Graham on 'math envy': (Graham, 2004))—do '2.0' suffixes stem from an envy of technological culture? Is this progress-driven 'version number' misapplied, when the evolutionary 'perpetual Beta' is the real driver? This is not to deny genuine intentions to start a new chapter in a particular field, but to expose an underlying anxiety about appearing contemporary in a technological sense—this is certainly the case in a 'Media Studies 2.0' blog posting, where lecturer William Merrin relays his bewilderment when a student submits an essay on a USB drive, and expresses his disconnection from students' new media use, in what may be taken for a level of anxiety about 'struggling to keep up with' media developments (Merrin, 2006, 2008).

The 2.0 suffix does at least admit the presence of technology in the creation of online social networks, although if that technology is poorly understood, the associated 'new era' metaphor becomes weak when applied elsewhere. It could be argued that,

although technology had little to do with Web 2.0, an understanding of the developmental culture and driving principles behind that technology (see Tim O'Reilly's agenda, below) is crucial to creating, for example, a more accurate '2.0 version' of media theory. Soon after the advent of 'Web 2.0', and with more justification than most, O'Reilly himself complains:

> the Web 2.0 meme has become so widespread that companies are now pasting it on as a marketing buzzword, with no real understanding of just what it means. (O'Reilly, 2005)

A 'meme' (since O'Reilly used Dawkin's popular terminology) spreads when it embodies an already intuitive sense of a particular phenomenon in a timely fashion, and when other factors are present, for instance optimal social network connections between 'early adopters' and potential future users (Watts 2003). Those coming to the web after the year 2000 have not have experienced the 'previous versions' of the web underpinning the current state, and might see '2.0' as signifying a web experience that capture the current zeitgeist, with the implied '1.0' suggesting some kind of 'old version' of the web. The resulting failure to contextualise the current web historically and culturally creates a hybrid anticipation/anxiety/novelty/belonging akin to that utilised in advertising where last year's model is reframed as 'outdated' for no other reason than the need to create an income stream from this year's model. Perhaps this anxiety also springs from a desire to belong to a group that understands the sense of 'now'. For Tim Berners-Lee, this 'now' was always part of the original web vision:

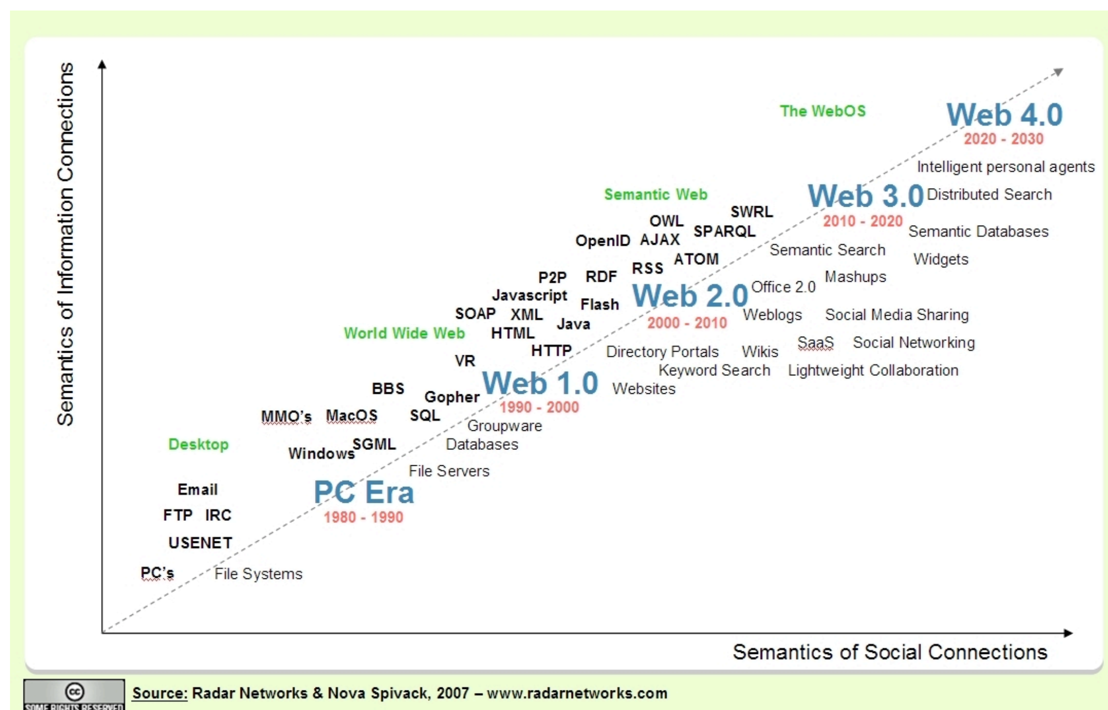
> Web 1.0 was all about connecting people. It was an interactive space, and I think Web 2.0 is of course a piece of jargon, nobody even knows what it means. If Web 2.0 for you is blogs and wikis, then that is people to people. But that was what the Web was supposed to be all along.
>
> And in fact […] it means using the standards which have been produced by all these people working on Web 1.0. […] the document object model, […] HTML and SVG and so on, it's using HTTP, so it's building stuff using the Web standards, plus Javascript of course.
>
> So Web 2.0 for some people … means moving some of the thinking client side so making it more immediate, but the idea of the Web as interaction between people is really what the Web … was what it was designed to be—as a collaborative space where people can interact. (Berners-Lee, 2005)

