What is 'digital literacy'? A Pragmatic investigation.

BELSHAW, DOUGLAS,AJ

What is ‘digital literacy’?

Douglas A.J. Belshaw

What is digital literacy? A Pragmatic investigation.

A thesis submitted in 2011 to the Department of Education at Durham University by Douglas Alan Jonathan Belshaw for the degree of Doctor of Education (Ed.D.)

Declaration

This thesis is the sole and original work of Douglas A.J. Belshaw.

Copyright statement

Abstract

Digital literacy has been an increasingly-debated and discussed topic since the publication of Paul Gilster's seminal *Digital Literacy* in 1997. It is, however, a complex term predicated on previous work in new literacies such as information literacy and computer literacy. To make sense of this complexity and uncertainty I come up with a 'continuum of ambiguity' and employ a Pragmatic methodology. This thesis makes three main contributions to the research area. First, I argue that considering a plurality of digital *literacies* helps avoid some of the problems of endlessly-redefining 'digital literacy'. Second, I abstract eight essential elements of digital literacies from the research literature which can lead to positive action. Finally, I argue that co-constructing a definition of digital literacies (using the eight essential elements as a guide) is at least as important as the outcome.

Contents

Table of Figures

Preface

For me, and in this thesis I do intend to use the personal pronoun, this is a *lived* thesis. It has been so intertwined with my life and thinking for the last few years that I cannot consider it in a detached, abstract and purely academic way. Researching, writing and debating the ideas contained in the 60,000 words contained here began at a time when I had just begun my teaching career. Now, at the time of finishing this thesis, I have worked in three different schools, experienced Senior Management, subsequently left the teaching profession, and now work in Further and Higher Education. Along the way, the time I have devoted to my doctoral studies have caused me intense pleasure, changed my worldview, and helped me reflect on what it is that I do (and want to do) for a living. It has also meant periods of time away from my wife and the two children that were born to us during the time I have been working on this thesis. The following words have therefore caused me both pleasure and pain.

I had never intended to become a teacher. My father was Deputy Headmaster of the school I attended between the ages of 13 and 18. We moved up to Northumberland when I was four years old and he spent the evenings whilst my sister and I were young to work on both his Diploma in Educational Management and MA through the Open University; I saw the amount of work he (had to) put into his occupation. But, at the end of my third year studying Philosophy at the University of Sheffield (a revelatory experience after my retrospectively-disappointing schooling), my father counseled me to undertake a PGCE (Post Graduate Certificate in Education). His advice was that I could always 'fall back on teaching' my other plans did not come to fruition. It was good advice: I *loved* it.

A degree in Philosophy does not grant one access to a History PGCE at Durham University, meaning that I had (in the year before I was married) to undertake a self-funded MA in Modern History. This entitled me to access onto the PGCE in Secondary History course at Durham which, as it turned out, counted as the first year of an MA in Education. I decided to continue this Masters into my first year of teaching. Being, perhaps, somewhat naïve, I ended up at a school that merged with one in Special Measures at the beginning of my NQT (Newly Qualified Teacher) year. By the end of that first year, the stress and lack of support I received meant I approached Durham University to discontinue my MA studies.

Thankfully, I was persuaded otherwise. My grades were sufficiently high to warrant transferring onto the Ed.D. Doing so, I was informed, would ease my short-term workload. I acquiesced, and caught up with the required modules in the following year at the International Summer School (itself a fantastic experience). It was around this time that my interest in digital literacy was piqued.[1] From the beginning I have shared my work online, first through blogging and then at a dedicated website[2]. I am committed to open educational practice after being inspired by the continuing generosity of educators such as Stephen Downes[3] who make their work available online in a free and openly-licensed way.

Being open and transparent in life is a luxury. It is dependent upon *so many* factors that I often take for granted. The first aspect of my life and recent years I have too often taken for granted is my family. My parents, in particular, have been my biggest cheerleaders over the years, both towards my academic and 'extra-curricular' achievements. Without their encouragement, as well as their emotional and financial

[1] See Appendix 2.
[2] http://dougbelshaw.com/thesis
[3] http://downes.ca

support, I would not have completed this thesis. Although my wife found it difficult in the early years of our marriage to understand why I would want to carry on studying, she has (especially since the birth of our first child) given me space to research, think and write. Without being afforded this space I could not have written anything of value that may be found in the following. You can understand, therefore, why it is not merely for reasons of tradition that I dedicate this thesis to my family.

It is not, however, just my family to whom I would wish to pay tribute. First, and although I dislike the term I know of no better to adequately describe it, I'd like to thank my 'PLN' (Personal Learning Network). The people who support and interact with me daily through social networks such as Twitter really do make a difference to my life.

Secondly, and although effectively anonymous, I would like to acknowledge in some way the unknown people who have made my life easier as my academic studies have progressed. Researching and writing in 1999 was a very different experience to doing so in 2011.

I can remember being introduced to 'the stacks' in the Main Library at the University of Sheffield (1999-2002) where, by the time I got to the third year, I was having to spend a good deal of time hunting out journal articles. JSTOR was the only real option for electronic journals, but unfortunately the majority of those I wanted or needed were not available through this service.

During the time I worked on my MA in Modern History (2002-3) the situation had improved slightly, although the majority of work for that degree involved digging into archives in Newcastle getting my first taste of original research. I rarely visited Durham due to inter-library agreements instead spending my time with a newly-purchased laptop in the Robinson Library at the University of Newcastle. This was a turning-point.

By the time I started working on my MA in Education as a continuation of my PGCE (2004 onwards) it became less and less likely that I needed to be physically present in a university library to do my work. Apart from the demands of my first Ed.D. supervisor meaning I had to travel up to Durham for our tutorials, I could research and write from my home in Doncaster with little more than a laptop, an internet connection, and my Durham University user ID.

The situation in higher education as I write (2011) is, to my mind, extremely conducive to high-quality, collaborative and open work. There has been a rise in open-access journals[4], and video conferencing facilities such as Skype mean I have not met Steve Higgins, my current (extremely accommodating, encouraging and flexible) supervisor face-to-face for more than two years. Battery life on laptops and tablets, 3G data connections, and software to organise both research and writing make working from anywhere not just a possibility but an everyday reality.

I have worked hard on this thesis over a sustained period of time. If and when I am successful in submitting this thesis and satisfy the requirements of my *viva voce* I will, indeed, have 'earned' my doctorate. But there are tens of thousands of people in this country, and millions more all over the world, for whom working hard isn't enough to be successful in life. I am *fortunate*. I am fortunate that the poor decisions I have made in life have not had serious repercussions. Others are not so fortunate. I want to use this preface as a marker to my future self not to forget that. To a great extent I can be considered the product of my environment(s).

I am, then, ultimately scaffolded in my research and writing by a whole system that I have only recently come to recognise and value. I think the African humanist

[4] I have decided that open access journals will be the sole outlets for my academic articles.

philosophy of *Ubuntu* sums this up well, ‘I am what I am because of who we all are.’

Long may that last.

Douglas A.J. Belshaw

September 2011

Chapter 1: Introduction

'It is a common point from which I start; for there again and again I shall return.'
(Parmenides)[5]

This thesis will focus on the emerging concept of 'digital literacy'. It will be my contention that, as psychologist Steven Pinker puts it, 'some categories really are social constructions: they exist only because people tacitly agree to act as if they exist' (Pinker, 2002, p.202). Borrowing tools from the Pragmatist tradition, I will analyse definitions of literacy in terms of their utility. In addition, I will explore the ambiguous nature of 'digital literacy'. As we shall see, although a consensus is growing around the term 'digital literacy', other competing ways of describing a similar conceptual space have emerged. This is partly due to a lack of clarity over the seemingly-straightforward term, 'literacy'. The question that I will ask, therefore, is whether metaphorical conceptions of literacy (such as 'digital literacy') are 'good in the way of belief'? That is to say, are they are useful *conceptual tools?*

[5] The quotations from pre-Socratic philosophers introducing each chapter (taken from Kirk, Raven & Schofield, 1957; 1999) are a tribute to Dr. Stephen Makin, an inspirational lecturer in pre-Socratics at the University of Sheffield who, along with his colleagues, inspired me to educate others. The word clouds are created using http://wordle.net with the size of the word indicating its frequency in the chapter.

When dealing with such conceptual spaces, metaphor and new ways of communicating experience and sensation, it makes little sense to talk of 'reality' and, indeed, 'truth'. More phenomenological and philosophical depth will be provided later, but it would seem clear that descriptions and talk of 'digital literacy', 'digital competence', 'digital fluency' and so on are of a different order than 'sky', 'chair', and 'lamp'. There is a qualitative difference: the first seeks to be a lens in the way the second does not. It is the lens of 'digital literacy' that this thesis will discuss, the aim being to seek to describe the changing landscape and terminology surrounding such conceptions. I am more interested in conceptualising digital and new literacies without recourse to particular semiotic domains. As a result, whilst the work of (for example) Lankshear and Knobel around 'fanfic' affinity spaces and Merchant around literacy in virtual worlds is interesting, it is not of immediate and particular relevance to this thesis. As I have a rather constraining word limit, I shall have to be ruthless.

In Chapter 8 I consider the 'digital' part of 'digital literacy' (see sub-section 'Digital Epicycles') considering it as the verb instead of the adjective. Throughout the rest of the thesis, however, my focus is primarily upon 'literacy' as the verb and 'digital' as the adjective. The practical and, dare I say, *pragmatic* reason for avoiding a detailed discussion of what constitutes the 'digital' element of 'digital literacy' is that I could not have done the topic justice in the space I have available here.[6] Going off on a 'digital' tangent would have also made the work less practical and accessible for the 'man on the street' (or the teacher in the classroom) than it already may be. I intend for this to be a practical, *useful* thesis.

To avoid the quagmire of correspondence theories of truth (i.e. statements are true in so far as they correspond to the external world) and problems relating to solipsism (all

[6] I can recommend Goodfellow (2011) as a useful introduction to this area.

that exists is in the mind of the individual), this thesis will employ a Pragmatic methodology that I outline in Chapter 6. The Pragmatic way of approaching the world was first suggested in the 19th century by C.S. Peirce and developed by William James and John Dewey.[7] Although there are disagreements within the Pragmatist movement, James perhaps has been the clearest exponent of classical Pragmatist philosophy. He argues that there is no 'end to enquiry' and that we 'must bring out of each word its practical cash-value, set it at work within the stream of [our] experience' (James, 1995, p.21). 'Truth,' especially when it comes to intangible definitions and somewhat nebulous concepts, becomes a fluid and almost *negotiable* commodity.

This meshes with the phenomenological account I shall present later; if we socially-construct what we term 'reality', then changes in human relationships will alter our conceptual 'realities' and vice-versa. Pragmatists, without needing to hold onto a correspondence theory of truth do, however, reject the notion that the conceptual and practical realms are completely divorced. As William James puts it:

> 'There can be no difference anywhere that doesn't make a difference elsewhere - no difference in abstract truth that doesn't express itself in a difference in concrete fact and in conduct consequent upon that fact, imposed on somebody, somehow, somewhere and somewhen.'
>
> (James,1995, p.20)

With regard to this thesis, therefore, discussions that either make no difference or *could* make no difference in practice will either be mentioned only in passing or disregarded entirely. Not only do metaphorical uses of literacy need to have some descriptive power, but they must allow for actions that make a difference in practice. Although this is a non-empirical thesis, what follows in subsequent chapters is intended

[7] See Louis Menand's *The Metaphysical Club* for an excellent overview of the early Pragmatist movement.

to be of use and be able to inform policy-makers. There are many and varied ways to approach a doctoral thesis and to a great extent I am guided and constrained by both my educational and employment history as well as my central interests. Given the scope of this thesis I have stuck to a relevant, rigorous and familiar methodology. Where definitions and conceptions of 'digital literacy' are tested and found wanting, then I shall propose another way of framing the concept that can be used as a lens for educational provision. This will be explored in Chapter 9.

As my thesis has been available online[8] since I began to write it, I believe it is important to spell out what I consider to be my original contributions to knowledge and how I solve some of the problems of this particular research area. Publishing as I go in this way has allowed me to gain valuable feedback from educators and academics around the world but remains an unusual way to write a doctoral thesis. Chapters 5, 6 and 9 are critical in this regard as they contain what I believe to be three original insights. The first and most important of these comes in the form of a 'matrix of essential elements' of digital literacies that I set out in Chapter 9. I believe that this structure, which can be contextualised and interpreted by individuals and institutions, builds upon and adds significantly to the all-too-slim body of work attempting to bridge the gap between research into New Literacies and everyday educational practice.

Secondly, Chapter 5 sets out a spectrum of ambiguities upon which various definitions of concepts such as digital literacies can be placed. As I argue in that chapter, and elsewhere in the thesis, ambiguity surrounds us and is not a necessarily negative thing. Positioning definitions of digital and new literacies on a spectrum of ambiguities can lead to varying results. Used strategically this can lead to benefits for communities, institutions and individuals.

[8] http://dougbelshaw.com/thesis

The methodology used in this thesis, derived from the philosophical tradition of Pragmatism, constitutes the third original contribution of this thesis. Chapter 6, placed at the mid-point of this thesis is pivotal as it constitutes a new way of conceptualising and framing work in the digital and new literacies arena. As I argue, using the work of Pragmatic philosophers such as Peirce, James, Dewey, Quine and Rorty allows us to ask questions such as whether a definition is 'good in the way of belief' and understand that concepts are often understood through metaphor or analogy. Definitions, I shall argue, help produce 'habits of mind' but these definitions need to be *co-created* to have power. One of the reasons for locating the methodology chapter mid-way through the thesis is to demonstrate that, to a great extent, academics, theorists and practitioners have been largely asking the right sort of questions but with the wrong conceptual tools and approach.

Although the above three chapters constitute what I believe to be original insights, the remaining chapters are important for developing my overall argument that we should be talking of digital *literacies* rather than an overarching 'digital literacy'. In Chapter 2 I show that digital and new literacies are understood in different ways around the world, making the terms problematic. This, however, as I argue in Chapter 3, is not something peculiar to *new* forms of literacy as traditional (print) literacy is not a straightforward concept. Chapter 4 charts the history and evolution of the term 'digital literacy' as in many ways it is inextricably linked with other (new) forms of literacy. After introducing a spectrum of ambiguities in Chapter 5, and giving a rationale for my use of a Pragmatic methodology in Chapter 6, I use Chapters 7 and 8 to apply this methodology to the arena of digital and new literacies. As mentioned earlier, in Chapter 9 I introduce a matrix of digital literacies before, in Chapter 10, concluding.

Chapter 2: New forms of literacy worldwide

'But if cattle and horses or lions had hands, or were able to draw with their hands and do the works that men can do, horses would draw the forms of the gods like horses, and cattle like cattle, and they would make their bodies such as they each had themselves.'
(Xenophanes)

Given that this is a non-empirical thesis aiming to be practically useful, a strong rationale for the enterprise needs to be given from the start. Not only, therefore, will the traditional literature review be spread across the opening chapters but, in addition to the research literature, it is important to see what is happening in practice around the world with digital and new literacies. This chapter, therefore, surveys the recent and current state of play with policies in various countries around the world, starting with the stimulus for most of this activity. Although we will find that the varying contexts make for differences in emphasis, there is a common core that makes possible my case for a 'matrix of elements' in the closing chapter.

My decision to include this chapter centres around my hope and desire for this to be a practical, *useful* thesis, as befits a professional doctorate. Problems around digital literacies are not dry, academic problems but real-world, everyday issues affecting

individuals, organisations and communities worldwide. Before embarking on a project to find a better ways to deal with digital and new literacies I believe it is important to investigate the ways in which different countries and cultures have approached the problem. Whilst this is limited by my ability to read and write in one language reasonably well and another particularly badly it is nevertheless more representative than focusing on my own narrow educational experiences.

The explosive growth in use of digital technologies for learning has left subject disciplines, government agencies and many practitioners with a problem. First, what do they call these new skills that are evidently required to function adequately in today's society? Second, how can these new skills be taught? And third, who is best placed to deliver these skills? As I show, countries have dealt with these questions in different ways. In what follows we will briefly explore the history of 'new literacies' in selected countries, the current status of new literacies, the dominant *form* of new literacy (e.g. Media Literacy, Digital Literacy), and finally manifestations of new literacies in public bodies, pronouncements and policy documents.

The countries included in this overview have been chosen for the following reasons. Singapore has a history of investment in ICT within education since the end of the last century with English as one of their official languages. As an Asian country they provide a different perspective to that of the UK. Norway is seen internationally as a pioneer in the field of 'digital literacy' having built elements of it into the foundation of their school curricula. The European Union funds many initiatives including those relating to new literacies. These are referenced in UK and Norwegian literature and demonstrate some of the different ways in which new literacies are considered within Europe as a whole. Finally, the USA and Australia are considered as different contexts within which New Literacies are manifested in the English-speaking world.

The European Union

The European Union (EU) is an evolving meta-organisation of countries in an area which changes in size as new member countries are admitted. The European Commission (EC) represents the general interests of the EU and 'is the driving force in proposing legislation (to Parliament and the Council) [and] administering and implementing EU policies' (http://ec.europa.eu). As such, it can be expected that a wide range of initiatives and groups are funded by the EC given the different contexts within the EU.

Despite much equivocation in terms relating directly to what researchers deem 'new literacies' the EC has funded a coherent body of work on the concept of 'e-competencies'. This is, for the most part, linked directly to lifelong learning (a favourite of the EC), ensuring equality of access (especially for women) and boosting skills relating to employability and the economy. Almost everything related to the creation and consumption of digital media is included within discussion of 'Media Literacy'. This latter term includes input from many stakeholder groups, especially the UK Office for Communications (Ofcom).

Digital literacy is seen mainly as a basic skill within the European context, despite EU-funded work as part of the DigEuLit project (2004-6)[9] including 'innovation/creativity' as the highest level of such a literacy:

[9] This work was originally available at http://digeulit.ec but this domain is no longer active. Further details are available at http://www.elearningeuropa.info/cs/node/2551

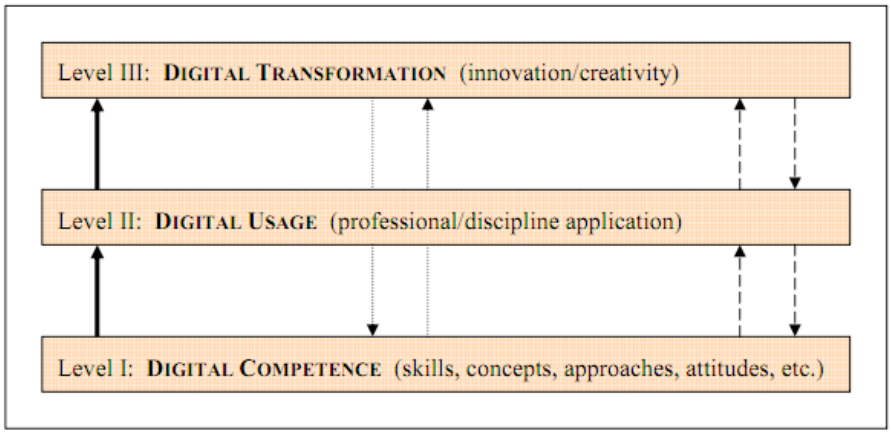


Figure 1 - Levels of Digital Literacy

This research and synthesis, however, was carried out by academics operating within the wider international sphere of new literacies research. Europe's Information Society Thematic Portal, on the other hand, talks of 'ICTs affecting our lives every day' meaning that:

> 'To participate and take advantage, citizens must be digitally literate - equipped with the skills to benefit from and participate in the Information Society. This includes both the ability to use new ICT tools and the media literacy skills to handle the flood of images, text and audiovisual content that constantly pour across the global networks.'
>
> (Europe's Information Society Thematic Portal, 2007)

It is evident from the above definition that digital literacy and ICT literacy are considered to be one and the same thing. The text goes on to explain how digital literacy is part of the EC i2010 Strategy's 'emphasis on Inclusion, better public services and quality of life' but that 'this is not just about Inclusion - ICT-related skills are vital for the competitiveness and innovation capability of the European economy.' For the EC, therefore, digital literacy is bound up with global economic competitiveness and closing what is often referred to as the 'digital divide'.

This treatment of digital literacy as an aid to social equality and economic competitiveness is exemplified in a blog post from 2010 by Neelie Kroes, Digital Agenda Commissioner:

> 'I want to assure you that I take digital literacy seriously. Your background, current lack of skills and other factors like a disability should not be a permanent barrier to enjoying the benefits of the digital era.
> …
> The core is obviously integrating digital competences more effectively into our education and training systems - so that digital literacy is seen as a part of literacy in general.'
>
> (Kroes 2010)

This is the only post in which digital literacy is mentioned on the whole European Liberal Democrats blog and it is evident that, for Kroes, 'digital literacy' and 'ICT literacy' are one and the same thing. Kroes no doubt was informed by a 2008 'e-Inclusion Ministerial Conference & Expo' in Vienna at which a 'Digital Literacy European Commission Working Paper' was presented along with 'Recommendations from Digital Literacy High-Level Expert Group' (EC 2008) This report considers digital literacy to be 'the skills required to achieve digital competence, the confident and critical use of ICT for work, leisure, learning and communication' (p.4) but equivocates by equating digital literacy to 'internet skills' and 'using a computer' in places.

The EU's low-level definition of digital literacy is backed up by the EC's 'Eurostat' glossary which explains after giving the EC's standard definition that:

> 'Digital literacy is underpinned by basic technical use of computers and the Internet. To measure this, the Community Survey on ICT usage in households and by individuals asked if respondents had carried out six basic computer and six basic Internet activities. Those who had done 5 or 6 were classed as highly skilled, 3-4=medium; 1-2=low; those who had not carried out any of the activities, were considered as having no skills.'
>
> (European Commission, no date)

In the European context, therefore, digital literacy is a poor cousin to the more dominant cousin of media literacy. Whilst definitions of digital literacy almost always include elements of criticality and reflection, project reports tend to instead emphasise and stress 'e-inclusion'. Discussions around media literacy, for reasons explained in the next section on the UK, are more co-ordinated and focus much more on the critical and reflective elements of new literacies.

The EC defines media literacy in the following way:

> 'Media literacy is the ability to access the media, to understand and to critically evaluate different aspects of the media and media contents and to create communications in a variety of contexts.'
>
> (EC Media Literacy Portal, no date)

Whilst this is again contextualised in terms of 'active citizenship in today's information society' there is, importantly, mention of individuals *creating* something in the definition. Instead of media literacy, like digital literacy, being about accessing other people's content it is, at least partly, about creativity.

From 2000 to 2010 EC work towards both digital literacy and media literacy was framed by the Lisbon Strategy. This was almost universally recognised as a failure. In fact, progress was so poor by 2004 that a report stated that the 'disappointing delivery is due to an overloaded agenda, poor coordination and conflicting priorities' with a key issue being 'the lack of determined political action' (Kok 2004, p.6). As we will see in the UK section, this has meant that work around digital literacy has suffered, whilst organisations and pressure groups have taken up the banner of media literacy.

The Lisbon Strategy i2010 was relaunched in 2005 with a package of policies called i2010 which was aimed at 'harnessing the potential of ICT to drive innovation and productivity in Europe'. The increasingly target-driven strategies meant that 'soft' skills

such as new literacies became less of a priority. From 2008 and the economic crisis onwards, this became even more apparent.

However, a new 10-year strategy, *Europe 2020*[10], was launched in 2010. Focusing almost exclusively on sustainability and growth, it mentions digital literacy only once and even then only in relation to 'increasing access' (European Commission 2010). This, coupled with another failure to ensure binding agreements looks set to doom this strategy to the same fate as the Lisbon Strategy of 2000.

The United Kingdom

The UK, despite its semi-detached position, necessarily has a symbiotic relationship with EU policy as an EU member state. Whilst pockets of discussion about 'digital literacy' exist both in official reports and online, the main focus around new forms of literacy in the UK is upon 'media literacy'. Initiatives in this area include bodies such as the BBC, Ofcom, UK Film and the British Library. Bodies such as Futurelab[11] mention digital literacy often in their publications but, as is the issue with all such externally-funded bodies, the money tends to follow echoes of government pronouncements and policies.

Following the *Digital Britain* report (DCMS & BIS, 2009) the aim of the UK government was to promote 'digital participation'. The follow-up plan was to encompass 'three distinct but interdependent strands': digital inclusion, digital life skills, and digital media literacy – with the latter defined as 'the ability to use, understand and create digital media and communications' (DCMS & BIS, 2010). However, the National Plan for

[10] http://ec.europa.eu/europe2020/index_en.htm
[11] http://futurelab.org.uk

Digital Participation was ill-fated, launching only a few months before a General Election saw a change of government. The Digital Participation website,[12] set up alongside the National Plan, now states:

> 'As part of the major review of public expenditure, the Government has re-scoped the digital participation programme. The limited funding which is now available will be focused on supporting the activities to encourage people to go online and led by the UK Digital Champion, Martha Lane Fox.'

The institutions mentioned above have staked their claim in the arena of new literacies. Media literacy, the promotion of which since 2003 has been the responsibility of the Office of Communications (Ofcom)[13] is considered separately from 'digital participation'. The latter, more narrowly defined since the advent of a Conservative-Liberal coalition government, is concerned with connecting all homes with broadband by 2012. The Race Online 2012 website (http://raceonline2012.org) sets out a manifesto with two key aims, 'no one should retire without web skills' and 'everyone of working age should be online'. Curiously, the 'manifesto' makes no commitments by the government, rather seeking to 'challenge' individuals and organisations in the UK to meet these targets. Some may call this empty rhetoric as no firm plans, funding or milestone targets have been put in place by which the government can be held to account.

Evidence of the UK government's low-level basic skills definition of 'digital literacy' can be found in the pronouncement within the Race Online 2012 manifesto:

> 'Digital literacy is a great enabler of social mobility. It is a way for those who have had bad experiences of institutions to re-engage in learning. And it can break down feelings of social isolation. It is a powerful weapon in the fight against poverty.'
> (Rt. Hon. Iain Duncan Smith, Secretary of State, Department of Work and Pensions)

[12] http://digitalparticipation.com
[13] http://www.ofcom.org.uk

‘Using a computer connected to the internet’ and ‘digital literacy’ are seen as synonymous not only in this manifesto, but in wider publications by the government. The critical element of literacies of the digital is served by discussion of ‘media literacy’ with ‘digital literacy’ reserved for basic skills:

> ‘‘Get Digital’ will work with residents, scheme staff, RSLs and the wider community including local schools, as well as DWP, to promote, deliver and sustain digital literacy skills for older residents in sheltered housing.’
>
> (DCMS & BIS, 2010, p.43)

In 2004, after a Communications Bill that would lead to Ofcom, the UK Film Council and Channel 4 organised a seminar entitled *Inform and Empower: Media Literacy in the 21st Century*. This seminar, attended by two hundred delegates including representatives from the BBC, the British Film Institute, ‘government, Ofcom, industry, education, [and] media arts organisations’ (UK Film Council, 2004, p.2), was addressed by the Secretary of State for Culture, Media and Sport. Whilst the introduction by the Chair of the UK Film Council espouses a standard definition of media literacy (‘learn[ing] about the power and influence of moving images’ – UK Film Council 2004, p.3) the report of the Secretary of State’s address shows signs of the basic skills definition the UK government later settled upon implicitly for ‘digital literacy’: ‘It is the content delivered to people that matters’ (UK Film Council 2004, p.8).

This seminar led to the creation of a Media Literacy Task Force (MLTF) with membership comprising the BBC, the British Board of Film Classification, the British Film Institute, Channel 4, ITV, the Media Education Association, the UK Film Council and Skillset. The MLTF came up with the following wide-ranging definition of media literacy:

> ‘A media literate society is… not a luxury, it is a necessity in the 21st Century – for social, economic, cultural and political reasons – as we try to make sense of a sea of Reality TV, iPod downloads and streaming video on the Internet.
>
> This is what encouraging media literacy is really all about: giving people the choice to communicate, create and participate fully in today’s fast-moving world. And this will help create a society in which everyone is enfranchised – whatever their economic, social and ethnic background – and in which the UK’s creative and knowledge economies are able to draw upon the widest possible bank of creators and producers.’
>
> (http://www.medialiteracy.org.uk/medialiteracy)

It is arguably this all-encompassing, ‘umbrella’ definition of media literacy and its subsequent formalisation and dissemination through the form of a charter that has marginalised the kind of ‘digital literacy’ initiatives seen elsewhere in the world. The MLTF, disbanded as of December 2009, promulgated the charter to other EU member countries with Austria, Belgium, France, Germany, Portugal, Spain, and Sweden also becoming signatories to the identical European Charter for Media Literacy.

Given that the MLTF no longer exists and digital literacy in anything other than a ‘basic skills’ sense is not currently part of the UK government’s financially-crippled ‘digital participation’ plan, it is difficult to see from where the critical element of new literacies will come. Whilst, as we will see in Chapter 7, some work by JISC[14] and others has pointed the way in the educational sphere, the momentum, interest and willingness of other nations who have embraced digital literacy is lacking. Initiatives, reports and resources such as *Film: 21st Century Literacy*[15] by the UK Film Council have meant that the room for discussion about digital literacy, and its relation to media literacy, remains limited.

[14] JISC originally stood for the ‘Joint Information Systems Committee’ but now stands alone as the name of the organization.
[15] http://www.21stcenturyliteracy.org.uk

Norway

Norway is often held up as an example of how to integrate digital literacy into a nationwide school curriculum. A four-year programme from 2004 to 2008 was sponsored by the Norwegian government, aiming to provide 'Digital literacy for all' (Kunnskapsdepartementet, no date). Investment in infrastructure and a focus on using ICT in learning activities was underpinned with a mission to enable Norwegians to use ICT to be 'wealth creators'. Norway's focus on digital literacy, therefore, as with the wider EU focus, was upon inclusivity and employability.

An educational reform known as *The Knowledge Promotion* led to digital literacy being given 'important and historical status' in the Norwegian national curriculum. It became the 'fifth basic competence' along with reading, writing, arithmetic and oral skills, being mandatory in every subject at every level of compulsory schooling. Norwegian, however, does not use the word 'literacy' in the same way as it is used English, meaning that 'competence' and 'literacy' are used almost interchangeably.

In 2007, Almås & Krumsvik found that many of the pronouncements by the Norwegian government consisted mostly of ideology and rhetoric:

> '[T]here is reason to believe that despite the government's good intentions, the 'ICT pedagogy' is more strongly anchored in rhetoric than in practice. Essentially, Norwegian teachers are doing what they have always done, and traditional teaching methods and technology-free learning environments are dominant.'
>
> (Almås & Krumsvik 2007, p.482)

According to the most recently available bi-annual ITU Monitor survey (2009) the 'fifth pillar' of competence is 'the ability to make use of information and communication technology' and constitutes a 'basic skill' (ITU 2009, p.3). The authors

of the report acknowledge that 'the actual basic understanding of digital skills is rather vaguely formulated in national and local curricula' (p.14). Their solution to this was to formulate a multiple-choice test the sample questions from which seem to be similar to 'e-safety' questionnaires in the UK.

As Hatlevik points out in an analysis of the 2009 ITU Monitor report:

> 'There are several important challenges in the process of identifying and describing digital analysis: 1) to have a broader perception of digital literacy, ranging from demonstrating digital skills, such as the use of a specific software, towards production, ethical judgement, critical thinking, collaboration and creativity; 2) prevent assessment-driven teaching practices, such as by emphasizing the assessment of digital literacy as a formative evaluation; and 3) to ensure that the identification and understanding of digital literacy is theory driven and not solely defined from what is possible to measure in a quantitative way.'
>
> (Hatlevik 2009, p.173)

The second and third points - that digital literacy is not a 'fixed' attribute, and that not everything worth measuring can be measured - are particularly important to take into account given that Norway is viewed as a world leader in the integration of digital literacy into curricula.

Discourse around digital literacy in Norway has evolved to reflect the state of play in the EC. Digital literacy and digital competence are terms that are used interchangeably, with media literacy becoming an increasingly-dominant term with reference to critical skills. This, despite the White Paper used to outline the Norwegian curriculum framework defining digital literacy as 'the sum of simple ICT skills… and more advanced skills that makes creative and critical use of digital tools and media possible' (Erstad 2007, p.3). However, the difficulty of translating the Norwegian term 'kompetanse' means that the term is translated variously even in official documents. The 2005 policy document *eNorway 2009: the digital leap*, for example, talks of 'digital skills':

> 'Digital skills include the ability to exploit the opportunities offered by ICT, and use them critically and innovatively in education and work. Digital skills also include the ability to be critical to sources and assess content. Use of digital tools is a skill the individual must acquire, maintain and continually develop, if he or she is to be a digitally skilled and critical citizen.'
>
> (Norwegian Ministry of Modernisation 2009, p.8)

It is clear, therefore, that however 'digital kompentanse' may be translated, there is a *critical* element at the core of the definition involving reflection upon using sources of information and digital tools effectively. However, as Erstad translates the authors of the White Paper as stating, 'In total digital literacy can be seen as a very complex competence' (Erstad 2007, p.3).

In order to tease out the complexities involved in digital literacy, the quarterly *Nordic Journal of Digital Literacy*[16] was set up in 2006. It has attracted some of the biggest names in new literacies research as contributors, accepting contributions in English as well as Norwegian. Interestingly, and rather inevitably, the journal has moved from having a narrow focus on digital literacy to a more wide-ranging focus on new literacies. There is little evidence, however, that such research is any more than a one-way process with empirical evidence coming either from the bi-annual ITU Monitor report mentioned above or from researchers' own classrooms.

In Chapter 8, I explore the concept of 'umbrella terms'. In Norway (and in Europe more generally) it is media literacy that is the dominant umbrella term with other new literacies relegated, again, as I explain in Chapter 8, to 'micro literacies'. Erstad explains why he prefers the term 'media literacy':

> 'There are different terms used in this field of research, such as media literacy, ICT literacy, digital literacy, information literacy and digital competence. The key term,

[16] http://www.idunn.no/ts/dk

> and the one highlighted in this article, is media literacy. In a Scandinavian context the term competence is often used instead of literacy since the latter term does not translate to the languages in these countries.'
>
> (Erstad 2010, p.56)

The dichotomy, therefore, is between digital competence (or 'basic skills') on the one hand, and a critical, more holistic 'media literacy' on the other hand. Erstad believes that this focus is appropriate given 'the conceptual history in this field, where media literacy has been used since the beginning of the 1980s' (Erstad 2010, p.57).

Mifsud (2006) questions what we mean by 'digital literacy' noting, and by doing so, reinforcing, Erstad's point about the Norwegian language not using the term 'literacy':

> 'Consider digital literacy in the school context. Does being able to send text-messages from a mobile phone or playing puzzle games constitute being digitally literate? While sending SMS messages represents the height of 'e-literacy' for my mother, from an educational perspective, SMS-sending, and mobile telephones in general, have so far been frowned upon by schools.'
>
> (Mifsud 2006, p.136)

Digital literacy is far from a revolutionary competence or set of skills for Mifsud. She argues that there are broadly four elements to digital literacy: (i) the manipulation of digital tools, (ii) an extension of print-based literacies, (iii) appropriate 'cut-and-paste' and 'copy/delete' techniques, and (iv) the 'inclusion of the visual' (Mifsud 2006, p.136-9). Digital literacy, therefore, is effectively a body of basic skills in a digital world.

Korten and Svoen (2006) point out that media literacy and digital literacy are often used as near-synonyms in Norwegian, hence the confusion. Perhaps one reason for the recent shift in emphasis in Norway (and in Europe more generally) from digital literacy to media literacy is that, as Pietraß puts it, it 'lead[s] to much more satisfactory conceptions… than functional approaches' (Pietraß 2009, p.132).

The history and status of digital literacy in Norway is complex. The term is presumed by English-speaking researchers and educators to mean, in a straightforward way, the same in Norwegian as it does in English. However, given the difficulty in translating words such as 'literacy' into Norwegian, and words such as 'kompetanse' *from* Norwegian, 'media literacy' is a term preferred increasingly to 'digital literacy'.

Singapore

Education in Singapore is often cited as 'world-class', largely due to Singaporean students' consistent high performance in the Organization for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA).[17] These tests have been carried out every three years since the year 2000 and are administered to several thousand students per country near the end of compulsory education. PISA assesses reading, as well as mathematical and scientific 'literacy' and problem-solving. The OECD claims that the skills tested in PISA are those required in adult life. Dissenting voices point out that those countries at the top of the PISA league table are only fractionally 'ahead' of other countries, and also tend to be largely homogenous countries. Hong Kong, having a different political system to China, is effectively a country in its own right and, along with Finland and Singapore, is relatively small geographically.

Other important considerations about Singapore by way of context are that it became an independent country as late as the 1960s, English is used as the primary language of instruction in schools, and corruption is low (Transparency International, 2009) whilst censorship is relatively high (Press Freedom Index, 2010). A picture of a

[17] http://www.pisa.oecd.org

conformist culture placing a large emphasis on high-stakes testing emerges, as is evidenced by one Singaporean in her twenties reflecting on her experiences:

> 'Success in Singapore revolves around exams, good grades, and certificates. In other words, getting the right paper qualification… Singaporeans are obsessed with exams because they want good grades. They want good grades because those are essential if you want to go to a famous university'
>
> (Tan, 1998)

In this standards-based, heavily-pressured educational culture - a society where, anecdotally, painkillers are stocked alongside exam-preparation books (Bracey, 2008) - it is unsurprising to find the dominant 'new literacy' to be Media Literacy. In addition, much of the available research literature into new literacies comes from, or through the lens of, Singapore's National Institute of Education. One such example comes in Tan, Bopry & Guo (2010) who ostensibly focus on 'new literacies' but deal almost entirely on the decoding of visual media.

Another driving force in a country as economically competitive as Singapore is productivity. The launch of the International Computer Driving License (ICDL) in Singapore in 2010 mentioned explicitly the aim to encourage foreign investment and 'a growth in the national economy through higher productivity and a higher standard of living across Singapore' (ECDL, 2010). Such economic goals are evident in the top-down 'Masterplans for ICT in Education', the third of which runs 2009-2014. One of the four stated 'broad aims' of this Third Masterplan includes the desire to 'develop competencies for the 21st century' (Singapore Ministry of Education, 2008a). These, however, are closely tied to mention of the ability of Singapore to 'position [themselves] better as a global trading hub,' to 'train [their] soldiers in combat,' and investment in high-speed communications to create 'new opportunities for [their] economy, government and society' (Singapore Ministry of Education, 2008b).

An interesting tension is evident in Singaporean educational policy between the desire to conform with the more liberal west and the drive for efficiency and productivity. On the one hand, therefore, the need to use ICT 'critically' and develop skills of analysis are mentioned, swiftly followed by mention that 'school autonomy can lead to less efficiency' (Singapore Ministry of Education, 2008b). The procedural elements of new literacies are to the fore with mention of the use of ICT to help develop 'competencies to be able to discriminate information require technology literacy, higher-order thinking skills and even life and collaboration skills' (Singapore Ministry of Education, 2008b). These are to be developed in staff as well as students, but to save 're-inventing the wheel' grassroots approaches are discouraged in favour of 'educational labs, where innovations can be prototyped and tested' (Singapore Ministry of Education, 2008b). The aim of this is to 'equip the next generation with skills and competencies to succeed' in the never-actually-defined 'knowledge economy' (Singapore Ministry of Education, 2008b).

Media Literacy is the dominant new literacy in Singapore and this is evident through ongoing research in the country. It is an 'umbrella term' (see Chapter 8) through which other literacies such as 'technology literacy' and 'information literacy' are understood. Digital literacy, meanwhile is understood as 'Digital Curricular Literacies' (DCL), used as shorthand for the contextualisation of ICT in school-based learning. In practice (NIE, 2003-6) this tends to be on the level of what Puentadura's (2010) useful SAMR model identifies as 'Substitution' or 'Augmentation' rather than the higher-order aims of 'Modification' or 'Revolutionary' use of educational technology. Indeed, even current research (NIE, 2009-12) aims to 'contribute to the new media literacy research by developing and validating a survey instrument to measure students' new media literacy'.

This focus on quantitative measures is indicative of Singapore's approach to technology as well as associated competencies and literacies.

Given the focus on Media Literacy and the tight integration of government departments and policies, it is appropriate to look at the Singapore Media Development Authority's definition of the term:

> 'Media literacy refers to the ability to critically assess information that is received daily via different media platforms. When a person is media literate, he would be able to read, analyse and interpret messages, regardless of whether he is using media to gain information, for entertainment or for educational purposes.'
>
> (Singapore MDA, no date)

This is equated with a 'media-savvy population' that has the ACE attribution of Awareness, Competency and Engagement. This approach to new literacies is rather passive and based upon a *consumption* model of literacy. Other definitions of digital literacies mention explicitly the importance of being able to *create* media rather than simply access and critically reflect upon it. Although lip service is paid to new literacies by the Singapore Ministry of Education, the focus is, in effect, on accessing and critically reflecting upon given information.

Australia

Whilst there is evidence that Australian educational policy is influenced by outputs from the UK, Europe and the USA, it would be wrong to dismiss it as solely derivative. Australia, in fact, has a much more coherent set of policies and strategies relating to new forms of literacy than many other countries.