Let's take the Wiki as an example of how responses to social software can be fuelled by a combination of poor understanding of origins and purposes, and the desire to appear technologically 'now'. The Wiki might be seen as a partial realisation of Tim Berners-Lee's original user-editable web (with read-write browsers such as Amaya: see Vatton, 2007), yet the oft-heard cry 'we must have a wiki' or 'we now have a wiki' (with the allied haste or sigh of relief), has come to mean 'look—we're embracing Web 2.0 technology', even though many such wikis draw on a user base far too thin to produce the body of community-edited knowledge that characterises a successful wiki. The creeping use of menus and the forcing of a 'website-like' structure expose misapplications and misunderstandings of the wiki principle; the real wiki-like information structure that emerges from spontaneous keyword linking gets lost under

the need to train the poor thing into a 'house style', with menu bars and hierarchical architecture; some 'Wiki' software even encourages this shift away from the original ethic.

With their plain style and minimal design, the venerable Portland Pattern Repository and MeatBall Wiki retain a community vivacity that undernourished attempts fail to capture, without a graduated Web 2.0-style tint or glass reflection in sight. They also retain a large and intelligently active community, with editors and writers willing to spend time moderating and sub-editing the multi-faceted input.

What is most striking about the anticipation/anxiety driving such choices as 'having a wiki' is that the modernist notion of progress can be detected behind it. The following 'graph' clearly illustrates how this faulty notion influences opinion about the 'progress' of the web:



[Fig 1: a poorly presented linear 'graph' of web technologies)]
"Towards a Web OS" (Radar, 2007)

Apart from the general imprecision and chronological inaccuracy (Edward Tufte would rip the information design to shreds) the most striking feature is the 'onward and upward line of progress'. The real picture is far messier, and must include elements like the now-famous1968 Doug Englebart film demonstrating video conferencing and collaborative document editing (plus the advent of the mouse and pointer interface), that still begs the kind of 'Progress? What progress?' questions Alan Kay raised at Etech in 2003 (Rein, 2003).

The anticipation and anxiety arising from the weak notion of progress vaunted by such images and related concepts, pales in the light of the very real failure to implement the kind of computing initiatives that might have had us all collaboratively editing and video chatting on our 1980s PCs. The objection of the programmer and hacker to the 2.0 suffix is founded on this deeper historical context and an awareness

of the very real meander in the computing timeline. In this paper we are offering a historical and cultural account of these shifts that distances itself from the notion of progress and approaches an idea of change that incorporates technology as being a detour; a notion well-described by Latour:

> The very complexity of the apparatuses, which is due to the accumulation of folds and detours, layers and reversals, compilations and re-orderings, forever denies the clarity of right reason, under the aegis of which technologies have been first introduced. (Latour, 2002)

It seems pertinent to point out the inherent contradiction in the conceptualising of Web 2.0 as another step up the ladder for the progress of instrumental reason, when one of its key strategies is the perpetual beta; that is, the recognition not of logical progression but of the indeterminacy that results from technical/cultural ensembles. Just as ideas from complexity theory were introduced into the programming culture from whence this shift arose, should we not also attempt to apply some of these principles to the study of their cultural instantiations? So added to the metaphor of the detour, the notions of transduction and phase-shifts may also be more appropriate when examining both the development and use of these networks. These kinds of complex shifts are inadequately represented by the tacking on of a 2.0 'version number'; indeed Merrin incidentally argues against the very 'Media Studies 2.0' banner under which he is writing:

> If many ‘new’ media forms appeared before many ‘old’ media forms then the division of MS1.0 and 2.0 becomes untenable. (Merrin, 2008)

This examination of the cultural threads driving the Web 2.0 label raises some crucial questions. If the use of the 2.0 suffix is intended to indicate a progression from a previous 1.0 state, and if this progress is not primarily technological, then what kind of metaphor is it? Furthermore, what meaning is there in applying the 2.0 suffix to other fields, other than to associate those fields by implication with 'the new'? If the original Web 2.0 label simply signified the achievement of the critical mass required to obtain a cultural foothold (outside the geek community) in the use of social software applications and Open-Source principles, together with the rise of the agile methods used to build this software over the older top-down approaches to software management, then—wherever '2.0' versions in any field have been put forward—we must ask how deeply the principles behind the original Web 2.0 have been applied to those fields.

Web 2.0 as a term isolated from its cultural context is too amorphous and indefinable to be useful critically—this is also precisely why it can mean many things to many people. It is perceived as the death of culture (Keen, 2007) whilst also being its rebirth (Lessig, 2007); a democratising force (see Granick, 2006) but also the worst kind of centralisation (Kleiner and Wyrick, 2007) an ideology but also technical evolution. It has been said to harnesses collective intelligence but also to vocalise encourage mob stupidity.

If all these positions contain an element of truth, then the term Web 2.0 is impotent from a critical point of view. What is really required when analysing contemporary media networks is theory that gives a more accurate and capable account of the

individuation of technical, historical and cultural assemblages than a blanket term like 'Web 2.0'. Recognition of the need for this kind of media analysis can be found in recent work (Van Loon, 2007, Hassard and Law, 1999, Mackenzie, 2002) which attempts to understand technologies as phenomena having causal power within specific contexts.

From this perspective it is useful to then question the use of the term Web 2.0 in the Social Sciences. It does not coherently explain the multiple and complex phenomenon it attempts to name, but only points to a general trend in online service applications. If it is anything more than a marketing term, what can it be said to actually describe, and has this been adequately defined in any rigorous sense?

A further issue is also concealed beneath the word 'web', a word that implies a usable metaphor of links and nodes. However, Web 2.0 can be associated with an attack on the truly decentralised peer-to-peer (P2P) networks of seminal Web 2.0 services such as Napster, where users connect their computers and share files with no intermediary except the network itself. The shift in the application of the word 'web' removes focus from these original P2P networks, which actually externalised a more democratic, efficient and decentralised solution to creating social networks. As Kleiner and Wyrick write:

> The mission of Web 2.0 is to destroy the P2P aspect of the internet. To make you, your computer, and your internet connection dependent on connecting to a centralised service that controls your ability to communicate. (Kleiner & Wyrick, 2007)

Although this may sound hyperbolic, the 'monetisation' of Napster and the hounding of other P2P services are cases in point.