The dominant form of New Literacy in Australia is 'Digital Media Literacy', enshrined in policy documents, strategies and educational frameworks. However, as the Australian Communications and Media Authority's (ACMA) *Digital Media Literacy in Australia: Key Indicators and Research Sources* document points out, there are many and varied definitions of 'Digital Media Literacy'. Whilst referencing Ofcom's (UK) definition – 'the ability to use, understand and create digital media and communications' - the ACMA settle upon 'the skills and capabilities needed for effective participation in the digital economy' (ACMA, 2009, p.8).

Importantly, resources relating to Digital Media Literacy in Australia are collated, easy-to-find, and demonstrate some coherence of approach[18]. This is possibly due to the structure of government departments: Australia has a Department of Broadband, Communications and the Digital Economy. Interestingly, the focus on the 'digital economy' is a result of 'a unique opportunity to shrink the distances that have historically dominated our domestic and international relationships' (DBCDE, 2009), using as an example the 'remote specialist diagnosis of patients' so important in a land as expansive as Australia. There is a growing awareness in Australia of the difference between the so-called 'digital divide' (which focuses on access to hardware) and the 'digital *use* divide' (or 'participation gap') which involves the Digital Media Literacies necessary for 21st century citizenship.

A 2009 report entitled *Australia's Digital Economy: Future Directions* highlights Digital Media Literacy alongside other issues such as 'Consumer Digital Confidence' in a section focusing on the successful elements of a digital economy. The three main partners in building such a digital economy are seen as the government, industry and 'community' with Digital Media Literacy included in the latter section. Being a

[18] http://www.acma.gov.au/WEB/STANDARD/1001/pc=PC_312358

government document, however, it focuses chiefly upon the economy and social cohesion:

> 'Digital media literacy ensures that all Australians are able to enjoy the benefits of the digital economy: it promotes opportunities for social inclusion, creative expression, innovation, collaboration and employment. People in regional, rural and remote areas can also have improved access to these opportunities. Digital media literacy gives children the capability to effectively learn online; consumers the confidence to search for information and transact online; and businesses the ability to become more efficient and compete in a global marketplace.'
>
> (DBCDE, 2009)

The seeming Australia-wide agreement on Digital Media Literacy as the accepted form of New Literacies is explained in part by Gibson (2008). He gives an overview of the recent 'literacy wars' in Australia, quoting Ilyana Snyder on how the press and professional journals keep alive the debates between conservatives and progressives (Snyder, 2008). Literacy is an even 'hotter' political issue in Australia than other countries. The battleground over different forms and manifestations of traditional (print) literacy allows, suggests Gibson, Digital Media Literacy to show 'some promise of a revival of educational optimism' (Gibson, 2008, p.74). He sees Digital Media Literacy as a way to transcend entrenched positions, for:

> 'When my critical or media literacy can be your *ill*iteracy, the concept has become emptied of definite meaning. While literacy is still central to most notions of education, it is increasingly unclear what exactly we mean by it.'
>
> (Gibson, 2008, p.75)

This 'conceptual fuzziness' stems from a shift in the media by and with which we read and write - and also by what we mean by 'reading' and 'writing' in the first place. This will be explored more fully in Chapter 3, but in the Australian context Gibson

indicates that agreement over Digital Media Literacy provides a welcome respite from argument and debate over traditional (print) literacy.

The operationalising of Digital Media Literacy has led to initiatives such as the *Digital Education Revolution*[19] in New South Wales. The aim is for elements of Digital Media Literacy to be taught across the curriculum. This means, for example, in that in English lessons, the students work towards a unit entitled 'When machines go bad…' where they 'examine and explore their own humanity in terms of their relationship with, and dependency on technology' (Digital Education Revolution, no date). Other modules deal with the creation of new media such as podcasts and using a collaborative online whiteboard.

As would be expected, libraries and librarians in Australia have a history of attempting to develop Information Literacy. Definitions of Information Literacy are influenced from work carried out in the USA by the American Library Association:

> 'Information literacy is a set of abilities requiring individuals to 'recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information'.'
>
> (ACRL)

This definition was adopted in 2000 at the Council of Australian University Librarians in Canberra, revised slightly in 2001, with an Information Literacy Framework (Bundy, 2004) developed in 2004 by the Australian and New Zealand Institute for Information Literacy (ANZIIL). The latter organisation, however, no longer seems to be active, with the 'Information Literacy policy' of universities such as the University of Sydney referencing 10 year-old standards and documents. Either Information Literacy is

[19] http://www.schools.nsw.edu.au/gotoschool/highschool/dernsw/

so entrenched that it no longer needs developing or, as is more likely the case, the zeitgeist has been captured by Digital Media Literacy.

The USA

The United States of America (USA) is a large and diverse country. Its approach to New Literacies reflects this, with work carrying on apace in almost every area. In a similar vein to the 'literacy wars' in Australia taking up most of the space for debate, so in the USA almost everything relating to schools has been framed in the past decade by the No Child Left Behind Act (NCLB). This was signed in 2001 by then-President George W. Bush and, ostensibly, aimed at setting high standards increasing the number of measurable outcomes for schools. These outcomes are tied to funding.

There have been many outspoken criticisms of NCLB and, indeed, President Obama announced in early 2011 that NCLB will be replaced (Obama, 2011). Chapter C Part D of the NCLB Act is entitled 'Enhancing Education Through Technology' (EETT) and has as its primary goal improving student achievement through the use of technology. A secondary goal is:

> 'To assist every student in crossing the digital divide by ensuring that every student is technologically literate by the time the student finishes the eighth grade, regardless of the student's race, ethnicity, gender, family income, geographic location, or disability.'
>
> (US Department of Education, 2001)

What is meant by 'digital divide' is not made explicit nor what it would mean for students to be 'technologically literate'.

Given the federal nature of the USA, some states have different policies relating to technology than others. More forward-thinking states such as California have drafted policies dealing explicitly with New Literacies, citing the European Union as a 'leader in digital literacy' (CETF, 2008, p.11). California's *ICT Digital Literacy Framework* defines ICT Literacy as:

> 'using digital technology, communications tools and/or networks, to access, manage, integrate, evaluate, create and communicate information in order to function in a knowledge society.'
>
> (CETF, 2008, p.5)

The verbs from 'access' through to 'communicate' form a kind of taxonomy which, the authors of the framework claim, is common to existing national and international frameworks. What the Californian framework certainly does have in common with other countries is a focus upon competition and the economy. The role of individuals in a '21st century citizenry' for example is to 'Apply digital literacy skills to access health, e-government, banking and to support healthy environment [sic]' (CETF, 2008, p.14).

Due to the federal nature of the education system in the USA there are many and varied definitions of New Literacies. President Obama, for example, proclaimed October 2009 to be 'National Information Literacy Awareness Month' beginning his proclamation with these words:

> 'Every day, we are inundated with vast amounts of information. A 24-hour news cycle and thousands of global television and radio networks, coupled with an immense array of online resources, have challenged our long-held perceptions of information management. Rather than merely possessing data, we must also learn the skills necessary to acquire, collate, and evaluate information for any situation. This new type of literacy also requires competency with communication technologies, including computers and mobile devices that can help in our day-to-day decision making. National Information Literacy Awareness Month highlights

> the need for all Americans to be adept in the skills necessary to effectively navigate the Information Age.'
>
> (Obama, 2009)

It is clear from this statement that the higher echelons for educational policy-making in the USA believe the use of technology to be only part of a wider 'information literacy'. In light of the fact that that Professor Henry Jenkins, John Seeley Brown and other well-known educators and thinkers in the USA are increasingly focusing upon Digital (Media) Literacy, there is seemingly a disconnect between research, practice and policy.

Given this vacuum at the national policy level, individuals, groups, and organisations have stepped in to promote various visions of New Literacies. Marc Prensky, promoter of the digital natives/immigrant dichotomy and whose work I discuss in Chapter 5, has claimed that 'Programming is the New Literacy' (Prensky, 2008)[20] whilst the *Partnership for 21st Century Skills*, is a corporate initiative from organisations such as AOL, Cisco, Microsoft and Apple, in partnership with the US Department of Education.

The Partnership for 21st Century Skills has representatives of everyone from Lego to the American Association of School Librarians on its Strategic Council and sees its mission as serving as 'a catalyst to position 21st century readiness at the center of US K12 education by building collaborative partnerships among education, business, community and government leaders' (Partnership for 21st Century Skills, 2004). Importantly, the Partnership has ascertained each state's 21st century 'readiness' as well as putting together a cohesive framework, including information literacy, media literacy and ICT

[20] Prensky does not make clear whether he sees programming as the equivalent of 'writing' or 'making pencils'. If it is the former, then it is a high standard for 'literacy' and, if the latter, then not *necessary* for 'literacy'.

literacy, for adoption by educational institutions. However, they also talk of 'health literacy,' 'financial literacy' and even 'entrepreneurial literacy' - without defining any of these terms. It is clear that these terms are being used within a wide context of their 'four Cs' of 'critical thinking and problem solving; communication, collaboration; and creativity and innovation' (Partnership for 21st Century Skills, 2004).

The confusing landscape and the lack of a clear 'steer' from national government on new literacies means that states have sought to define their own curricula and assessment tools. New York City's (NYC) Education Department, for example, have taken the American Association of School Librarians' *Standards for the 21st Century Learner* (AASL, no date) and developed it into an 'Information Fluency Continuum'. This defines the information literacy standards that students should develop by Grades 2, 5, 8 and 12 and are coupled with information literacy benchmark skills assessments for each Grade level.

Due to the standards-based, testing culture in US schools, NYC's approach is understandable. They have adopted the publication of an authoritative body who, in turn, have reacted to an environment created by US educational policy in the wake of NCLB. Such an environment stresses the importance of being 'information literate' and focuses on the traditional basics but, perhaps, at the expense of a cohesive programme for new forms of literacy.

In the latter stages of writing this thesis, a new web portal[21] has been launched in the US. Whilst it is too early to evaluate its impact, the most frequently used resource according to the front page of the website is 'Mouse Tutorial: learn how to use a computer mouse'. This suggests that functional skills are the main focus. The 'About Us' page uses the rhetoric of employability and economic competitiveness, stating that 'the

[21] http://digitalliteracy.gov

ability to navigate the Internet is critical to participate more fully in the economy.' Due to the backing of the Obama administration and major players (including government departments) it would seem inevitable that the landscape in the US will become polarised between digital literacy as basic, functional skills and information literacy as including (some) notions of criticality.

Summing up

From these brief overviews of the state of New Literacies in different territories around the world, three things become clear. First, there is not one defined version of new literacies that is dominant everywhere around the world. The work done in Europe on Media Literacy seems to be well-regarded in the English-speaking world, although this is always given a contextual twist. Australia, for example, espouses Digital Media Literacy yet the preceding 'literacy wars' changed the reference points and terms of debate.

Secondly, new literacies seemsto be less about pedagogy and educational outcomes and more about individual nations' internal social cohesion and external competition. This internal social cohesion is often labelled 'citizenship' and usually closely linked to drives for 'efficiency' (for example in Singapore) or 'economic competitiveness' (Europe and Australia). Whilst, as we will see in Chapter 6, definitions need to be 'good in the way of belief' for communities residing within specific contexts, it is striking to what extent the definitions are top-down impositions by governments in consultation with big business.

This drive for economic competition and positioning in a new world order - or, more often 'Knowledge Society' - explains the involvement of big business in the framing of policy. As one Australian pressure group wondered when hearing about media literacy initiatives in Europe, 'is a push for Media Literacy an excuse to avoid marketing regulation?' (Junkbusters, no date). The emphasis on Media Literacy in Europe, an area of more strict regulation than many other places in the world, would suggest so. Companies certainly seem to be falling over themselves to be 'corporately responsible' in the arena of new literacies and 21st Century Skills. It would appear that (understandably) they are more interested in market share than pedagogy and development.

Whilst there have been attempts at worldwide definitions of 'Digital Literacy' (see I^3, 2003 for example) they have, too often, depended upon assessments that are outdated as soon as they are drafted. Tornero (2004) bemoaned the narrow focus on technology along with the proliferation of terms:

> 'Various expressions are used that transmit the same idea with slight differences in meaning: 'information literacy', 'literacy in information and communication technologies (ICT)', 'media literacy', 'network literacy', 'media education', 'education in communication' to name but a few.'
>
> (Tornero, 2004a, p.40)

Tornero saw 'education in communication' as being the most 'all-embracing' whilst the term 'media education' is narrower. 'In both cases,' continued Tornero, 'the educational dimension is mentioned in quite general terms. It lacks the specific nuances we might find in other expressions, which… do indeed include the concept of 'literacy'' (Tornero, 2004a, p.40). The terms that are used *do* matter as the process 'entails signalling and placing emphasis on some components of the process you are trying to describe, whilst running the risk of not paying enough attention to others' (Tornero, 2004a, p.40-1). The problem is the tension between the nuance available in research

papers and the level of detail required for policy documents and action. As I will argue in Chapter 9, one way around this problem is to cultivate a similar 'habit of mind' for individuals within an organisation or institution by *co-creating* definitions of digital literacies.

In 2006 David Buckingham attempted to finish what Tornero started in an article entitled 'Defining digital literacy - What do young people need to know about digital media?' (Buckingham, 2006). Buckingham questioned the 'proliferation of literacies' which he saw as fashionable rather than justified:

> 'The term «literacy» clearly carries a degree of social status; and to use it in connection with other, lower status forms such as television, or in relation to newer media, is thus to make an implicit claim for the latter's validity as objects of study. Yet as uses of the term multiply, the polemical value of such a claim – and its power to convince – is bound to decline.'
>
> (Buckingham, 2006, p.265)

Most definitions of Digital Literacy, believes Buckingham, are overly-focused on *information* rather than the wider cultural uses of digital (usually online) resources - especially by young people:

> 'There is little recognition here of the symbolic or persuasive aspects of digital media, of the emotional dimensions of our uses and interpretations of these media, or indeed of aspects of digital media that exceed mere «information».'
>
> (Buckingham, 2006, p.266)

It is this lack of understanding by governments and policy-makers of new literacies, and of Digital Literacy in particular, that leads to a proliferation of terms and the confusion of the arena.

Now that I have illustrated how the new literacies landscape around the world can be seen as largely fragmented, dominated by politics and context-dependent, it is perhaps

time to begin to seek a way to move things further forward at a greater pace. There is a real need for rigorous yet *practical* guidance from researchers. I hope to provide this in Chapter 9 through a matrix of digital literacies but, before doing so, have an important journey to undertake which begins in the next chapter. Chapter 3 demonstrates that the problem is not only with the 'new' or 'digital' part of 'literacy' but, to a great extent, a legacy of traditional (print) literacy being a surprisingly slippery term. Once we have a handle on what we are talking about when we are talking about 'literacy' then we can begin to look at more metaphorical ways of approaching the term (Chapter 4).

Chapter 3: Problematising traditional (print) literacy

'Those who speak with sense must rely on what is common to all,
as a city must rely on its law, and with much greater reliance.'
(Heraclitus)

Human beings are tasked with making sense of the external world. We feel the need to decipher and communicate oft-repeated experiences and sensations, allowing other minds to share the same (or similar) conceptual space to our own. For example, research in Phenomenology tells us that two individuals may have two markedly different sensations when viewing a red pillar box. If, however, they agree on the category 'pillar box' to refer to approximately the shape they see before them, and that the colour sensation they are experiencing will be called 'red', then meaningful discourse can ensue.

> 'All human activity is subject to habitualization. Any action that is repeated frequently becomes cast into a pattern, which can then be reproduced with an economy of effort and which, ipso facto, is apprehended by the performer as that pattern.'
>
> (Berger & Luckmann, 2002, p.42)

Every form of human communication must begin in this manner. We train toddlers and young children to be able to understand the world around them by allowing

them to use the constructs we ourselves use. These constructs we largely inherited from our parents, and they from our ancestors. There comes a need, however, in each generation to create and agree upon *new* ways of understanding the world. This can be as a result of natural changes in the environment, new (disruptive) technologies, or some other way - usually involving politics or economics - that alter human relationships.

Almost every living being, whether animal or human, has found a way of communicating in real-time its understanding of the world through sounds and/or gestures. For information and meaning to be disseminated when the information-giver is not present, however, requires a different approach. Language must be coded into symbols. These symbols have developed from pictorial cave paintings symbolising objects or simple ideas to sentences conveying meaning. These have subsequently evolved into the ability of humans to convey abstract concepts through an agreed and socially-negotiated written language. The person wishing to understand the information and meaning disseminated must be able to decode the symbols used. It is akin to giving someone a locked box: they must have the correct key in order to unlock it.

Literacy, then, at its most basic, includes the ability to decode symbols used for the purpose of disseminating information and meaning. But literacy has traditionally been seen as being more than this, as the 'ability to read and write'. That is to say, the individual must have the means not only to decode but *encode* symbols for the purpose of disseminating information and meaning. In the physical sphere when we are dealing with printed or written documents, this is straightforward; deciding who is 'literate' or 'illiterate' is relatively unproblematic. Tests can be written and decisions taken.

Members of every culture and society have the world of everyday experience mediated by technologies, traditions and cultural norms or expectations.[22] This shapes

[22] See Petrina, 2007, p.168 and Achterhuis, 2001, p.71

what counts as being 'literate' within that society. I, for example, cannot use a quill pen in the same way a medieval monk would in order to create a manuscript; he, likewise, would be baffled by the QWERTY keyboard upon which I am currently typing. The medieval monk uses a technology relevant to his time period to produce culturally-relevant documents in a particular idiom. I, in the 21st-century, do likewise.

Defining literacy in relation to the tools used to encode and decode the symbols involved can therefore be difficult. Theorists must ensure that literacy is not defined so broadly so as to include almost any activity, but not so narrowly that it is almost impossibly prescriptive. 'Literacy' must apply equally to instant, informal electronic communications and the creation of formal, written, laboriously-created documents that have been handed down through generations. That is to say a balance must be found so that technologies used in the past as well as those that will be used in the future for reading and writing are included within definitions of 'literacy'. If this cannot be achieved, then it may be best to use a different term or way of framing the concept.

One way in which theorists appeal to a particular use of a communicative technology as a 'literacy' is by widening the definition of 'text'. Postmodernists in particular are keen to stress that images and films can be considered as such. Given that technology opens up new possibilities and opportunities for communication it can be difficult to decide what the product of encoding symbols should be known as. For example, is the following informational diagram a 'text'?

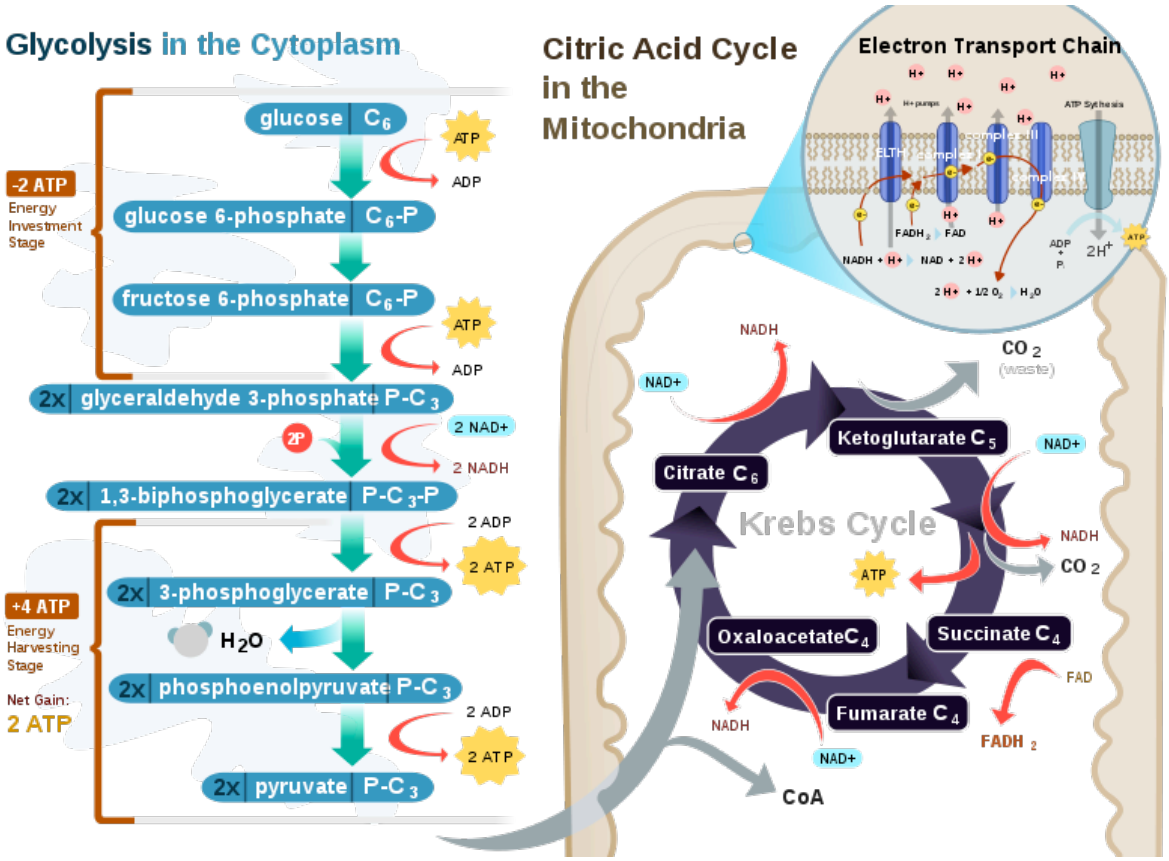


Figure 2 – Diagram from Wikipedia article on Cell Respiration

The diagram does, after all, require 'decoding' and interpreting. To the non-specialist who is without the tools, to do such decoding is akin to a foreign language. The same, it could be argued, goes for paintings, maps and web pages. Many have attempted to be as inclusive as possible with the term 'text' giving, in effect, 'literacy' a metaphorical aspect. For example, Gee, Hull & Lankshear (1996) boil down 'literacy' to *reading something*:

> 'Whatever literacy is, it [has] something to do with *reading*. And *reading* is always *reading something*. Furthermore, if one has not *understood* [made meaning from] what one has read then one has not read it. So reading is always reading *something* with *understanding*. [T]his something that one reads with understanding is always a text of a *certain type* which is read in a *certain way*. The text may be a comic book, a novel, a poem, a legal brief, a technical manual, a textbook in physics, a newspaper article, an essay in the social sciences or philosophy, a 'self-help' book, a recipe, and so forth, through many different types of text. Each of these different types of text requires somewhat different background knowledge and somewhat different skills.'
>
> (Gee, Hull & Lankshear, 1996, p.1-2, quoted in Lankshear & Knobel, 2008a, p.5)

If image-based 'texts' are included in definitions such as the one above, this leads to the possibility of using modifiers such as 'visual literacy'. As almost anything can potentially be considered a 'text' this opens up a Pandora's box of literaci*es*.

Literacies are metaphorical if what is denoted is used to *connote* something else. For example, if 'text' is applied more widely to non-textual sources, or if non-traditional texts (such as programming) are included under the banner of 'reading and writing'. This metaphorical use of 'literacy' has the knock-on effect, however, of creating an unfortunate elision between the 'functional' aspect of literacy (skills of reading and writing) and the 'evaluative' aspect (what is culturally valued). Presupposing a background knowledge and requiring 'understanding' of a text for it to have been 'read' presents difficulties. Literacy becomes more that a state that can be achieved and more of a socially-negotiated process through which individuals pass. It is less the grasping of something objectively 'out there' and more a *habit of mind*.

To avoid the elision, as well as being as inclusive as possible with the term 'text', those considering literacy have sought to define *new* forms of literacy. This is true especially in areas relating to new technologies where traditional definitions of literacy seem somewhat anachronistic. Instead of being modifiers to an existing 'traditional' form of literacy, these are seen as new literacies that result from interaction with new technologies. As we will see in Chapter 4, from 'computer literacy' to the more recent term 'digital literacy', theorists have attempted to carve out a form of literacy that is bounded in some way yet with a descriptive power that makes the term useful.

The problem of literacy

> 'Literacy is a characteristic acquired by individuals in varying degrees from just above none to an indeterminate upper level. Some individuals are more or less literate than others but it is really not possible to speak of illiterate and literate persons as two distinct categories.'
>
> (UNESCO, 1957, quoted in Holme, 2004, p.7)

The concept of 'literacy' is akin to the Wittgenstinian problem surrounding the concept of a 'game': the audience is aware of what the speaker means by the term, but pinning it down in a more formal sense is extremely difficult (Hannon, 2000, p.36). Simply conceiving of literacy as 'the ability to read and write' not only sets up a false dichotomy (between those who 'can' and those who 'can't'), but makes no allowance for reading and writing using various tools and for different purposes. Those who subscribe to this definition of literacy conceive it as being a *state:* despite mention of 'varying degrees' literacy is considered to be akin to a staircase climbed by individuals. Even the Oxford English Dictionary equivocates between two definitions of 'literate': 'one who can read and write' and 'a liberally educated or learned person'.

Literacy is a term that seems straightforward until one looks at it more closely, in a similar way to Wittgenstein's problem of defining what is meant by 'game'.[23] Upon doing this it can be seen that definitions of literacy reside somewhere on a continuum. At one end of the spectrum are functional definitions of literacy that focus on the acts of reading and writing. Gurak (2001, p.13) labels as 'performative' these popular definitions of literacy: it is the ability to *do something* is what counts. Gunther Kress is a thinker at this end of the spectrum, believing that '*literacy* is the term to use when we make messages using letters as the means of recording that message' (Kress, 2003, p.23).

[23] See the entry in the *Stanford Encylopedia of Philosophy* on 'Ludwig Wittgenstein' for an introduction to this: http://plato.stanford.edu/entries/wittgenstein/

Literacy is seen ‘as a competence (as opposed to performance), that is, as a cognitive capacity capable of generating numerous specific forms' (Rodríguez Illera, 2004, p.49-50). It is this definition that ‘has generally dominated curriculum and pedagogy’ (Dighe & Reddi, 2006).

Brian Street outlines two different models of literacy, the *autonomous* and the *ideological*. The autonomous model, as exemplified above ‘construes literacy as existing independently of specific contexts of social practice’ and ‘as independent of and impartial towards trends and struggles in everyday life’ (Street, 1984).

At the other extreme come conceptions of literacy as a critical activity, the *ideological* aspect, also known as the ‘social practice’ model. Instead of there being ‘an essential literacy lying behind actual social practices involving texts,’ literacy ‘consists in the forms textual engagement takes within specific material contexts of human practice.’ Literacy becomes ‘an active relationship or a way of orienting to the social and cultural world’ (Lankshear, 1999, no page). Widening the conception of literacy even further, some such as Kathleen Welch define it as relating directly to *consciousness* as:

> ‘an activity of the minds... capable of recognizing and engaging substantive issues along with the ways that minds, sensibilities, and emotions are constructed by and with communities whose members communicate through specific technologies.’
> (Welch, 1999, p.67 quoted in Gurak, 2001, p.9)

This tension between the *autonomous* and the *ideological* comes because of an even more fundamental dichotomy at the heart of literacy: either as a ‘tamer in the hands of rulers and the church’ or, on the other hand, as ‘one of the cornerstones of individual and social emancipation’ (Rantala & Suoranta, 2008, p.95). On the autonomous view literacy is something that can be used as a weapon and tool of oppression in the establishment and maintenance of hegemonic power. As we will see in Chapter 8, it is a

view of literacy predicated upon a ‘scarcity’ and deficit model of literacy. The ideological view, on the other hand, would claim that literacies (in a plural sense) are socially-negotiated and culturally situated. They *emerge* rather than being dictated.

Literacy's relationship with knowledge

Holme (2004) uses the analogy of wave/particle duality in physics to explain how 'literacy' can have more than one nature yet still be a single concept. This, simply stated, is the idea that light exhibits both wave-like and particle-like properties. Instead of this being a problem caused by the human race still discovering nature, physicists believe such duality to be a fundamental property of the universe. It is not clear, however, whether this analogy has sufficient explanatory power. Can literacy (an unseen metaphorical concept) be compared to something that *can* be seen - namely, light? I shall explore the ambiguities surrounding models of digital literacies in more depth in Chapter 5, where I shall introduce a continuum of ambiguity. This particular metaphor of wave/particle duality, however, is probably more indicative of our lack of understanding of traditional (print) literacy rather than the changing literacy landscape. I would argue that rather than having a dual nature, literacy has a *multiplicity* of natures, which can be more or less foregrounded by their position upon a spectrum of ambiguity.

There are two central questions to the literacy debate, believes Holme, namely: (1) How much does one have to know about reading and writing to be literate? and (2) What does it really mean to read and to write? As Holme comments, these are seemingly simple questions yet are very difficult to answer. The first of these is a question about the importance of reflection and intention in literate practices whilst the second (of more relevance here) concerns reading and writing as (potentially) metaphorical activities.

Holme has a view of literacy that is predicated upon literacy's relationship with knowledge, as alluded to in his first question about the role of reflection and intention in literate practices. This is manifest in his brief treatment of the components of 'new literacies' such as 'computer literacy':

> ‘For example, a core feature of literacy's meaning is 'a knowledge', often of the basic skills, of 'reading and writing'. Now we use the term to refer simply to basic knowledge as in 'computer literacy'. Though even more confusingly, computer literacy is also bound up with reading and writing skills.
>
> (Holme, 2004, p.1-2)

The simple fact that one uses a computer does not then, for Holme, constitute a new 'literacy.' Instead, reading and writing skills (usually developed elsewhere) constitute part of what it means to be defined as 'computer literate.' Knowledge from one domain informs literate practices in another with traditional (print) literacy being transposed into a digital world with varying levels of success.

This link between literacy and knowledge is taken up by Gunther Kress in *Literacy in the New Media Age* (2003) in which he asserts, ‘Literacy remains the term which refers to (the knowledge of) the use of the resource in writing’ (Kress, 2003, p.24). Kress believes that the communication of ideas and meaning-making are covered by the terms 'writing' and 'speech'. Knowing how to read and write, and then actually going about doing so to communicate meaning, is something above and beyond mere 'literacy' for Kress. The 'literacy' comes from knowledge and use of computers, for example, is simply putting that knowledge into action for the purposes of communication.

Despite Kress' erudition and attempted defence of equating literacy with knowledge, problems nevertheless arise. The first of these is perhaps best summed up by Carneiro when he states,

> ‘New knowledge is undergoing constant metamorphosis. The most important change concerns the transition from objective knowledge (codified and scientifically organized) to subjective knowledge (a personal construct, intensely social in its processes of production, dissemination and application).’
>
> (Carneiro, 2002, p.66)

Equating literacy with knowledge is relatively unproblematic if the latter is a static concept. However, if knowledge is 'undergoing constant metamorphosis' and is social in its aspect, then literacy must do likewise. Kress assumes literacy is a fairly static concept with only the methods of communication differing. However if, as Muller (2000) believes, knowledge is intrinsically *social*, then this places pressure on conceptions of literacy that are tied to a knowledge-based definition.

The two differing approaches can be represented as follows:

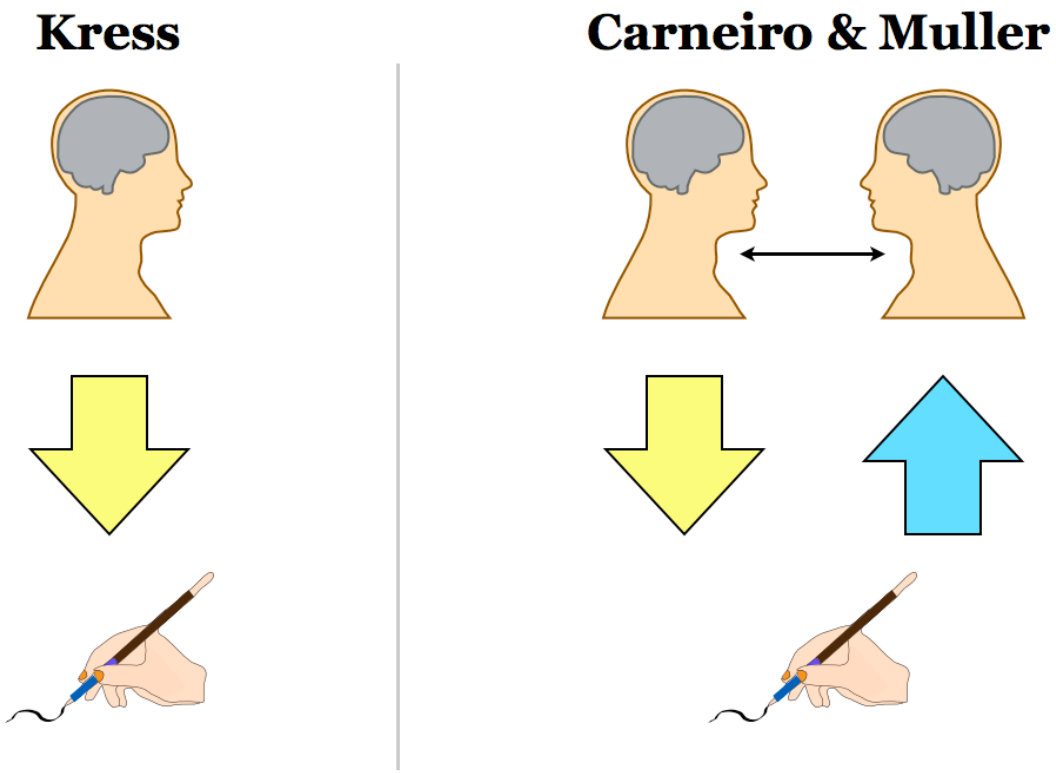


Figure 3 - Different approaches to equating knowledge with literacy

Literacy's relationship with knowledge is complex. In the evaluative sense literacy suggests having a valuable knowledge of what is written. In the functional, however, literacy is solely about the skills and meta-skills of reading and writing. The difficulty comes in making sense of both the 'knowledge' and 'skills' aspects of literacy. In effect, these are two sides of the same coin but it nevertheless presents difficulties when attempting to come up with a working and all-encompassing definition of 'literacy'. In addition, given that knowledge has ‘broken away from its moorings, its shackles’ (Siemens, 2006), it is difficult to know *what kind of* and *which* knowledge is relevant to a definition of literacy.

Taking a 'static' view of literacy is difficult in a world of fast-paced technological change. Whilst proponents could feasibly argue that the 'knowledge' aspect of literacy can remain reasonably constant despite innovations in reading and writing technologies, they would be hard-pressed to argue the same for the 'skills' aspect. Reading and writing using a word processor on a screen is *very* different from using a quill and parchment.[24] As we will see in Chapter 6, a methodology for investigating, analysing and evaluating conceptions of new and digital literacies needs to take into account this relationship between skills and knowledge. Not only is writing using a word processor infinitely revisable, but it allows for the content and style of the writing to be altered separately.

Literacy as a social process

Given these problems, other writers have contended that literacy should be understood not as a 'state' which an individual has managed to reach, but instead as a

[24] See, for example, Snyder (1998)

'process'. Rodríguez Illera believes that we should rethink literacy in terms of 'literate practices,' that we should see it as ‘a process and not only as a state, and [emphasise] its multiple character and, above all, its social dimension.’ (2004, p.58-59) Viewing literacy as a *social process* gives rise in the literature to much discussion about social and cultural practices upon which literacy may be predicated. ‘Literacy is not simply knowing how to read and write a given text but rather the application of this knowledge for specific purposes in specific contexts’ Rodríguez Illera quotes Scribner and Cole (1981) as saying. This would seem to allow for Kress' concern about literacy's relation to knowledge, whilst allowing for the social context that so many writers on literacy believe to also be important. It does not, however, move far from a knowledge-centred definition of literacy.

The 'proof of the pudding' in terms of whether someone should be designated as 'literate' is the *production of texts*. An illiterate person, after all, would not have the tools or skills to be able to create such texts. Allan Luke gives a concise overview of the three-step process by which texts are created:

> ‘Literacy is a social technology. That is, literate communities develop varied social, linguistic and cognitive practices with texts. These require the development and use of implements, ranging from plumes and ball point pens to keyboards. The objects and products of such practices and tools are recoverable texts arrayed on tablets, notebooks or other visual displays.’
>
> (Introduction to Tuman, 1992, p.vii)

That is to say communities:

1. Decide what a ‘text’ consists of.
2. Use implements to create such texts.
3. Arrange for texts to be ‘recoverable’ by various means

The text is co-constructed (albeit sometimes implicitly) within a community, it is 'written' using one of a number of technologies, and then it is displayed. With this social aspect of literacy come several issues and problems. Not least of these is the ethnocentric problem of being 'literate' according to the norms and practices of one community, yet not so according to those in another - even another community *speaking the same language*. Is it enough to assume that because communities share common tools or a common language that an individual from one would be understood by everybody from another? I will explore this in more depth in Chapter 6 through the work of Richard Rorty but, for now, a brief thought experiment should suffice. A situation could arise where an individual was *more able* to communicate with a person from a different community than one from his or her own. Would so doing constitute a *new* literacy or simply the using of one already established and socially-negotiated? Is the literacy in the use of the tool they used to communicate, or in something else? What constitutes a 'community'?

The second problem is that it would seem rather problematic to identify literacy as depending solely upon the literacy practices of a community. We talk almost exclusively of *individuals* being 'literate' rather than literacy being situated at the level of communities. This is potentially problematic as literacy has historically been tied very much to individual communication, self-expression and identity. Anthony Giddens has a useful theory of Structuration giving primacy neither to individual ‘actors’ nor to the structures within they act. This ‘third way’ (as embodied in the results of his advice to the Blair government) understands community as constraining individual action, but these individual actions as ultimately providing the structure to the very communities that constrain them. Defining literacy as residing solely within individuals or, conversely, solely within communities, seems problematic.

Third, if literacy is a 'cultural expression' (Freire & Macedo, 1987) then it would be possible to be literate at one point in a culture, but not when the culture evolves and changes. A response may be that literacy changes at the same speed as culture, meaning that individuals are not left behind by the community. However, this would lead to the problematic conclusion that we could not allow an individual from a particular time period could to be truly 'literate' in the literacy artefacts of that time. For example, whilst the average person in the 21st century may have some difficulty understanding 14th century Chaucerian language, we would still want to allow that *experts* could be 'literate' in the language of that time period. The same goes for Egyptian hieroglyphics. Separating out time and culture, therefore would mean that literacy is dependent upon the latter but not the former. It would have to be agreed that the historian could be 'literate' in the language of a past time because of their immersion in that culture.

The first of these problems is a somewhat philosophical one in terms of the problem of 'other minds' - does the other person think the same thing as the creator of the text when they read it? As we saw earlier, Welch has argued that literacy is not just the ability to read and write but constitutes an ‘activity of the minds’ which takes place through specific technologies.

This *interaction*, and indeed the ability to do so, is for Welch what makes an individual 'literate'. Note that this definition is predicated upon technology - whether that be pen and paper or digital technologies such as email. Literacy involves the ability to read *and* write: merely speaking about and showing an understanding of what one has read does not completely fit the criteria.

It is *available technologies* that bind literate practices. The lack of a surface to write on other than stone limited the transportability and circulation of 'texts' produced by prehistoric hunter-gatherers, for example. The spread of ideas during the Renaissance

was limited by the speed at which the technologies bounding literacy practices - in this case manuscripts moving at the 'speed of horse' - could travel, be copied, and be disseminated. As soon as texts could be transmitted (rather than carried) technology no longer remained a *limiter* to the dissemination of texts and the spread of ideas, but became a *catalyst*. Thus, as Standage (1998) points out in *The Victorian Internet*, moving texts over large distances quickly and easily resulted in a qualitative shift in communication. Since the 19th century, new and better ways of disseminating texts have been discovered, leading to a rapidly-evolving semiotic environment. In such an environment the medium becomes at least *part* of the message, as McLuhan famously argued. I will return to this in Chapter 8.

If literacy involves not only the creation of texts but their *communication*, then each method of communication could be said to involve a separate literacy. Others would argue that literacy is one step removed from this and that a concept such as 'digital literacy' would, for example, cover the elements that are similar in transmitting texts via (for example) mobile phones and computers. Grouping together 'similar' technologies and methods of communication could, however, be seen as somewhat arbitrary. Such considerations depend heavily upon context and are a reason that, in Chapter 9, I propose a matrix of essential elements to digital literacies rather that an overarching, static definition.

The second problem mentioned above - that of seeing as problematic literacy being dependent upon the literacy practices of a community - is dealt with more easily by thinking of *communities* of literate practice. Although in this quotation Carr (2003) is referring to more generic skillsets, it can easily be applied to literacy and literacy practices:

> '…there are going to be skills and activities (such as literacy and numeracy) that *all* need to acquire because no modern person can adequately function without them, as well as skills (of auto-repair and secretarial work) that some but not all individuals will require for particular vocations.'
>
> (Carr, 2003, p.18)

Likewise, there are going to be some particular literacy practices - perhaps centering around professions or interests - that are specific to smaller communities, but this does not preclude there being a wider 'literacy' that all recognise as being relevant in a generic sense to *all* of these sub-communities. To be literate, therefore, *can* mean to build upon the literacy practices of one or more communities, without leading to the somewhat absurd conclusion of identifying the communities themselves as 'literate'. The literacy practices of a community are a necessary but not sufficient condition for an individual to be counted as 'literate'. The individual must bring something to the table, must *do* something with those literacy practices, to be considered literate.