2.3 To name is to own (technology-dependent metaphor/theory)

Before the 'branding' of Ajax by Jesse James Garret, the XMLHttpdRequest had an interesting history. First implemented by Microsoft in Internet Explorer 5 for Windows as an ActiveX object then copied into Mozilla browsers, it allows data to be updated from server to browser without an ugly document reload, effectively providing a desktop application-like feel to web interfaces, and a responsive '2.0' feel. Apple's Developer site states:

> In lieu of a W3C standard still under development, the Microsoft-born XMLHttpRequest object fills an important gap that should inspire application development creativity. (Apple, 2005)

Such incremental changes in the user experience lead to the sense of distinction between the 'old' and 'new' web. Yet although the Ajax acronym arising from the use of the XMLHttpRequest has become one of the associated buzz-phrases connected with the Web 2.0 meme, its role in early social software was not required, and it even remains incidental to the real functionality of some well-known social software websites.

The success of the Ruby on Rails (RoR) framework (from the same stable) has (starting with 37Signals) facilitated easier builds of 2.0-style websites with desktop

application-like features, since Ajax functionality is built into RoR and other frameworks. But behind this success is a savvy knowledge of branding from a company that understands the need to wrap technology in a fashionable and visually appealing skin. In fact, Ajax and RoR became cultural currency partly because of the graphic beauty of sites that pioneered their use, backed up by the elegance—and 'newness'—of Yukihiro 'Matz' Matsumoto's Ruby programming language (Venners 2003).

Web 2.0 style

The 'glass shadow' graphics and cute icons that arrived with the 2.0 style have nothing to do with functionality, but everything to do with creating as much distance as possible from the poor graphic skills of geeks who may have been using similar technology for many years without recognising the potential to build desirable consumables with it. These visual identity statements spawned tutorial titles such as (to pick two at random, quoted verbatim from a search for 'Web 2.0 style') 'Create glossy button for web 2.0' and 'Web 2.0 style buttons'. Here's an extract from a Russian designer's blog, clearly expressing the demand for the 'new look':

> Nowadays Web 2.0 style becomes more popular. Every day tons of sites which has simple, bright and very interesting things, appear in Network. There are no standards about creating any Web 2.0 elements, but we have several typical features, for example and clean colors, many gradients. (Shteflyuk, 2006)

The comments for this blog post reveal the designer uptake of the graphic styles ushered in by the original 2.0 sites:

> Really nice button, but it'd be <u>more web 2.0</u> if it had a reflection at the bottom. [emphasis added]

One reader aptly observes:

> we should not split this web-2.0 phenomenon to parts like design, technologies, etc. I think everybody agree [sic] that design changes were inspired by technologies and technologies became so popular because of great implementations with great design.

Finally, this desperate comment reveals the anxiety driving the need to belong to the '2.0 club':

> can you make 2.0 buttons for me and sell them [to] me?

Peel away this visual skin, and social software sites still require the universal glue of 'web 1.0'—the scripting, databases and CGI requests that provide the vast proportion of web functionality (O'Reilly and Smith, 2007). Web monkeys are still churning out the nuts and bolts that keep the web working, and frameworks like RoR are (as anyone who uses them will attest) no escape from the technical skills required to engineer user functionality, although they may have taken away some of the grind.

It is worth noting that the frameworks now attracting commercial interest exist in a programming climate that raised the bar for individuals wanting to build their own

website, forcing the 'newbie' back towards dependence on software written by specialists (like blogging tools and social software sites), which they can customise only to the extent that its creators allow. The sense of ownership that comes from writing your own website has shifted to a sense of participation where HTML, CSS and scripting skills are only components in the mashup, while the real power to own the creative tools recedes from public grasp with each innovation. Facebook may encourage users with programming skills to write add-ons, and Yahoo (in O'Reilly's sense of 'giving something back') has its user interface library, but the former is little more than free and fitness-selected outsourced programming and—while useful—the latter also serves to spread the Yahoo brand; yet neither offers any power over the actual direction, intentions and content of the companies behind the initiatives, and—in the case of Facebook—only limited control over legitimised modules within the website.