A problem remains when requiring literacy to be predicated upon such practices of a community. If social forms, structures and methods of communications are relatively stable, then literate practices are likewise obvious and can be built upon. When, however, society itself is in flux, then such practices become more difficult to pin down:

> 'Society is being transformed by the passage from the 'solid' to the 'liquid' phases of modernity, in which all social forms melt faster than new ones can be cast. They are not given enough time to solidify and cannot serve as the frame of reference for human actions and long-term life-strategies because their allegedly short life expectation undermines efforts to develop a strategy that would require the consistent fulfillment of a 'life-project'.'
>
> (Bauman, 2005, p.303)

Individuals during such 'liquid' phases of modernity therefore become alienated from one another, as the structures upon which literacy practices are normally built are not stable and long-lived enough to do so. Definitions of what it means to be 'literate' in

such a community therefore become somewhat problematic. This is also discussed in more detail in Chapter 8 through the organising concept of ‘Flow’.

The third and final problem identified above was that literacy is a 'cultural expression' and is therefore historically situated. It would seem that this problem can be solved rather straightforwardly with a couple of thought experiments. First, imagine that an individual living in the 21st century is taken as they are and dropped in the middle of a village in a country whose language they do not know how to speak or read. That individual would not be able to read anything that the village community had written down, nor write themselves in a manner which the villagers would understand. The individual would not be 'literate' in that community.

The second thought experiment is similar, but involves a time frame. Imagine an English monk from the 10th century somehow being transported to modern day England. Although some words in Old English and Latin are similar to their modern-day equivalents, still the monk would struggle to communicate. Not only that, but he would be limited to being able to use, at least initially, those technologies available to him in the 10th century. As a result he would not be fully 'literate' in a 21st century sense of the term. Given these two examples, it seems relatively clear that literacy *does* depend upon culture and has an historical aspect. In fact, it *must* include the latter for community and cultural cohesion: generations have to be able to communicate with one another effectively. Literacy *evolves* rather than is created anew. 'Participation in culture' is perhaps the best term to use as one can participate in something without actively creating or altering what is there. Thus, the historian could 'participate' in the cultural life of a past community (and therefore be 'literate' in regard to the texts produced) without actually having lived at that time.

It may be argued that an individual is still literate when apart from a community and in isolation. This may be the case, but his or her literacy skills are predicated upon those learned when *within* a community. The critic may rebut this argument by thinking up a thought experiment of their own where an autodidact stranded on a desert island teaches himself to read and write by discovering a library. Again, this may be possible but, as Lemke points out, we employ community-constructed social practices even when nobody else is around:

> 'Even if we are alone, reading a book, the activity of reading - knowing which end to start at, whether to read a page left-to-right or right-to-left, top-down or bottom-up, and how to turn the pages, not to mention making sense of a language, a writing system, an authorial style, a genre forma (e.g. a dictionary vs. a novel) - depends on conducting the activity in a way that is culturally meaningful to us. Even if we are lost in the woods, with no material tools, trying to find our way or just make sense of the plants or stars, we are still engaged in making meanings with cultural tools such as language (names of flowers or constellations) or learned genres of visual images (flower drawings or star maps). We extend forms of activity that we have learned by previous social participation to our present lonely situation.'
>
> (Lemke, 2002, p.36-37)

The three problems relating to literacy being predicated and depending upon the literacy practices of a community, therefore, can be seen as solvable. In fact, to try and define someone as 'literate' without reference to something produced for another to read would be extremely difficult. Now that the problems surrounding literacy as a community activity have been discussed and, to some extent, resolved, let us turn to the *nature* of literacy.

Unitary and pluralist views of literacy

Hannon points out a distinction between 'unitary' and 'pluralist' views of literacy. The unitary view, he states, is predicated upon the idea that literacy is a 'skill' and that there is an 'it' to which we can refer - a single referent,

> 'According to this view the actual uses which particular readers and writers have for that competence is something which can be separated from the competence itself.'
>
> (Hannon, 2000, p.31)

In contrast, the pluralist view believes there to be different *literacies*. Hannon quotes Lankshear who links social literacy practices with a pluralist view of literacy:

> 'We should recognise, rather, that there are many specific literacies, each comprising an identifiable set of socially constructed practices based upon print and organised around beliefs about how the skills of reading and writing may or, perhaps, should be used.'
>
> (Lankshear, 1987, quoted in Hannon, 2000, p.32)

Pluralists believe not only that we should speak of 'literacies' rather than 'literacy', but reject the notion that literacy practices are *neutral* with regard to power, social identity and political ideology. By intentionally or unintentionally privileging certain literacy practices hegemonic power is either increased or decreased (Gee, 1996). The pluralist conception of literacy is, to a great extent, similar to the postmodernist movement in the late 20th century. Whilst adherents are clear as to what they are against (in this case a 'unitary' conception of literacy) it is not always clear what they stand *for*. What constitutes a 'literacy'? What do 'literacies' have in common? Hannon attempts to bring some clarity by appealing to the notion of 'family resemblence', much as Wittgenstein did for the concept of 'game'. His argument is that although we cannot define 'literacy' in a way that would satisfy every critic, we can nevertheless know what it means *in practice*. This fits in well with the Pragmatic methodology I outline in Chapter 6 and with my belief that one of the fundamentally important differences beteween

considering ‘literacy’ and ‘literacies’ is that the latter foregrounds human agency in a way that the former does not.

Hannon, however, does not position himself as either a 'unitary' or 'pluralist' thinker with respect to literacy. After suggesting that theorists prefer unitary or pluralist conceptions of literacy depending upon whether they focus on literacy as a *skill* (psychology) or as a *social practice* (sociology), he questions why we need to choose between these two conceptions. ‘A full conception of literacy in education requires awareness of both,’ he states (Hannon, 2000, p.38). This is closer to the spectrum of ambiguity I will explore in Chapter 5 than the ‘wave-particle duality’ we saw proposed by Holme earlier.

Although Hannon does not give a name to this 'third way' of dealing with literacy, it is difficult to argue against his rationale. 'Literacy' becomes 'literacies' and yet the latter can still, in some way, be separated from and identified from its cultural production. That is to say that, although created with norms and methods (implicitly) negotiated with communities, 'literacy' and the texts produced using 'literate practices' can be separated from one another. Indeed, without such a position, the concept of 'literacies' could collapse into solipsism as there would be no agreed way of talking about such practices and cultural constructs.

Those working more recently than Hannon have indeed given a generic name to the types of literacies mentioned above. Known simply as 'New Literacies', their study is now a distinct and separate strand of literacy research. They seek, as Durrant & Green put it, to describe a more '3D' model of literacies including ‘cultural, critical and operational dimensions’ (quoted in Beavis, 2002, p.51). Attempting to describe and, to some extent, promote the new opportunities that digital, collaborative technologies afford society, 'New Literacies' theorists focus on new ways individuals can express themselves.

They debate and try to explain how using these new technologies and methods of expression fit within, or complement, existing literacies. Although New Literacies is a new field of research there is nevertheless some debate and differing positions that can be taken. I shall explore this in more detail in Chapter 7.

Requirements of a 'literacy'

From the above, it is clear that for a term or concept to be considered a 'literacy' and *useful in practice* it must meet certain criteria. These criteria must be derived from conceptions of traditional (print) literacy and related literate practices. Without being grounded and bounded by this it would be difficult to see how the word 'literacy' could form part of a definition for, example, 'digital literacy'.

First, a definition including 'literacy' must have explanatory power and make a difference in practice. Although by its very nature it is likely to be metaphorical in nature, the term must be 'useful in the way of belief' (James, 1995). This Pragmatic element will be explored in more detail in Chapter 6 but, for now, I shall take it that literacy has to be for a purpose.

Second, a definition mentioning 'literacy' must deal with the retrospective nature of literacy, either by including past (and future) instances of literate practice, or by explaining why the retrospective element is not required. A definition must deal successfully with the historical component and legacy of the 'literacy' element of the term. In other words, if the word literacy' is used in new domains in ways not congruent with existing practice, then it would be better that another word was used. This will be important in Chapter 8 when we come to analyse what, in fact, 'digital literacies' are.

Third, any definition that involves ‘literacy’ needs to explain adequately its relation to other metaphorical terms in the 'literate practices' arena. Proponents of a definition must explain whether the proposed term or concept is a derivative term, whether it stands in its own right, what it is predicated upon, and whether it includes other forms of literacy. This relates directly to what was latent in Chapter 2 and the concept of ‘umbrella terms’ and micro literacies’ explored in Chapter 7.

Finally, anyone wishing to define a term including reference to ‘literacy’ needs to explain to what the modifier (such as 'digital' in ‘digital literacy’) pertains. For example, a broad definition of 'digital' would include calculators, whereas a more narrow definition may deal solely with devices that can (for example) access the internet. This can be difficult to ascertain as it is often merely assumed or implied, as we will see in Chapters 8 and 9. The definition does not have to go into much detail about this, but some kind of explanation of the ‘digital’ element should be present in some form.

These, then, are the four conditions by which I will judge definitions of digital literacy under the Pragmatic method employed in this thesis. Those who propose definitions must deal adequately and convincingly with the following elements:

1. ‘Cash value' or utility
2. Retrospective element
3. Metaphorical element
4. Digital element

The first of these, the *utility* of the method will be explained in the methodology section (Chapter 6).

I will argue in Chapter 9 that attempting to define a single ‘digital literacy’ (or any other new literacy) in an objective, contextless manner is doomed to failure. Instead, after applying a Pragmatic methodology and considering the world of McLuhan, Ong and

Csikzentmihalyi, I conclude that a matrix of configurable and contextualised core elements is more appropriate for scaffolding new literacy practices.

Chapter 4: The history of 'digital literacy'

'If there are many things, it is necessary that they are just as many as they are, and neither more nor less than that. But if they are as many as they are, they will be limited.'
(Zeno of Elea)

As alluded to in the introduction, this thesis has a large enough scope in trying to come to terms with digital and new literacies without attempting to define exactly what is meant by the 'digital'. In addition, there is a large body of excellent work around traditional (print) literacy that I simply do not have the space to consider here. For practical reasons, therefore, I begin this chapter in the latter half of the 20th century with metaphorical uses of 'literacy' created by adding a modifying adjectival prefix (e.g. 'information' literacy).

The field of 'digital literacy' has a relatively long history; it is a term that has evolved. Its beginnings can be traced back to the end of the 1960s when a feeling that standard definitions of 'literacy' missed out something important from the increasingly

visual nature of the media produced by society. In 1969 John Debes offered a tentative definition for a concept he called 'visual literacy':

> ‘Visual Literacy refers to a group of vision-competencies a human being can develop by seeing and at the same time having and integrating other sensory experiences. The development of these competencies is fundamental to normal human learning. When developed, they enable a visually literate person to discriminate and interpret the visible actions, objects, symbols, natural or man-made, that he encounters in his environment. Through the creative use of these competencies, he is able to communicate with others. Through the appreciative use of these competencies, he is able to comprehend and enjoy the masterworks of visual communication.’
>
> (Debes, quoted in Avgerinou & Ericson, 1997, p. 281)

This definition is closely tied to those surrounding Traditional Literacy. It mentions interpreting symbols, communication and understanding. Dondis in *A Primer in Visual Literacy* made explicit the reasoning behind considering visual elements as requiring a separate 'literacy':

> ‘In print, language is the primary element, while visual factors, such as the physical setting or design format and illustration, are secondary or supportive. In the modern media, just the reverse is true. The visual dominates; the verbal augments. Print is not dead yet, nor will it ever be, but nevertheless, our language-dominated culture has moved perceptively toward the iconic. Most of what we know and learn, what we buy and believe, what we recognize and desire, is determined by the domination of the human psyche by the photograph. And it will be more so in the future.’
>
> (Dondis, 1973, p.7)

Those who espoused this doctrine were careful to stress the importance of both being able to both decode and encode, creating and communicating via images. Considine championed visual literacy as being ‘the ability to comprehend and create images in a variety of media in order to communicate effectively,’ leading to those who are 'visually literate' being ‘able to produce and interpret visual messages’ (Considine, 1986, p.38). More recently, with the explosion of what I will later term 'micro-literacies,' the concept of 'visual literacy' has been re-conceived of as 'media grammar literacy'. That

is to say it stresses the ‘medium as being at least as important as the message’. I will explore this further in Chapter 8.

In essence, the notion of 'visual literacy' is an important corrective to the idea that it is only textual symbols that can encode and decode information and meaning. As Lowe puts it, ‘visual materials in general are typically not considered to pose any reading challenges to the viewer’ (Lowe, 1993, p.24).[25] Coupling 'visual' with 'literacy' not only prompts a debate about the metaphorical use of language but, by using 'literacy', suggests ‘entitlement or necessity, and the need to seek out deficiencies and remedy them’ (Raney, 1999, p.41).

Hijacking the term 'literacy' for such procedural ends has, however, worried some who believe that it conflates 'literacy' with 'competence' (Adams & Hamm, 2001, p.vii).[26] Whilst some in the early 1980s believed that 'visual literacy' may still have some life left in it, others considered the concept ‘phonologically, syntactically, and semantically untenable’ (Cassidy & Knowlton, 1983, p.88), as ‘not a coherent area of study but, at best, an ingenious orchestration of ideas’ (Suhor & Little, 1988, p.470). Each writer on the term has written from his or her viewpoint, leading to a situation akin to the apocryphal story of the six blind men tasked with describing an elephant, each doing so differently when given a different part to feel. The feeling from the literature seems to be that whilst there may be something important captured in part by the term 'visual literacy', it all too easily collapses into solipsism and therefore loses descriptive and explanatory power.

The concept of 'visual literacy' continued until the late 1990s, eventually being enveloped by 'umbrella terms' combining two or more 'literacies.' Parallel to visual

[25] This is considered in more depth by Paxson (2004, p.vi), Sigafoos & Green (2007, p.29), Bazeli & Heintz (1997, p.4) and Kovalchik & Dawson (2004, p.602).
[26] This is similar to the concerns raised in Chapter 2 about the nature of ‘literacy’ in Norway.

literacy from the 1970s onwards came the development of the term 'technological literacy.' It began to gain currency as a growing awareness took hold of the potential dangers to the environment of technological development as well as economic fears in the western world about the competition posted by technologically more adept nations (Martin, 2008, p.158). 'Technological literacy' (or 'technology literacy') was a marriage of skills-based concerns with a more 'academic' approach, leading to a US government-funded publication entitled *Technology for All Americans*. This defined 'technological literacy' as combining 'the ability to use... the key systems of the time,' whilst 'insuring that all technological activities are efficient and appropriate,' and 'synthesiz[ing]... information into new insights' (quoted in Martin, 2008, p.158) This literacy was one defined and prompted by economic necessities and political concerns.

Although stimulated by competition with non-western countries, a growing awareness in the 1980s that computers and related technologies were producing a 'postmodern consciousness of multiple perspectives' with young people 'culturally positioned by the pervasiveness of computer-based and media technologies' (Smith, et al., 1988, referenced by Smith & Curtin, 1998, p.211-2) reinforced the need for the formalization of some type of literacy relating to the use of computers and other digital devices. Technological literacy seemed to be an answer. As we saw in a previous chapter, Gurak (2001, p.13) dubbed this a 'perfomative' notion of literacy, 'the ability to *do* something is what counts.' Literacy was reduced to being 'technology literate' meaning 'knowing how to use a particular piece of technology.' The 'critical' element of literacy, which Gurak is at pains to stress, including the ability to make meta-level decisions judgements about technology usage, were entirely absent from these 1970s and 80s definitions. Technological or technology literacy is too broad a concept as 'nearly all modes of communication are technologies - so there is no functional distinction between

print-based literacy and digital literacy.' (Eyman, no date, p.7) Discussions about, and advocates of, 'technological literacy' had mostly petered out by the late 1980s/early 1990s.

Growing out of the perceived need for a 'technological literacy' came, with the dawn of the personal computer, calls for definitions of a 'computer literacy.' Before the Apple II, 'microcomputers' were sold in kit form for hobbyists to assemble themselves. With the Apple II in 1977, followed by IBM's first 'Personal Computer' (PC) in 1981, computers became available to the masses. Graphical User Interfaces (GUIs) were developed from the early 1980s onwards, with the first iteration of Apple's 'Finder' coming in 1984 followed by Microsoft's 'Windows' in 1985. There is a symbiotic link between the hardware and software available at any given time and the supposed skills, competencies and 'literacies' that accompany their usage. As computers and their interfaces developed so did conceptions of the 'literacy' that accompany their usage.

The term 'computer literacy' was an attempt to give a vocational aspect to the use of computers and to state how useful computers could be in almost every area of learning (Buckingham, 2008, p.76). Definitions of computer literacy from the 1980s include 'the skills and knowledge needed by a citizen to survive and thrive in a society that is dependent on technology' (Hunter, 1984, p.45), 'appropriate familiarity with technology to enable a person to live and cope in the modern world' (Scher, 1984, p.25), and 'an understanding of computer characteristics, capabilities and applications, as well as an ability to implement this knowledge in the skilful and productive use of computer applications' (Simonson, et al., 1987, p.232). As Andrew Molnar, who allegedly coined the term, points out 'computer literacy,' like 'technological literacy' is an extremely broad church, meaning that almost anything could count as an instance of the term:

> ‘We started computer literacy in '72 [...] We coined that phrase. It's sort of ironic. *Nobody knows what computer literacy is.* Nobody can define it. And the reason we selected [it] was because nobody could define it, and [...] it was a broad enough term that you could get all of these programs together under one roof.’
>
> (My emphasis, quoted at thefreedictionary.com)

It is somewhat ironic that 'computer literacy' was chosen as a term because it was ineffable, indefinable and a little outré. Later in the decade an attempt was made to equate computer literacy with programming ability. The idea of literacy not being the same as fluency is one to which we will return to in Chapter 8:

> ‘It is reasonable to suggest that a person who has written a computer program should be called literate in computing. This is an extremely elementary definition. Literacy is not fluency.’
>
> (Nevison, 1976 quoted in Martin (2003, p.12)

In the 1980s applications available from the command line removed the need for users to be able to program the application in the first place. Views on what constituted 'computer literacy' changed as a result. The skills and attributes of a user who is said to be 'computer literate,' became no more tangible, however, and simply focused on the ability to use computer applications rather than the ability to program. On reflection, it is tempting to call the abilities that fell within the sphere of 'computer literacy' as competencies - as a collection of skills that can be measured using, for example, the European Computer Driving License (ECDL). By including the word 'literacy,' however, those unsure about the 'brave new world' of computers could be reassured that the digital frontier is not that different after all from the physical world with which they are familiar. Literacy once again was used to try to convey and shape meaning from a rather nebulous and loosely-defined set of skills.

Martin has identified conceptions of 'computer literacy' as passing through three phases. First came the Mastery phase which lasted up until the mid-1980s. In this phase the computer was perceived as alien, as ‘arcane and powerful,’ with emphasis being placed upon on programming and gaining control over it. This was followed by the Application phase from the mid-1980s up to the late 1990s. The coming of simple graphical interfaces such as Windows 3.1 allowed computers to be used by the masses. Computers began to be used as tools for education, work and leisure. This is the time when many certification schemes based on 'IT competence' began, including the ECDL, and computers began to be integrated into the home and workplace. From the late 1990s onwards came the Reflective phase with the ‘awareness of the need for more critical, evaluative and reflective approaches’ (Martin 2008, p.156-7). It is during this latter phase that the explosion of 'new literacies' occurred. Some type of 'synthesis' occurred with leisure time and workflows taking account of the transformative capacity of more widely-defined digital technologies.

The main problem with computer literacy was the elision between 'literacy' as meaning (culturally-valued) knowledge and 'literacy' as being bound up with the skills of reading and writing (Wiley, 1996). As we have seen above, both knowledge and skills are elements that need to be dealt with explicitly in any definition of literacy. Procedural knowledge about how to use a computer was conflated in definitions of 'computer literacy' with the ability to use a computer in creative and communicative activities. Being able to use a computer to access knowledge and media is different from using a computer to create knowledge and media.

The assumption that using a computer to achieve specified ends constituted a literacy began to be questioned towards the end of the 1990s. A US National Council

Report from 1999 questioned whether today's 'computer literacy' would be enough in a world of rapid change:

> ‘Generally, 'computer literacy' has acquired a 'skills' connotation, implying competency with a few of today's computer applications, such as word processing and e-mail. Literacy is too modest a goal in the presence of rapid change, because it lacks the necessary 'staying power'. As the technology changes by leaps and bounds, existing skills become antiquated and there is no migration path to new skills. A better solution is for the individual to plan to adapt to changes in the technology.’
>
> (US National Council, 1999, quoted in Martin, 2003, p.16)

Literacy is seen as fixed entity under this conception, as a state rather than a process.