Agile, but not quite emergent

Code written in the more English-like high-level syntax of third-generation programming languages, and 'scripting' languages like Perl, Python and Ruby with their strong open source cultural identities ('interpreted' languages do not need to be 'compiled' before running and—crucially—run on any machine with an interpreter) can be learned quickly, modified more or less on the go, and incrementally upgraded. These attributes helped distinguish the emerging 'agile' methods from those of monolithic software houses, and led to the reaction against corporate programming culture voiced in Eric Raymond's The Cathedral and the Bazaar (Raymond, 2006). This reaction also found an outlet in small personal web-based projects outside the boundaries of the corporate culture then seen as a prerequisite to developing desktop applications. Many of these projects became defining Web 2.0 applications and sites (Basecamp, Movable Type, etc.).

The conceptual drive behind the Agile Manifesto encapsulates this shift away from the top-down, 'BigDesignUpFront' approach of software houses towards the 'skunk works' responsiveness of teams working on web-based software, emerging in response to the needs of the collective user (Beck et al 2001, Waters 2007). It could be said that the Agile Manifesto, with related texts such as 'The Cathedral and the Bazaar', were evidence that mid 90s programming culture was ready to distance itself from the monolithic production models of software corporations that controlled the direction and constrained the development of computing, towards a new model inspired by the interdisciplinary sciences of chaos and complexity, built on free and Open Source software, and upgraded incrementally (the 'perpetual Beta') by a community that cared enough to contribute from enthusiasm and programming pride. If programmers are inspired by new scientific paradigms, the Agile Manifesto expressed their desire to put the most significant of these into practice. They became enthused, formed alliances and small companies, and made the 'bells and whistles' of corporate bloatware appear clumsy in the face of the peer-networked agility of their programming culture. The following two statements, extracted from Martin Fowler's essay 'The New Methodology' (Fowler, 2005), sum up the Web 2.0 ethic better than any detailed examination:

> Agile methods are adaptive rather than predictive.
> Agile methods are people-oriented rather than process-oriented.

(For 'Agile methods are' read 'Web 2.0 is' or 'Social software is'.)

Alistair Cockburn's amusingly-titled 'Characterizing people as non-linear, first-order components in software development' (1999) outlined the conceptual shift towards what might (to borrow Carl Rogers' humanistic psychological terminology) be called 'person-centred software development':

> We methodologists and process designers have been designing complex systems without characterizing the active components of our systems, known to be highly non-linear and variable (people). This paper outlines theories and projects I reviewed on the way to making this stupendously obvious but notable discovery and four characteristics of people that most affect methodology design and project outcome. I find these characteristics of people to be better predictors of project behavior and methodology success than other methodological factors.

The mild tongue-in-cheek tone may be amusing, but software developers had for years worked within the seriously clean and modernist-derived abstractions laid down by computer science (exemplified in the UML language – see Rourke, 2002 and Alexander 2004), and far removed from any messy iteration with real end users.[i] He comically reiterates his main findings at each significant step:

> **Problem 1.** The people on the projects were not interested in learning our system.
> **Problem 2.** They were successfully able to ignore us, and were still delivering software, anyway.

In other words, programmers were doing it their way, and ignoring top-down directives. Another quote pokes fun at the methodologies against which he was struggling to free himself:

> In the formal development of communications software, in 1987, I was given the motivation, 'The problem with software development is that there is too much ambiguity in the problem statement and in the design description. Things will go better if we get people to work with mathematical formalisms.' [his emphasis]

In the light of such dogmatism (we must remember that much of computer science is founded on the elegant and complex abstractions of mathematics), it is no wonder that a conceptual shift was required in order to free up programmers so that they could get on with making the software they themselves needed, right there and then, and to almost accidentally discover that many other people also needed the same software. Without the kind of cultural shift that found a voice in The Agile Manifesto, Web 2.0 might never have been conceived, let alone built. This is not to be idealistic—in the circular manner that characterizes the commercialization of the 'new', programmers are now finding themselves obliged by their employers to adopt the tenets of 'extreme' and agile programming by edict.

2.4 To own is to control (networks and control)

It should by now be well understood that the technology that makes the kind of sharing and distribution of files possible in Web 2.0 applications has long been in existence. Additionally, other networks, such as Usenet, Fidonet and P2P, have facilitated open discussion and distribution for nearly 30 years (Sundsted, 2001). The striking difference between these networks and the newer Web 2.0 applications is in the area of ownership and control.

The 'Web' part of Web 2.0 implies protocols and standards that enable communication to occur but which must also be seen as enablers of control. As Alexander R. Galloway cogently explains in protocol the discussion of networks found in cultural theory often glosses over their material structure, 'slipping into "vapor theory"'. Web 2.0 as a metaphor has, if anything, promulgated this tendency, leading at times to a revival of the near-gnostic, cyber-utopianism (and dystopianism) of the 1990's.

As Galloway (or any decent book on networks) also makes clear, the web at its fundamental level utilises two protocols in tension with one another. This in itself should serve to ground our understanding of how these media operate, alongside a deeper understanding of the history of the other software which overlay them.

> On the one hand, TCP/IP (Transmission Control Protocol/Internet Protocol) enables the Internet to create horizontal distributions of information from one computer to another. On the other, the DNS (Domain Name System) vertically stratifies that horizontal logic through a set of regulatory bodies that manage Internet addresses and names. (Galloway, 2004)

So although the TCP/IP level of protocol enables the free flow of information from node to node on the network the Domain Name System, with its top-down hierarchy, is a protocol that enables control. The web is therefore not innately democratic in its structure. The domain-name centric, web based nature of Web 2.0 is what ultimately allows for the corporatisation of its social aspects.

Where networks like Usenet offer an ontology—not without protocol, but with one that cannot be monetised via ownership—Web 2.0 is very much a venture capitalist chocolate box that doesn't just misunderstand the open-source roots and ethos that lie at the core of the initial Web 2.0 intentions, but blatantly exploits them.[ii]

This is not to criticise the web, simply to highlight one aspect of control built into it as a technical system and the affordances this offers; one of which is the ability to profit from the free labour of those who sign up to these services. Web 2.0 is able to capitalise on and market a certain form of protocol in the network. This protocol enables companies to appropriate the content created by its users—the antithesis of an open, democratic network.

When we recognise this, we see that the purported democratic nature of Web 2.0 must necessarily be false at an ontological level.

Although the Web 2.0 behemoths pay lip service to the open source ethic by offering limited access to some of their frameworks and data (as mentioned above) this should not be mistaken for true openness. These are not distributed networks, but centralised,

controlled, owned and policed corporate systems. Although Rupert Murdoch's ownership of Myspace is well publicised, the neo-conservative values of the owners of Facebook is less well known (Hodgkinson, 2008). Even less well known is asmallworld.net, the highly elitist global social network which boasts the membership of the likes of Tiger Woods and Naomi Campbell. With membership only available to those invited by a 'trusted member' this is a paradigm example of the non-democratic and highly corporate nature of web-based social networks. The advertising blurb on the asmallworld website reinforces this:

> As an exclusive network of like-minded individuals with an appreciation for quality in life, ASMALLWORLD offers a rare opportunity to reach and interact with a discriminating global community of opinion makers. (asmallworld, 2008)

With the realisation that these social networks are, by the very nature of the technology used, not necessarily democratic, comes the need to ask whether what is happening on them is merely a mapping of existing sociality. Or, if new forms of the social are being constructed, in what ways are existing forms of sociality being undermined or elided by the limitations and protocols of the technical systems?

One response to this is given by Jodi Dean in her explication of Communication Capitalism which:

> designates that form of late capitalism in which values heralded as central to democracy take material form in networked communications technologies. Ideals of access, inclusion, discussion and participation come to be realized in and through expansions, intensifications and interconnections of global telecommunications. (Dean, 2005)

What Dean describes here is just one of the many utopian strands that runs through theorising about online communications. However her diagnosis is less than positive; for Dean the sheer volume of content online counters any possibility of the realising of these purported inherent democratic qualities in networks (a phenomenon Dean calls the 'fantasy of abundance').

As we have already outlined, Web 2.0 websites are gated databanks of the much-vaunted User Generated Content, the result of the free labour of contributors from which the multinational owners build their revenue streams. It is due to what Dean calls the 'fantasy of participation' that individuals continue to submit their content freely in the belief that they are communicating a message rather than just adding more content to the already torrential 'infostream'.