It became apparent that ‘definitions of computer literacy are often mutually contradictory’ (Talja, 2005 in Johnson, 2008, p.33), that ‘computer literacy’ might not ‘convey enough intellectual power to be likened to textual literacy,’ (diSessa, 2000, p.109), and with authors as early as 1993 talking of 'the largely discredited term 'computer literacy'’ (Bigum & Green, 1993, p.6). Theorists scrambled to define new and different terms. An explosion and proliferation of terms ranging from the obvious ('digital literacy') to the awkward ('electracy') occurred. At times, this seems to be as much to do with authors making a name for themselves as providing a serious and lasting contribution to the literacy debate.

As the term 'computer literacy' began to lose credibility and the use of computers for communication became more mainstream the term 'ICT literacy' (standing for 'Information Communications Technology') became more commonplace. Whereas with 'computer literacy' and the dawn of GUIs the 'encoding' element of literacy had been lost, this began to be restored with 'ICT literacy.' The following definition from the US-based Educational Testing Service's ICT Literacy Panel is typical:

> ‘ICT literacy is using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society.’
>
> (ETS ICT Literacy Panel, 2002, p.2)

The skills outlined in this definition are more than merely procedural, they are *conceptual*. This leads to the question as to whether ICT literacy is an absolute term, ‘a measure of a person's total functional skills in ICT’ or ‘a relative measure’, there being ICT literacies, with individuals on separate scales (Oliver & Towers, 2000). Those who believe it to be an absolute term have suggested a three-stage process to become ICT literate. First comes the simple use of ICT (spreadsheets, word processing, etc.), followed secondly by engagement with online communities, sending emails and browsing the internet. Finally comes engagement in e-learning ‘using whatever systems are available’ (Cook & Smith, 2004). This definition of literacy is rather 'tools-based' and is analogous to specifying papyrus rolls or fountain pens under conceptions of Traditional (Print) Literacy. A particular literacy is seen as being reliant upon particular tools rather than involving a meta-level definition. 'Functional skills' is a term assumed to cover both the knowledge and the skills elements of literacy.

We saw the issues with the multiplicity of understandings of ‘digital literacy’ in Chapter 2. The problem is that, as with its predecessor term, 'ICT literacy' also means different things to different groups of people. The European Commission, for example conceives of ICT literacy as 'learning to operate... technology' without it including any 'higher-order skills such as knowing and understanding what it means to live in a digitalized and networked society' (Coutinho, 2007). This is direct opposition to the ETS definition above - demonstrating the fragmented and ambiguous nature of the term. Town sees 'ICT literacy' in the United Kingdom as ‘a particularly unfortunate elision’ as:

> ‘ICT (information and communications technology) literacy appears to imply inclusion of information literacy, but in fact is only a synonym for IT (or computer) literacy. Its use tends to obscure the fact that information literacy is a well developed concept separate from IT (information technology) literacy.
>
> (Town, 2003, p.53)

As Town goes on to note, this is not the case in non-English-speaking countries. ICT literacy is a concept that resides on the 'skills' end of the spectrum whilst claiming a 'knowledge' element that it cannot deliver.

The role and status of information literacy

Before moving on to definitions of digital literacy it is important to mention one more major influential 'literacy' coined in the last 30 years that has been alluded to above: 'information literacy.' This is a term that was coined in the 1970s but which has undergone a number of transformations to keep it current and relevant. Unlike 'technological literacy,' 'computer literacy,' and 'ICT literacy' it is not bounded by technology (and therefore likely to become outdated), nor is it a corrective to an existing 'literacy' (as with 'visual literacy'). Because it is not dependent upon any one technology or set of technologies, 'information literacy' has been eagerly taken onboard by librarians (Martin 2008, p.160) and governments (Fieldhouse & Nicholas, 2008, p.50) alike. Indeed more recently it has been defined as a 'habit of mind' rather than a set of skills:

> ‘[I]nformation literacy is a *way of thinking* rather than a set of skills... It is a matrix of critical and reflective capacities, as well as disciplined creative thought, that impels the student to range widely through the information environment... When sustained through a supportive learning environment at course, program or institutional level, information literacy can become a *dispositional habit*... a ‘habit of mind’ that seeks ongoing improvement and self-discipline in inquiry, research and integration of knowledge from varied sources.’
>
> (Center for Intellectual Property in the Digital Environment, 2005, viii-ix)

This ‘habit of mind’ approach is something I consider when discussing the Pragmatic methodology introduced and applied from Chapter 6 onwards. Literacy becomes not something explicitly measurable, but an attitude or a positioning of oneself towards information.

Although evident in the literature since the 1970s, the concept of 'information literacy' gained real traction in the 1990s with the advent of mass use of the internet. Suddenly information was a few effortless keystrokes and mouse clicks away rather than residing in great tomes in a distant physical space. Accessing and using this information correctly constituted, for proponents of the concept, a new 'literacy'. This was a time when politicians such as Al Gore used the term 'Information Superhighway' or 'Infobahn' to loosely describe the opportunities afforded by the internet. The emphasis was not upon content creation but upon *access to knowledge.* The metaphor of a road network exemplified the assumption that it would be governments, businesses and NGOs that provided the information or knowledge. The revolutionary aspect would be the democratization universal access to this would provide.

'Information literacy' as a term was boosted greatly by a definition and six-stage model for developing the concept agreed upon by the American Libraries Association in 1989. The committee tasked with investigating information literacy proposed that an ‘information literate person’ would ‘recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information’ (quoted in Fieldhouse & Nicholas, 2008, p.52). Achieving the state of being 'information literate' involves passing through six stages, outlined in Bawden (2008, p.21-22):

1. Recognizing a need for information
2. Identifying what information is needed

3. Finding the information
4. Evaluating the information
5. Organizing the information
6. Using the information.

Boekhorst believes that, indeed, *all* definitions of information literacy presented over the years can be summarized in three concepts. First there is the ICT concept: using ICT to 'retrieve and disseminate information'. Second is the information resources concept: the ability to find resources independently 'without the aid of intermediaries'. Finally comes the information process concept: 'recognizing information need, retrieving, evaluating, using and disseminating of information to acquire or extend knowledge.' As such information literacy has at times been seen as *including* computer-related literacies, sometimes as *part* of such literacies, and sometimes as being tangential to them (Boekhorst, cited by Virkus, 2003). This is what I refer to in Chapter 7 as an 'umbrella term'.

From these statements in the late 1980s/early 1990s information literacy developed to include an ethical dimension ('knowing when and why you need information, where to find it, and how to evaluate, use and communicate it in an ethical manner', SCONUL,1999)[27] and an economic dimension ('Information literacy will be essential for all future employees').[28] Information literacy has been seen as a 'liberal art' with an element of critical reflection, critical evaluation, and as involving problem-solving and decision-making dimensions (Bruce, 1997).

Graphic designers are keen to stress the importance of their work, that it has parity with text-based representations of thoughts and ideas. Thus this explanation of the 'literacy' involved in graphic design is representative:

[27] Quoted in Fieldhouse & Nicholas, 2008, p.52)
[28] Langlois (1997)

> ‘Literacy issues are of utmost importance to information designers because they affect the audience's ability to receive messages. In a knowledge economy, our understanding of the term ‘literacy’ has expanded. It no longer simply refers to reading and writing skills, but also focuses on the ability to find, process, interpret, and apply information.’
>
> (Visocky O'Grady & Visocky O’Grady, 2008, p.91)

The problem with such definitions and models is that they continue to view literacy as a *state* which can be achieved rather than an ongoing *process* and group of practices. They may make reference to the fact that the world has changed, but this is understood in big leaps rather than incremental change.

In addition 'information literacy' is biased heavily towards the reading and understanding part of literacy rather than the creation of texts. However much 'information literacy' may be praised for being an inclusive term (Doyle, 1994), be evident in the policy documents produced by western governments and seen as 'essential' to the success of learners, it has 'no agreed definition' (Fieldhouse & Nicholas, 2008). It is, in the words of Stephen Foster ‘a phrase in a quest for meaning’ (Snavely & Cooper, 1997, p.10). How, wonders Foster, would we recognize, and seek to remedy, 'information *illiteracy*'? As Karl Popper would have it, such a term is 'unfalsifiable'.

Despite this, many theorists propose information literacy as an ‘overarching literacy of life in the 21st century' (Bruce, 2002) and bodies such as the US Association of Colleges and Research Libraries come up with 'performance indicators' for the concept (Martin, 2008 p.159), 'information literacy' suffers from a lack of descriptive power. It is too ambitious in scope, too wide-ranging in application and not precise enough in detail to be useful in an actionable way. Even a move from talking about being 'information literate' to 'information savvy' (Fieldhouse & Nicholas, 2008, p.47) runs into difficulties for the same reasons. Definitions of the concept are too 'objective' and independent of the learner, even when there are 'seven key characteristics' to work towards (Bawden, 2008).

The evolution of digital literacy

After 'visual literacy,' 'technological literacy,' 'computer literacy,' and 'information literacy' ultimately proved unsuccessful, many sought to find a term more in keeping with digital communications and the Internet age. Although the concept of 'digital literacy' was not invented by him, the beginning of real discussion of the term was the publication of Paul Gilster's 1997 book *Digital Literacy*. Despite the promising title, the book has been criticized for giving multiple definitions of 'digital literacy,' with Gilster's idiosyncratic writing style cited as a reason why it didn't have an immediate impact. (Bawden, 2008).

Nevertheless, Gilster's work *did* begin to have an impact in the early years of the 21st century with others citing his 'generic expression of the idea' as a 'strength' (Bawden, 2008, p.18). Gilster makes no less than eleven attempts at a definition of the concept ranging from digital literacy as 'the ability to access networked computer resources and use them,' (Gilster, 2007, p.1) to it being 'partly about awareness of other people and our expanded ability to contact them to discuss issues and get help' (p.31). The idea most cited by other authors, however, is Gilster's assertion that digital literacy is about 'mastering ideas, not keystrokes' (p.15). This explicitly addresses the meta-level nature of literacy so conspicuously missing from earlier computer-related conceptions of literacy.

The 'impressionistic and wide-ranging' nature (Bawden, 2008, p.19) of Gilster's account means that, to a great extent, those following him and using the term could quote his work in support of theirs. Indeed, at the time of writing (2011), Google Scholar

indicates that Gilster has been cited ‘about 630’ times. Interestingly, when I first wrote this paragraph in 2010 the number was 375:

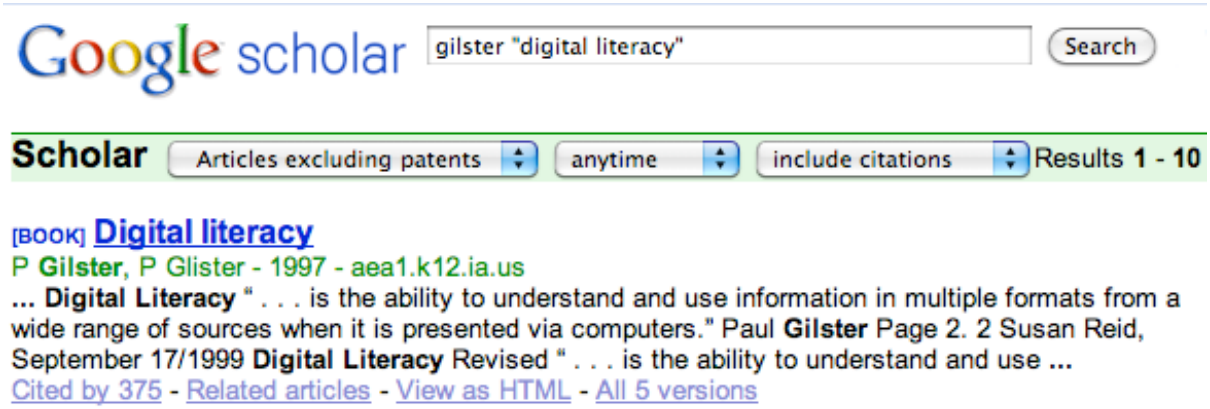


Figure 4 – Google Scholar citations for Paul Gilster’s book *Digital Literacy*

Bawden attempts to derive a list of the elements Gilster believes to be present in the term from the latter's work. He comes up with the following:

- ‘knowledge assembly,’ building a ‘reliable information hoard’ from diverse sources
- retrieval skills, plus ‘critical thinking’ for making informed judgements about retrieved information, with wariness about the validity and completeness of internet sources
- reading and understanding non-sequential and dynamic material
- awareness of the value of traditional tools in conjunction with networked media
- awareness of ‘people networks’ as sources of advice and help using filters and agents to manage incoming information
- being comfortable with publishing and communicating information, as well as accessing it

(Bawden, 2008, p.20)

We will see in Chapter 5 that although Gilster’s approach was so wide-ranging that a definition of digital literacy was unable to gain traction, positioning it on the cusp of a phase I will term ‘Creative ambiguity’ has led to useful work amongst researchers and practitioners.

As with other new literacies, there are almost as many definitions of 'digital literacy' as there are proponents of the concept. Listing and unpacking each of these

would take up an undue amount of space and involve much repetition so I intend to focus on the work of those theorists that represent particular streams of thought: Martin (2008), Eshet-Alkalai and Amichai-Hamburger (2004), Tornero (2004b) and Bélisle (quoted in Martin, 2008). As my aim in this thesis is primarily to look forwards, not backwards I attempt in what follows to ascertain the contributions of each of these theorists whilst pointing out where their organising framework remain deficient. Subsequently, I identify eight 'essential' elements of digital literacies culled from a 'meta' definition based upon their work.

Although what follows suggests some order and cohesion in the literature, all that the definitions have in common, in essence, is that digital literacy 'captures the notion that the literacy practices referred to are enacted in digital spaces' (Eyman, no date, p.7). As Eshet-Alkalai notes, 'indistinct use of the term causes ambiguity, and leads to misunderstanding, misconceptions, and poor communication.' There is, he notes:

> '…particular inconsistency between those who regard digital literacy as primarily concerned with technical skills and those who see it as focused on cognitive and socio-emotional aspects of working in a digital environment.'
>
> (Eshet-Alkalai, 2004, quoted in Bawden, 2008, p.24)

This is something I shall pick up in more detail in Chapter 5.

Martin (2008) claims to have abstracted from the prior research literature in the digital literacies arena come up with five 'key elements':

1. Digital literacy involves being able to carry out successful digital actions embedded within work, learning, leisure, and other aspects of everyday life;
2. Digital literacy, for the individual, will therefore vary according to his/her particular life situation and also be an ongoing lifelong process developing as the individual's life situation evolves;
3. Digital literacy is broader than ICT literacy and will include elements drawn from several related 'digital literacies';
4. Digital literacy involves acquiring and using knowledge, techniques, attitudes and personal qualities and will include the ability to plan, execute and evaluate digital actions in the solution of life tasks;
5. It also include the ability to be aware of oneself as a digitally literate person, and to reflect on one's own digital literacy development.

(Martin, 2008, p.165)

This overview foregrounds the important notion of *context* (exemplified in the first bullet point) and mentions the importance of literacies in their plurality, something that is missing from other definitions of a single digital literacy. It is a useful overview that is additive in that each of the five points depends upon the previous. Seemingly missing from Martin's overview, however, is an explicit acknowledgement of the importance of the *creative act* in digital literacies. His mention of 'digital actions' does not seem to convey the same level of experimentation as we would want to perhaps ascribe to the digitally literate individual. In addition, Martin makes no reference to power relations and the emerging consensus around actions within what are termed 'affinity spaces'. Rigorous testing for digital literacy is perhaps less important than with traditional (print) literacy as it understood as a moving target. Martin's five aspects of digital literacies are 'soft' skills and meta-level understandings, whereas those things that can be tested have, necessarily, to be clearly bounded, rigorously defined and, ultimately, *measurable*. The lack of explanation as to what the 'digital' part of 'digital literacy' applies is a wider problem, however, as we shall see in Chapter 8.

Eshet-Alkalai and Amichai-Hamburger attempt a rigorous yet practical overview of digital literacy by using a 'skills' framework. Digital literacy thus includes:

- Photo-visual skills ("reading' instructions from graphical displays')
- Reproduction skills ('utilizing digital reproduction to create new, meaningful materials from preexisting ones')
- Branching skills ('constructing knowledge from non-linear, hypertextual navigation')
- Information skills ('evaluating the quality and validity of information')
- Socio-emotional skills ('understanding the 'rules' that prevail in cyberspace and applying this understanding in online cyberspace communication').

(Eshet-Alkalai & Amichai-Hamburger, 2004, p.421)

Whilst, unlike Martin, this overview includes ‘Reproduction skills’ that enable ‘new, meaningful materials [to be created] from preexisting ones’ it still the *creative act* of individuals creating something from scratch. A rejoinder to this may be that every literacy practice is derivative from at least one other pre-existing literacy practice. If this is the case, then *all* creative acts are derivative. Problems then arise with completely original works. Do they involve a 'literacy' or not? If so, is it a 'literacy' specific to that particular medium or technology?

Again, something that is not considered in enough depth by Eshet-Alkalai and Amichai-Hamburger is notion of literacy practices being situated within semiotic, community-defined, domains. Whilst the authors mention understanding (and applying) the ‘rules’ that prevail in cyberspace, such ‘citizenship’ is a concept that goes above and beyond the mere obeying of rules. It is not only understanding one's *rights* and behaving appropriately, but recognizing and acting upon one's *responsibilities* within a given domain. However, the ‘branching skills’ mentioned by Eshet-Alkalai and Amichai-Hamburger along with ‘photo-visual skills’ are an important reminder of how literacy differs from traditional (print) literacy, both in the metaphorical use of ‘text’ and the understanding of ‘network effects’.

Tornero (2004b) believes digital literacy to be very similar to UNESCO's definition of 'media education':

> ‘[Media Education] enables people to gain understanding of the communication media used in their society and the way they operate and to acquire skills in using these media to communicate with others.
> ...
> [It] is linked with communication in general and is part of the basic entitlement of every citizen, in every country in the world, to freedom of expression and the right to information and is instrumental in building and sustaining democracy.’
>
> (Tornero, 2004b)

As a result, Tornero comes up with four dimensions involved in the 'process' of digital literacy:

1. Operational: The ability to use computers and communication technologies.
2. Semiotic: The ability to use all the languages that converge in the new multimedia universe.
3. Cultural: A new intellectual environment for the Information Society.
4. Civic: A new repertoire of rights and duties relating to the new technological context.

Whilst this certainly remedies the lack of community and civic elements in the two models outlined above, it again fails to make explicit the *creative* element of digital literacy. One could argue that the *ability* to use computers and communication technologies is a 'competence,' not an area of literacy. This is why the 'creative' element is important in digital literacy. Nor does Tornero deal adequately with the 'critical' nature of digital literacy. That is to say he does not consider, for example, an individual deciding to use one tool over another as a matter of literacy. Whilst it could be argued that this is not, in fact, a matter for *literacy*, such critical reflection is mentioned only in passing by Tornero. What is nevertheless useful in Tornero's framework is the focus upon the *semiotics* of new digital spaces and the multiple 'languages' that converge to allow reading and writing to happen in new ways.

Claire Bélisle believes 'literacy' to be an evolving concept with three distinct stages thus far. The first is the model favoured by UNESCO: the *functional model*. This conceives of literacy as the mastery of simple cognitive and practical skills. Most theorists in the literature of this research area, and especially those who espouse 'new literacies', would see this as a definition of *competence*, not literacy. Thus, 'digital competence' could involve a basic understanding of how the internet works (e.g. hyperlinks) and having the practical skills to be able to navigate it.

The second model in the evolution of literacy cited by Bélisle is the *socio-cultural practice model*. This model takes as its basis that 'the concept of literacy is only meaningful in terms of its social context and that to be literate is to have access to cultural, economic and political structures of society' (quoted in Martin, 2008, p.156). It appears intuitive that individuals have to be literate *for* something, so within the digital sphere the socio-cultural practice model makes sense. It deals specifically with the disenfranchisement felt by those not literate within a given domain. The model can also explain how hegemonic power can be grasped or maintained by those with access to literacy tools. A good example of the latter would be the Catholic church in Europe in the Early Modern Period. Banning books being churned out of newly-invented printing presses was an attempt to control literacy practices. The model is also a useful call-to-arms for those concerned about liberty and equality in society; in other words, social justice. It provides an arena for discourse about the importance of literacy in living a productive and rewarding life in a way that Paolo Friere would term 'emancipatory'.

There are, however, problems with the socio-cultural practice model of literacy. It deals with literacy as an *ideology* more than as a practical skill. As a result, constructive, creative and critical elements that we may want to foreground when defining digital literacies are only alluded to at the expense of the cultural, communicative and civic. The 'cognitive' element of digital literacies is not addressed, nor is the link between literacy and some kind of confidence (which I shall explain below). The socio-cultural practice model of literacy does not, therefore, have sufficient explanatory power to be used as the bedrock for new forms of literacy.