A new digital divide is thus created between those with the access to create repositories of user data and those who are mere content creators.

To analyse these networks coherently therefore requires more than the discussion of a meme. It demands the tracking of flows and relations, of material, cultural, economic, historical and technological factors, and how these transform one another.

One current debate that brings to the fore some of these often overlooked areas when discussing networks is that of network neutrality. The very real threat of the creation

of an Internet tiered in terms of speed and access, and dependent on the ownership and control of physical infrastructure and content, highlights the importance of the hardware and software upon which the net operates. In this instance the ethos of openness, which enabled the current crop of new media companies to develop, is under threat from the demands of some of those same companies, along with traditional media organisations that have bought into the web, and some technology companies who own the actual physical networks along which data flows. This threat of the imposition of corporate hegemony upon the level of openness and access (that enabled the innovation that created the richness of the net we see today) is just one example of the need to trace the complex web of relations that underlies the net ecology.

Our analysis of network phenomena such as Web 2.0 needs to develop beyond discussions about the veracity of themes such as collective intelligence, folksonomy and mashing-up (as interesting as these may be), expanding to take into account the structures, protocols and flows of power that are in operation. As such, the 2.0 suffix becomes one actor in the network of study, and not a useful term for explaining the phenomenon it attempts to name.

Additionally we need to wrestle with the tectonic shifts that push and pull beneath the surface of online culture, often slowly, but sometimes threatening to disrupt the structures already in place. If Media Studies is to engage coherently with network culture then there is an increasingly complex and developing ecology to engage with: Protocols (DNS, TCP/IP); encryption; programming and scripting languages (their histories, usage and rationale); P2P; proprietary, open-source and free software; hackers, phreakers and l33chers; sysadmins and network surveillance; standards and the bodies that agree them; dark fibre, copper and optics; MMORPG's; military r&d; cybernetics; issues networks; the crushing of the independent internet service provider; the economics of digital storage (who will write this history and just as importantly who will archive it?); venture capital, marketing and economic bubbles; techno-pagans, transhumanists and even tele-dildonics… to name but a few of the flora that warrant investigation and interact with each other. In the face of such diversity it is hardly surprising that some are frozen by anxiety and overwhelm.

3. Applying the cultural principles of Web 2.0

In light of the emergence of the '2.0' suffix, as both a technologically and non-technologically based phenomenon (although separation is difficult), we can now examine whether the 2.0 suffix in other domains is either coherent, useful or even legitimate.

As previously mentioned, one application relevant to the Humanities is that originally used by David Gauntlett when he argues the case for 'Media Studies 2.0' (also see Merrin, 2008). Although Gauntlett's application of the principles behind Web 2.0 regarding his proposed new approach to Media Studies is timely and valid, is the use of the 2.0 suffix similarly appropriate, or might the real issues be in danger of becoming obscured beneath 2.0 glamour? As Belinda Barnett wrote in an interview with Simon Mills recently:

> The idea of Media Studies 2.0 is quite funny; is that where the students collaboratively write the course material and give the lectures to each other? (Barnett, 2007)

For Gauntlett, Media Studies 1.0 is described by the canonical (fetishizing 'expert' readings) and conventional, with a traditional media focus and anti-corporate stance. Media Studies 2.0 is outlined as focussing on 'the everyday meanings produced by the diverse array of audience members', an interest in the '"long tail" of independent media projects such as those found on YouTube', globalisation and a focus away from the 'super-powerful media industries'. This shift sounds like that already undertaken in discussions of the postmodern, and there is certainly no shortage of debate concerning globalisation, networks and user-generated content within the field of cultural studies.

Further, it is naive to think that we should take our eye off the 'super-powerful media industries' when it is they who are exploiting the open source movement and dominating or buying up the remaining non-corporate networks via the sheer force of capital.

Given the postmodern slant of the ideas behind Media Studies 2.0, it may actually be misleading to use a 2.0 suffix that speaks of 'advancement' and 'progress'—just the kind of narratives being abandoned! What’s more, there may be a chance here to highlight the centrality of the technology as a site of explanation in Media Studies and to begin to examine the workings of the formerly neutral 'black box' (to borrow the usual description) through which communication occurs.

In short: Network Media Studies might be a more durable term than Media Studies 2.0.

Other areas where the application of the 2.0 suffix is in evidence include 'Enterprise' or 'Business 2.0' (how business uses social software applications), 'Health 2.0' (allowing consumers to get better value healthcare for their money by using wikis, podcasts and RSS), 'Law 2.0' (making legal documents available online) and even 'Cinema 2.0' (filmmaking based on mass, networked collaboration). Yet—as mentioned earlier—the 2.0 suffix itself and the Web 2.0 meme in general do not enable any grounding of the analysis of these media.

Gauntlett's original essay identifying the weakness of 'traditional' media studies marked the point at which the 'anxiety' of new media educators and theorists began to coalesce. Although media knowledge now needs to be current enough to inform the pedagogy and to contextualise emerging web trends within the longer history of computing, educators and theorists are not always technically experienced, qualified or even inclined. Yet they are nevertheless obliged to understand an increasing abundance of technological phenomena produced by the marriages and tensions between the programming and commercial cultures that have not only brought about the conditions for 'Web 2.0', but also furnished the student populace with a barrage of new methods of communication media (as mentioned earlier, the fact that they take this for granted does not imply skill in manipulating the technology). If this barrage is not to become the feared tide of overwhelm, it is essential that media theorists and educators increasingly engage with—if not the technology itself—the histories, cultures and contexts that produced the paradox of a version number as a metaphor for

progress, or even begin to form interdisciplinary frameworks within which such shifts can be discussed; perhaps by going deeper towards integrating the science behind the drivers of the technology and the real origins of these shifts—after all, the first Wiki has now survived for over a decade, and complexity theory has become a well-established area of research in many other fields.

Conclusion

We have demonstrated how the actual principles and cultural shifts behind 'Web 2.0'—rather than the suffix—are the real drivers behind the phenomenon. Yet it remains to be seen whether these ideas are (for instance) pedagogically sound when applied to fields such as New Media education. Are we seeing the kind of response to complexity theory that became embodied in the Agile Manifesto, or—as in the '2.0' suffix—simplistic borrowings that fail to contextualise the real impact of the interdisciplinary sciences on web technology and culture? If there are parallels to the 'Agile Manifesto' in New Media education or theory, perhaps these are distributed in a generalised awakening to the underlying shifts, rather than being embodied in a manifesto. If this is the case, the adoption of 2.0 suffixes that force expectation of a coming 3.0 and a previous 1.0 must be seen as trivial or—at best—temporary responses to an anxiety in the face of the new. Or perhaps, more accurately, an overdue admission of failure to keep abreast of some of the most important shifts in science as they have influenced the directions taken by the new media with which educators and theorists are now struggling to manage, teach and contextualise. At least, we hope to have highlighted the mistake of applying a 'version number' and consequent notions of 'progress' to cultural shifts that speak more of a complex alliance of social, technological and commercial aims, often obscured beneath either the zeal of new media evangelism or dystopian foreboding.

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Endnotes

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[i] There seems a parallel here with the conceptualisation of the human as 'servomechanisms within a single system' (Gallinson, 1994) within the work of early cybernetics. Indeed the main problem in Weiner's seminal Anti-Aircraft project was predicting the actions of the enemy human pilot. In some respect the 'user' may be seen as the enemy of the clean abstractions of computer science!

[ii] One example of venture capitals appropriation of the open source was given by Gil Penchina of Wikia, who in his presentation at the *Le Web 3* conference said: "the Web 2.0 . . . is really about enabling *our customers* to have more control over *their* media, more control than the big media is really comfortable with". He went on to consolidate this position with an enthusiastic description of an open-source content initiative which he ends: "we thought this was a pretty exciting idea so we bought the company last week" (Penchina, 2006)