The final stage in the evolution of literacy, according to Bélisle, is the *intellectual empowerment model*. This deals with the link between new tools and new ways of thinking:

> ‘Literacy not only provides means and skills to deal with written texts and numbers within specific cultural and ideological contexts, but it brings a profound enrichment and eventually entails a transformation of human thinking capacities. This intellectual empowerment happens whenever mankind endows itself with new cognitive tools, such as writing, or with new technical instruments, such as those that digital technology has made possible.’
>
> (Bélisle, quoted in Martin, 2008, p.156)

This 'meta-level' view of literacy certainly deals with the cognitive element missing in the socio-cultural practices model as well as, to some extent, the critical and communicative aspects. However, no specific mention is given to the civic, constructive and confidence aspects of literacy I mentioned earlier.

If these conceptions of literacy have indeed 'evolved' from one another then they are, in a similar way to Martin’s five elements, *additive*; they build upon one another. If that is the case, the *functional, socio-cultural practice,* and *intellectual empowerment* models of literacy would together seem to cover all of the essential elements for digital literacies. That is to say all eight ‘Cs’ mentioned above are present:

1. Cultural
2. Cognitive
3. Constructive
4. Communicative
5. Confident
6. Creative
7. Critical
8. Civic

,

Melding these, we would get a definition of literacies similar to the following:

Literacies involve the mastery of simple cognitive and practical skills. To be 'literate' is only meaningful within a social context and involves having access to the cultural, economic and political structures of a society. In addition to providing the means and skills to deal with written texts, literacies bring about a transformation in human thinking capacities. This intellectual empowerment happens as a result of new cognitive tools (e.g. writing) or technical instruments (e.g. digital technologies).

This definition would seem satisfactory, dealing with the essential elements of digital literacies from the research literature. As I mentioned in my introduction, I believe that

previous work in the arena of digital and new literacies has been using the correct questions but using the wrong lens. Not only has a single ‘digital literacy’ been repeatedly redefined but the methodologies used have not been productive. I shall deal with these two issues in more detail in chapters 7 and 6 respectively.

Now that we have arrived at a working definition of literacies based on the research literature, we need to test it against the four conditions outlined earlier that would make for a valid definition. This is because digital literacies are necessarily predicated upon a bedrock definition of 'literacy'. Being 'literate' is a *necessary*, but not a sufficient, condition of being 'digitally literate'. To recap, the four conditions introduced earlier were:

1. **‘Cash value’** – it must be *useful* and must be able to make a difference in *practice*.
2. **Retrospective nature** – it must include past (and future) instances of ‘digitally literate’ practice.
3. **Metaphorical nature** – its position to other metaphorical terms in the literate practices arena must be explained adequately.
4. **Digital element** – advocates must be able to explain to what the ‘digital’ part of ‘digital literacy’ pertains.

It is clear from the research literature that to continue to attempt to define a single ‘digital literacy’ is an untenable proposition. We must instead, therefore, focus upon digital *literacies.* The resultant meta definition taken from the work of theorists explored above has the potential to deal adequately with the 'digital' part of 'digital literacy' in that it acknowledges that changes can take place as a result of new 'cognitive tools' and 'technical instruments'. Likewise, the definition can deal with both past and future instances of literate practices, as it mentions the 'transformation in human thinking

capacities' that literacy brings about. Given that literacies are altered by these cognitive tools and technical instruments, changes in the latter produce changes in the former. The metaphorical aspect of literacy is dealt with through its explanation that 'the concept of literacy is only meaningful in terms of its social context'. The 'cash value' of the definition could be seen to be a call to action due to literacy involving gaining 'access to cultural economic and political structures of society'.

Given the espoused *practical* aim of this thesis, however, it is not good enough for a definition of digital literacies to merely meet the four conditions in order to make it valid. It must also be *useful*. Is coming up with a meta definition from the research literature a useful approach? Or would, as I argue in Chapter 9, a better approach be to co-construct definitions with reference to the eight essential elements identified above? Before this, in Chapter 5, I introduce a continuum that helps the research area navigate the ambiguities inherent in metaphorical definitions of newer forms of literacies. Then, in Chapter 6 I go into more detail explaining and justifying the Pragmatic methodology employed in this thesis. I believe new literacies involve new ways of being and therefore require a new lens through which to conceptualise the concomitant practices. Chapter 7 explains what I have alluded to several times thus far around ‘umbrella terms’ in the research area whilst Chapter 8 considers the conceptual frameworks of McLuhan, Ong and Csikzentmihalyi. This leads into Chapter 9 in which the ‘eight essential elements of digital literacies’ I have derived in this chapter are explained in more depth and organized into a ‘matrix’.

Chapter 5: The ambiguities of digital literacy

'From the weakness of our senses we cannot judge the truth.'
(Anaxagoras)

As we saw in Chapter 4, 'digital literacy' remains an ambiguous term despite having a longer history than other, related, terms. In a similar way to the term 'digital native', the use of the term 'digital literacy' can be seen as existing within (what I shall introduce in this chapter as) a 'continuum of ambiguity' that features productive, creative and generative parts. These terms are not merely vague, but *ambiguous* in ways originally identified by Empson (1930:2004) and subsequently augmented by Robinson (1941) and Abbott (1997).[29]

This chapter explores Empson's seven types of ambiguity, originally used in literary criticism, along with subsequent work in the area. The concept of 'digital literacy' is juxtaposed with the 'digital native/immigrant' dichotomy that has followed a trajectory through the three stages of ambiguity. The idea of 'dead metaphors' is used to

[29] I had been struggling with the ambiguous nature of digital and new literacies when, serendipitously, I came across a remaindered version of Empson's *Seven Types of Ambiguity* in a bookshop. This sparked more widely-applicable ideas and the discovery, after some research, of work in the area by Robinson (1941) and Abbott (1997).

explain those terms that have dropped out of the continuum through overuse and reside mainly in dictionaries rather than in productive discourse. My aim is to show that almost all terms are defined in ways that could be considered ambiguous; as we saw in Chapter 3, this can be true of well-known terms such as (traditional, print) 'literacy'. Such ambiguity, I shall argue, is *especially* important to consider when it comes to the examples of 'digital literacy' and Prensky's 'digital native/immigrant' dichotomy. Given the inescapability of ambiguity, I shall make the case for embracing ambiguity and using it in a productive and pragmatic way.

Empson's Seven Types of Ambiguity

We are surrounded by ambiguity and vagueness in everyday life. 'Ambiguity' is defined by the Oxford English Dictionary[30] as the 'capability of being understood in two or more ways' whereas if something is 'vague' it is 'couched in general or indefinite terms' being 'not definitely or precisely expressed'. The two terms, therefore, are very closely linked Empson (1930:2004), for example, does not draw a distinction between them, setting out seven types of ambiguity of which several could be argued to be examples of 'vagueness'.

Empson's seven types of ambiguity can be seen to form a continuum through which terms may pass. This continuum has three reasonably-distinct parts, from the most ambiguous to the least ambiguous: generative ambiguity, creative ambiguity and productive ambiguity. The use of the term 'digital literacy' has changed since it was popularised by Paul Gilster (1997) but, as we will see, it remains mid-way through this

[30] http://www.oed.com

continuum of ambiguity. The term ‘digital native’, by way of contrast, is further along this continuum, despite it being a younger term.

The continuum of ambiguity is given in diagrammatic form below. Ambiguous terms suffer an imbalance in the denotative (surface-level) information and connotative (symbolic) information conveyed to individuals. As the usage of terms becomes less ambiguous they can be seen as moving towards the right of the overlap in the diagram:

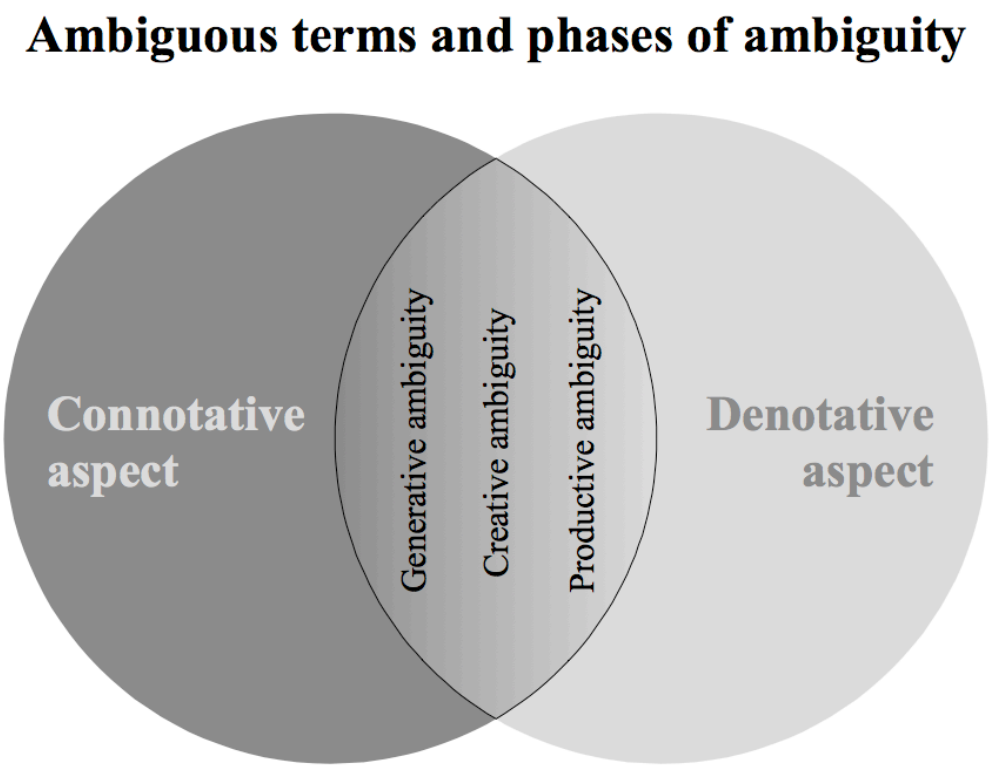


Figure 5 - A simplified, overlapping version of the spectrum of ambiguities

In this chapter, therefore, I will explore how the terms ‘digital native’ and ‘digital literacy’ have evolved with definitions that put them, at different times, in one or more of these parts of the continuum of ambiguity.

Generative ambiguity

Aristotle believed he had an answer to the difficulties presented by ambiguity. 'Since we cannot introduce the realities themselves into our discussions,' he stated, 'but have to use words as symbols for them, we suppose that what follows in the words will follow in the realities too.' The problem is that 'whereas words and the quantity of sentences are limited, realities are unlimited in number' (quoted in Robinson, 1941, p.144). This, then, is the first part of the continuum: an individual gives a name to a nebulous collection of thoughts and ideas. Examples include noticing a similarity between two objects or ideas, or having a similar feeling when in the presence of two otherwise completely different people. Often the connection between the two or more ideas or concepts can be difficult to explain to other people. This left-hand side of the continuum is most closely related to vagueness; I will name this part 'Generative ambiguity'.

As we began to see in Chapter 2 through the work of Tornero (2004) and Buckingham (2006), there are three main problems with ambiguous terms. The first is subtle: the symbol can be mistaken for the thing signified. In any field relating to technology the particular technology can become more important than *what it affords*. Second, the proliferation of terms confuses the landscape, with terms being either all-embracing or narrow in focus. Third, borrowing existing words and established terms (for example 'literacy') as part of the definition can hinder debate. As the number and applications of terms multiply, its descriptive (and therefore useful) power diminishes.

This ambiguity regarding the application and meaning of terms often takes the form of a 'zeugma'. Zeugmas are figures of speech that join two or more parts of a

sentence into a single noun, such as ‘digital literacy’. It is unclear here whether the emphasis is upon the ‘digital’ (and therefore an example of a prozeugma) or upon the ‘literacy’ (and therefore a hypozeugma). Which is the adjective?

Within the part of the continuum of ambiguity we have identified as ‘Generative ambiguity’, no aspect of the ambiguous term is fixed. This leads to definitions of terms that are so ambiguous as to be almost vague in the way discussed in the introduction. Some definitions, for example, assume that the ‘digital’ takes precedent (often leading to functionalist, procedural definitions) whilst others assume that it is the ‘literacy’ part that is important (usually leading to more of a ‘critical literacies’ approach where the digital element is played-down).

Empson’s *Seven Types of Ambiguity* (1930;2004) documented the various ways in which language (within a literary setting) could be ambiguous. This ranged from the least ambiguous (metaphor: two things are said to be alike) through to the most ambiguous (two words, in context, mean opposite things). *Alice’s Adventures in Wonderland* (Carroll, 1865) is ambiguous at the level of Empson’s sixth and seventh types of ambiguity. Take, for instance, the Queen in the story who admonishes Alice for a lack of imagination, stating that at Alice’s age she would often believe six impossible things before breakfast. Readers are often left in a situation where either a statement sounds nonsensical so they have to invent the meaning (the sixth type of ambiguity), or two words within the same context mean opposite things (the seventh type of ambiguity).[31] These two ambiguities, along with the fifth type of ambiguity (the author discovers their

[31] For example: ‘The executioner's argument was, that you couldn't cut off a head unless there was a body to cut it off from: that he had never had to do such a thing before, and he wasn't going to begin at his time of life. The King's argument was, that anything that had a head could be beheaded, and that you weren't to talk nonsense.’ (Carroll, 1865, Kindle location 745)

idea in the act of writing) form the part of the continuum of ambiguity I have identified as 'Generative ambiguity' (see Appendix 1)

One of the many definitions given by Gilster in *Digital Literacy* is, 'the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers' (Gilster, 1997, p.215). This can be seen as a form of the sixth type of ambiguity as, in defining the ambiguous term, Gilster introduces yet more ambiguity. What counts as a 'format', a 'source', or even a 'computer'? Gilster evidently has in mind something that makes the term 'digital literacy' make coherent sense in his particular context. Those *outside* his context, however, may struggle to make this definition readily applicable.

Generative ambiguity is using old words in new ways. Robinson, who built upon Empson's work, explains succinctly this paradox:

> 'Here then is the difficulty; we hope to get a perfectly new idea from time to time; but we can only use the old words with which to get it, or a new one that has to be defined in terms of the old; and the old words only mean the old things. So we are apparently condemned always only to rearrange the old notions.'
>
> (Robinson, 1941, p.149)

How, then, can we ever express originality? Are we destined for an eternity of 'deckchair-rearrangement'? Robinson explains that originality is, in fact, possible by hinting at new ideas through the use of old words in new ways. This works through the principle of *relational univocity*, a 'reaction of the context with the old sense' (p.149) which destabilises the old meaning of a word through its use in a new context (or being yoked with another in a novel way). Robinson cites Aristotle's explanation of 'healthy' as an example of relational univocity: 'healthy' can be applied to things as diverse as 'healthy' exercise (causation), a 'healthy' complexion (indication), and 'healthy' roses (possession) (p.143). '[E]ach particular case has to be learned from the context,' states

Robinson, with relational univocity being ‘a bond that holds together the various meanings of an ambiguous word’ (p.143). Indeed, it is through such bonds that terms move from the Generative to the Creative form of ambiguity; aspects of the hinted idea coalescing in ways that can be transmitted such they leave a similar impression upon others.

An example of relational univocity is given by ETS (the US Educational Testing Service)when they define ‘digital literacy’ as:

> ‘[T]he ability to use digital technology, communication tools and/or networks appropriately to solve information problems in order to function in an information society.' (ets.org). It comprises 'the ability to use technology as a tool to research, organize, evaluate, and communicate information, and the possession of a fundamental understanding of the ethical/legal issues surrounding the access and use of information.’
>
> (Lankshear & Knobel, 2006, p.23)

This definition uses ‘technology‘ as a shorthand for simultaneously a tool, a technique and an attitude, and is clearly an attempt at using relational univocity to convey an otherwise hard-to-grasp and rather nebulous concept.

Abbott, acutely aware that Empson’s seven types of ambiguity pertained to literary creations, attempted to provide a positivist framework for ambiguity in the social sciences. He noted that ‘even though positivist social science has been shown to be in principle impossible, the vast majority of social-science effort (and funding) is in fact spent doing it.’ (Abbott, 1997, p.358). He therefore considers ambiguity in a formal manner, coming up with seven types of ambiguity that can be mapped directly onto Empson’s earlier structure. These later conceptualisations of ambiguity are useful in that they not only give names to the seven types of ambiguity but provide real-world (as opposed to literary) examples of ambiguity in practice.

	7	6	5	4	3	2	1
Empson (1930)	Two words, in context, mean opposite things	Statement says nothing so reader has to invent meaning	Author discovers idea in act of writing	Two meanings combine to make clear a complication	Two ideas given through one word (connected by context)	Two different metaphors used at the same time	Two things are said to be alike
Abbott (1997)	Interactional ambiguity	Contextual ambiguity	Narrative ambiguity	Durational ambiguity	Syntactic ambiguity	Ambiguity of locus	Semantic ambiguity
Robinson (1941)			Relational univocity		Sliding ambiguity		Naive ambiguity
	GENERATIVE AMBIGUITY			CREATIVE AMBIGUITY		PRODUCTIVE AMBIGUITY	

Figure 6 - Trajectory of ambiguities

At the level of the fifth, sixth and seventh type of ambiguity, Abbott indicates that individuals have to do some real work to make sense of the idea being grasped at. The most ambiguous form, that which Abbott names *Interactional ambiguity*, occurs when 'the meaning of an indicator is ambiguously defined by the interactional context of its production' (Abbott, 1997, p.365). The example given by Abbott is when the author of a survey has in mind a particular audience when framing a question but, when it comes to be answered, the interviewee is unsure as to which audience that is. This maps directly onto Empson's seventh type (two words in the same context mean opposite things); the word 'wicked', for instance, in youth culture means exactly the opposite (cool, fun) to more standard definitions (wrong, evil).

Abbott's sixth form of ambiguity, which he names *Contextual ambiguity* is produced, he states, 'out of the manifold indeterminacy of the variable correlation matrix' (Abbott, 1997, p.364). In other words, variables in one context (e.g. 'digital' and 'literacy') may be linked with certain other variables (e.g. 'curricula'), whereas in another context they would be linked with different variables (e.g. 'economic competitiveness'). This is particularly problematic with the concept of 'digital literacy' given the indeterminate nature of what both 'digital' and 'literacy' mean in any given

context. Again, this maps onto Empson's scale, with his sixth formulation being a statement which 'says nothing' so readers have to invent their own meaning. Using the example of 'digital literacy', readers think they know what is meant by the term, but because of its highly contextualised nature (and the difficultly in expressing this context in totality) it cannot be conveyed in a meaningful way.

The fifth type of ambiguity defined by Abbott is *Narrative ambiguity*, occurring because of the ways in which the fluctuations of everyday life can shape one's response to a given stimulus. Abbott gives the example of interviews which come 'at a particular moment in a life narrative, a moment that shapes responses decisively' (Abbott, 1997, p.363). Empson's fifth type of ambiguity involves an author discovering their idea in the act of writing which, if extrapolated and generalised, is what Abbott is also concerned with: ambiguity resulting from natural fluctuations in human narratives. An example of this is Erstad's attempted definition of digital literacy which, instead of clarifying the issue, seems to become more ambiguous as each word is added:

> 'One of the key challenges in [developments of everyday practices] is the issue of digital literacy. This relates to the extent to which citizens have the necessary competence to take advantage of the possibilities given by new technologies in different settings.'
>
> (Erstad 2008, p.177)

The tension between the connotative and denotative elements of the definition exists due to the associated tension between making oneself clear and making the definition as widely applicable as possible.

These, then, are the three types of ambiguity within the Generative phase of ambiguity. They are 'generative' in the sense that they involve the coalescing of ideas, the coming together of various elements out of which emerges something new. The ambiguity is fragile and tenuous, held in tension between various ideas and elements and,

because of this, difficult to communicate. Ideas in the Generative ambiguity phase require a great deal of effort in order to move them into the phase of Creative ambiguity, where they can be understood and worked upon by a larger number of people.

Creative ambiguity

Terms defined in such a way so as to be part of the continuum identified as 'Creative ambiguity' are less ambiguous than those within Generative ambiguity. Definitions within the Creative ambiguity part of the continuum are more readily-understandable and applicable to contexts other than the very narrow one often used in definitions within Generative Ambiguity. Creative ambiguity covers Empson's third and fourth types of ambiguity, those which Abbott names 'Durational ambiguity' and 'Syntactic ambiguity' respectively.

The fourth type of ambiguity, the more ambiguous of the two ambiguities within the Creative part of the continuum, Abbott names *Durational ambiguity*. This arises as a result of the unknown temporal extent of observed indicators, Abbott giving the example of attitudes specific to a certain group, class or community not acquired 'in a moment... [but] only after a substantial period' (Abbott, 1997, p.363). This is an ambiguity that can be seen readily with the concept of 'digital natives' fitting, as it does, so neatly into the nature/nurture debate; 'native' is not only a term relating to natural 'ability' but to *status*. It also explains the ambiguity caused by the elision of 'digital' as sophisticated and 'native' as primitive.

Empson explains that an ambiguity of the fourth type happens when 'two or more meanings of a statement do not agree among themselves, but combine to make clear a more complicated state of mind in the author' (Empson, 1930:2004, p.133). It is

‘the most important aspect of a thing, not the most complicated’ of which we are conscious, he continues, as ‘the subsidiary complexities, once they have been understood, merely leave an impression in the mind’ (Empson, 1930:2004, p.133). Take, for example Microsoft’s Digital Literacy Curriculum. It states that the goal of digital literacy is:

> ‘to teach and assess basic computer concepts and skills so that people can use computer technology in everyday life to develop new social and economic opportunities for themselves, their families, and their communities.’
>
> (Microsoft, no date)

This, to use Empson’s phrase, ‘leaves an impression in the mind’ without the move from ‘basic computer concepts’ to ‘social and economic opportunities’ being made explicit. It is close to what Robinson calls ‘sliding ambiguity’ and which I will consider presently.

Within the part of the continuum identified as ‘Creative ambiguity’ one aspect of the ambiguous term is fixed, much in the way a plank of wood nailed to a wall would have 360-degrees of movement around a single point. This point of reference allows others to co-construct meaning and the term to enter a wider community for discussion and debate. As Empson suggests, if the term is re-formulated in a way that is slightly less ambiguous than the fourth type, then this becomes an example of the third type of ambiguity: ‘two ideas, which are connected only by being both relevant in the context, can be given in one word simultaneously’ (Empson, 1930:2004, p.102). The ambiguity persists due to the tension caused by ‘the sharpness of distinction between the two meanings’ (ibid.). This could cause individuals and communities to ‘talk past one another’ if, for example, one used ‘digital’ as a substitute for ‘digital lifestyle’ whilst another used ‘digital’ as shorthand for ‘digital hardware and software’.

Syntactic ambiguity, the name Robinson gives to the third type of ambiguity, is a favourite of politicians as it enables them to extract themselves from potentially-awkward situations. Syntactic ambiguity, explains Robinson, arises from 'changing causal contexts [which] create an implicit ambiguity on the level of indicators' (1997, p.363). To put this more clearly, if a term may reasonably be interpreted in more than one way then it displays 'syntactic ambiguity'. This is an extremely common form of ambiguity, occurring due to the relationship created between words when writers are short of space. Amusing examples of this type are referred to as 'crash blossoms' (Zimmer, 2010) after a Japanese headline that read, ambiguously, 'Violinist Linked to JAL Crash Blossoms'. The author, Zimmer, believed that the word 'blossoms' pertained to 'crash' rather than the violinist. Other examples, of which there are many, include 'I'm glad I'm a man, and so is Lola' (from The Kinks song, *Lola*). Whilst the definition of digital literacy by Erstad we saw earlier fits into the Generative phase of ambiguity, the portmanteau term 'Electracy' (Erstad, 2003) fits here within Productive ambiguity as an example of different contexts - in this case between Norway and the English-speaking world - creating 'an implicit ambiguity on the level of indicators'.

As with relational univocity, there is a boundary between the parts of the ambiguity continuum marked out as Creative ambiguity and Productive ambiguity. In this case the term is what Robinson (1941) names *Sliding ambiguity*. This occurs when a term covers a wide area and refers alternately to larger and smaller arts of that area. Such a term embraces a complex of conceptions, put together under one word because we feel them to be somehow connected, or because we have not clearly distinguished them (Robinson, 1941, p.142). The earlier example of Microsoft's Digital Literacy Curriculum could equally be seen as an example of the third type of ambiguity, and therefore a

candidate for Robinson's Sliding ambiguity, as the macro (societal change) and the micro (basic computer skills) are considered simultaneously.

Whilst a level of consensus can exist for a given community within the Creative ambiguity part of the continuum, it nevertheless remains highly contextual. It is dependent, to a great extent, upon what is left unsaid - especially upon the unspoken assumptions about the 'subsidiary complexities' that exist at the level of impression. The unknown element in the ambiguity (for example, time, area, or context) means that the term cannot ordinarily yet be operationalised within contexts other than communities who share prior understandings and unspoken assumptions.

Productive ambiguity

In order for an ambiguous term to be operationalised, in order for it to be able to 'do some work' and make a difference, it must be redefined in such a way as to enter the Productive ambiguity part of the continuum. This is the least ambiguous part of the continuum, an area in which more familiar types of ambiguity such as metaphor are used (either consciously or unconsciously) in definitions. Empson defines the second type of ambiguity, for example, as occurring when 'two or more meanings are resolved into one' (Empson, 1930:2004, p.48). This second type of ambiguity (which Abbott calls *Ambiguity of locus*) is the most commonly-observable example of ambiguity, believes Empson. Examples tend to exhibit a directness of feeling whilst the concept behind the feeling is ambiguous. The concept may exhibit either psychological or logical complexity (or both) but this is masked by the seemingly-intuitive nature of the term. Abbott explains that this type of ambiguity springs from one thing being taken as indicating

something about another. He gives the example of divorce rates being taken to indicate something about the status of 'the family,' or the erosion of 'community stability,' for example. 'The ambiguity about the meaning of the indicator arises in part through the inclusion of families within communities' (Abbott, 1997, p.362); in other words, one ambiguous term is situated within another.

This second type of ambiguity can be seen in many definitions of 'digital literacy' including that given by the European Commission. They stress the importance of using Information and Communications Technologies (ICTs) in everyday life, going on to state (as we saw in Chapter 2):

> 'To participate and take advantage, citizens must be digitally literate - equipped with the skills to benefit from and participate in the Information Society. This includes both the ability to use new ICT tools and the media literacy skills to handle the flood of images, text and audiovisual content that constantly pour across the global networks.'
>
> (Europe's Information Society Thematic Portal, 2007)

Digital literacy is couched here within a wider ambiguous term - that of the 'Information Society'. The ambiguity about the meaning of digital literacy arises in part through the inclusion of literacy within a discussion of society.

This second type ambiguity (Abbott's *Ambiguity of locus*) would also help explain the concept of 'digital natives' moving from the Creative ambiguity part of the continuum of ambiguity to Productive part. Once Marc Prensky defined a 'digital native' as someone who was born after 1980 and is adept in using and communicating with digital devices, the converse of this, the 'digital immigrant', was easy to identify. However, as Abbott's work helps explain, this is one thing being taken to indicate something about another. An uncontentious observation that children are more likely to be immersed in digital environments is writ large (and more contentiously) as being some

kind of ‘societal step-change’. Prensky’s dichotomous terms enter the Productive part of the continuum of ambiguity despite, in effect, being one ambiguous term (‘digital immigrant’) within another (‘digital native’).

Bennett, Maton & Kervin believe the widespread acceptance and adoption of the ‘digital native/immigrant’ dichotomy as saying more about society rather than the young people it attempts to describe. They believe it to be ‘an academic form of moral panic’ as ‘arguments are often couched in dramatic language… and pronounce stark generational differences’ (Bennett, Maton & Kervin, 2008, p.782). Prensky’s hyperbolic statement that we have reached a ‘singularity’ from which we can never go back, they believe, ‘close[s} down debate, and in doing so allow[s] unevidenced claims to proliferate’ (p.783). Certainly, the ‘dawn of the digital native’ has been used to explain everything from declining literacy levels to the rise in identified cases of Attention Deficit Hyperactivity Disorder (Johnson, 2008).

The very least ambiguous type of ambiguity in the continuum is Empson’s first type. It is straight metaphor, something Empson calls ‘the fundamental situation’ whereby ‘a word or a grammatical structure is effective in several ways at once’ (Empson, 1930:2004, p.2). The term, continues Empson, is not stressed in relation to the rest of the sentence ‘but as if to fill out the sentence... signal[ling] to the reader what he is meant to take for granted’ (Empson, 1930:2004, p.3). Robinson names this *Naive ambiguity*, citing Plato’s Socratic dialogues as an example:

> ‘The early dialogues frequently represent Socrates as seeking for definitions of terms. Now, before we seek to define a term we should make sure that it has only one sense, or at least which of its senses we are trying to define. But Socrates never does this in the Platonic dialogues. In every case he puts the question and proceeds to look for an answer with the most perfect coincidence that the word means the same thing every time it is used.’
>
> (Robinson, 1941, p.140)

This is the same type of ambiguity that Abbott names *Semantic ambiguity*, arising from the assumption that one thing 'means' another and that this meaning is stable. In a similar way to Socrates, ambiguity surrounding the meaning of terms is seen as a bad thing, as something to be avoided. Instead, Abbott presents Semantic ambiguity, the first type of ambiguity, as a fact of life. Years in school, for example, can 'mean' education 'in the sense that... time spent in school results in more or less monotonic increase in education'. At the same time, however, years in school also 'means' 'exposure to popular culture [and] bureaucracy' as well as 'reduced time available for criminal activity' (Abbott, 1997, p.361). It is a 'simple type of multiple meaning... a situation where one fact means several things at once without those things resolving into any one meaning' (ibid.).

An example of this duality of meaning is evident in Lanham's early definition of Digital Literacy:

> '[Digital Literacy is] being skilled at deciphering complex images and sounds as well as the syntactical subtleties of words.'
> (Lanham, 1995, quoted in Lankshear & Knobel, 2008a, p.198)

Although this definition sounds reasonable, upon further inspection it is far from clear that 'deciphering complex images and sounds' is a skill that can be grouped together with 'deciphering words' without further explanation.

When within the Productive part of the continuum of ambiguities terms have a stronger denotative element than in the Creative and Generative phases. Stability is achieved through alignment, often due to the pronouncement of an authoritative voice or outlet. This can take the form of a well-respected individual in a given field, government policy, or mass-media convergence on the meaning of a term. Such alignment allows a greater deal of specificity, with rules, laws, formal processes and guidelines created as a result of the term's operationalisation. As I have argued in Chapter 4, and will return to

again in Chapter 9, this can be achieved through the contextualisation of a core matrix of configurable 'elements' of digital literacies.

Movement through the whole continuum of ambiguity is akin to a substance moving through the states of gas, liquid and solid. Generative ambiguity is akin to the 'gaseous' phase, whilst Creative ambiguity is more of a 'liquid' phase. The move to the 'solid' phase of Productive ambiguity comes through a process akin to when a liquid 'sets'. Ambiguous terms can, and often do, fall out of the continuum of ambiguity becoming, to use Rorty's imagery, like a coral reef, 'a platform and foil for new metaphors' (Rorty, 1989, p.118).

Summing up

Where do current definitions of 'digital literacy' reside on this continuum? Have definitions, much like definitions of 'digital native' been formulated in progressively less ambiguous ways, moving from Generative ambiguity through Creative ambiguity and into Productive ambiguity? It would appear that this is not the case. Whereas Prensky's 'digital native/immigrant' is akin to what Richard Rorty would define as 'dead metaphor' (formulaic and unproductive), the term 'digital literacy' continues to be defined and re-defined in new and innovative ways.

The early 'academic' writing about the concept of 'digital natives' was not peer-reviewed, often appearing in magazines for teachers and librarians and featuring a journalistic or even hyperbolic style:

> 'If television was a defining influence over the boomer generation, what is shaping the generation of students entering higher education today? A growing number of educators are recognizing that this generation has been heavily influenced by the

> pervasive digital media that has surrounded them literally since birth. Marc Prensky coined the term 'Digital Native' (Presky [sic], 2001) to describe this generation. The moniker communicates clearly that these are not subtle changes to have occurred, but instead this is a generation of students who act - and perhaps even think - differently than those that are educating them - the so-called 'Digital Immigrants.'
>
> (Gaston, 2006, p.12)

More recent peer-reviewed papers, such as the work of Bennett, Maton & Kervin cited above, have pointed out the lack of an evidence base for Prensky's claims. Given the devastating critique of the use of 'digital native' being equivalent to a 'moral panic', the term is a Rortyian dead metaphor in the world of serious academia. It remains, however, a widely-cited term in magazines for teachers and librarians.

'Digital literacy' is also a term with different usage depending on the community within which it is used. The difference here, however, is that it is a term that originated in academic research and has filtered through to practitioners and other interested parties. It is a term that is used in various ways depending upon context: some definitions equate 'digital literacy' with computer skills, whilst others see it involving the kind of criticality more usually ascribed to 'media literacy.' The world of academia may be slow-moving, but there is a lag beyond this in terms of research filtering down to practitioners. Many teachers, for instance, still believe in some notion of fixed 'learning styles', despite the concept being widely discredited in the academic literature even before the 'digital native/immigrant' dichotomy.

In this chapter, towards the centre point of the thesis, we have seen that ambiguous terms can be placed on a continuum of ambiguity informed by the work of Empson, Robinson and Abbott. Using 'digital literacy' as the main example, and the concept of the 'digital native' by way of contrast, the various ways in which such terms can be ambiguous have been illustrated. Dividing the continuum of ambiguities into three parts, I have identified 'Generative ambiguity' as the part of the continuum that includes

definitions of terms involving strongly-connotative elements. Those definitions of ambiguous terms that are more 'balanced' between the connotative and denotative elements fit, I believe, within the 'Creative ambiguity' part of the continuum of ambiguities. Those with strongly-denotative elements fit within the part of the continuum of ambiguities I have named 'Productive ambiguity'.

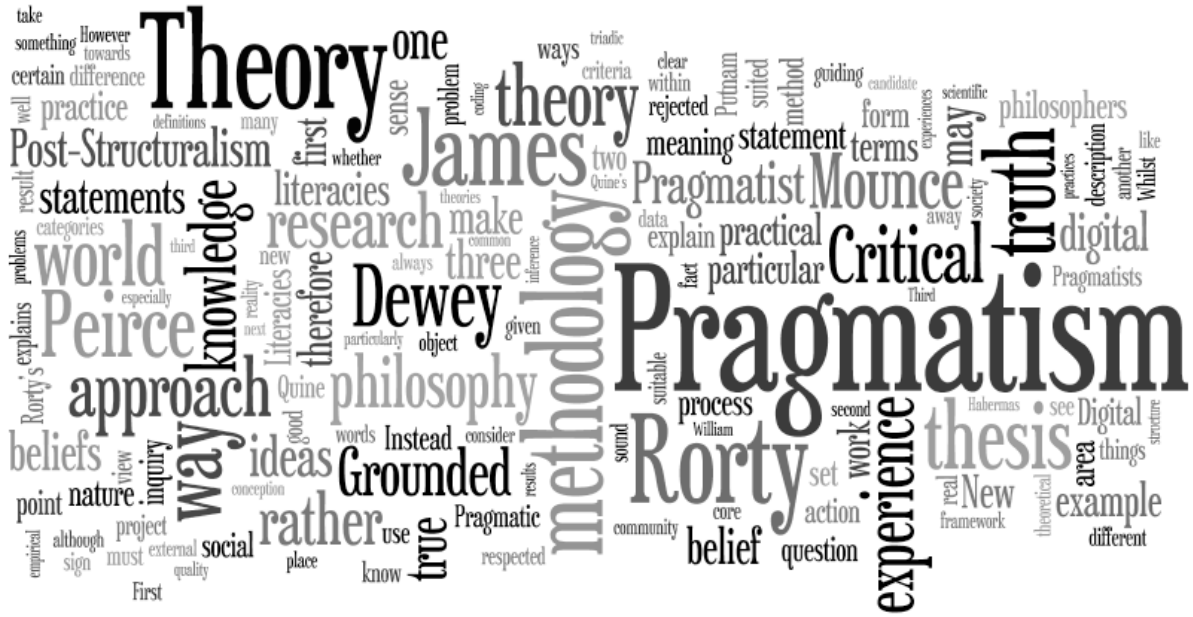
In passing, I touched upon Rorty's idea of the 'dead metaphor' and suggested that definitions of ambiguous terms may tend, through constant reformulation and redefinition, towards Productive ambiguity. Finally, it is worth noting Empson's reminder that ambiguity is itself an ambiguous term:

> 'Ambiguity itself can mean an indecision as to what you mean, an intention to mean several things, a probability that one or other or both of two things has been meant [or] the fact that a statement has several meanings.'
>
> (Empson, 1930:2004, p.5-6)

In this chapter I have made the case for a 'continuum of ambiguities' within which various definitions of 'digital literacy' reside. Such definitions, depending as they do upon changes in technology and shifting use of language, may move between different parts of the continuum. They may, indeed, cease to be part of the continuum, descend into cliché and become a 'dead metaphor' (perhaps to be revived later). The important insight in this chapter, believe, is that because of its necessarily-ambiguous nature, 'digital literacy' can only be understood in an 'ideological' way. That is to say, in opposition to a more 'autonomous' understanding of the term, I would agree with Colin Lankshear in rejecting a single 'essential literacy lying behind actual social practices involving texts' (Lankshear, 1999, no page). Literacy does not have an objective, unchanging nature, but 'consists in the forms textual engagement takes within specific material contexts of human practice' (ibid.). As ambiguity when defining terms such as

'digital literacy' cannot be avoided it would be best to acknowledge, understand and, indeed, *embrace* it.

Chapter 6: Methodology



'By convention sweet, by convention bitter, by convention hot,
by convention cold, by convention colour: but in reality atoms and void.'
(Democritus)

As mentioned in my introduction, this is a non-empirical thesis submitted towards a 'vocational' doctorate. In that regard, it requires a suitable methodology, a way of going about things to achieve the desired result. This chapter, situated midway in the thesis, serves as a pivot, a lynchpin, a way of joining the problems of literacy and digital literacies with potential solutions.

Although methodology sections traditionally appear towards the start of a doctoral thesis, doing so seemed not to sit well with the nature of this particular research. One of the original contributions to knowledge I have identified is the use of Pragmatism as a new kind of lens to solve some of the problems that seem to plague the research area. In order not to 'beg the question' I therefore have attempted to critique current

approaches using existing conceptual tools, before approaching the field in a different way. The question most pertinent for this section, therefore, is what constitutes both a suitable research design and platform for action. Following on from my comments at the end of the previous chapter, I will argue that the Pragmatist approach is the most suitable methodology or 'rationale' for this thesis. In addition, applying a Pragmatic methodology or rationale is a logical extension of my educational history thus far. Given my first degree was in Philosophy and my MA thesis concentrated on a history of Victorian educational ideas, Pragmatism allows me to simultaneously focus on digital and new literacies from a conceptual point of view and concentrate on the utility of such a conceptualization.

As Mende points out, research is 'a process of producing new knowledge' with researchers needing 'knowledge of different types of research processes and knowledge products' (Mende, 2005, p.190). Such knowledge about knowledge Mende calls 'meta-knowledge'. Without a method of structuring this meta-knowledge, a way of devising a theoretical framework, researchers would find it difficult to operate effectively. And without a sound research basis, educators would be 'rudderless' in a sea of opinion and rhetoric.

This thesis operates a meta-level. It is not based upon direct empirical results, nor specifically on analysis of the empirical results of others. Nevertheless, it is important to be clear and rigorous when it comes to the methodology employed in order not only to avoid irrelevant digression but to provide a platform for action.

A methodology, therefore, needs to:

1. Be recognised and respected as sound.
2. Be well-suited to the research area and aims of the thesis.
3. Allow for results that will make a difference to a research area. a.

This thesis will employ a Pragmatic methodology, for reasons that shall become clear. In this chapter I outline some candidate methodologies and approaches, explaining why they fail the three tests I have outlined above. Following this I settle upon Pragmatism as an appropriate methodology, coming up with 'Ten Pragmatic principles' from the work of a range of Pragmatist philosophers.

Methodologies

There are many methodologies from which to choose when approaching a doctoral thesis. After a trawl through the literature, reflecting on my own experience at BA and MA level in Philosophy and Modern History, and discussions with my supervisor, I narrowed down my candidate methodologies. I rejected those such as Semiotics, Hermeneutics and 'assortive mixing' where either the underpinning epistemologies were unsuitable, they were more suited to empirical research, or the did not allow for ambiguity to be a *useful* concept (as we saw in the previous chapter). Semiotics, for example, despite being a valid, well known and respected methodology I rejected for this reason, as well as the fact that it is implicit in Charles Sanders Peirce's *Semiosis*.[32] Those I identified as potentially useful to my thesis were Critical Theory, Cybermethodology, Grounded Theory, Post-Structuralism and Pragmatism.

One of these, Cybermethodology, although sounding promising, fails the first test of being recognised and respected as a sound approach. Few details of the method exist

[32] As we shall see, Pragmatism is a useful approach for looking at the *functional* meaning of a term.

outside of a dedicated Wikipedia page[33] and, as 'Basic Cyber-Literacy' and 'Meta-Literacy' form part of its components, the approach would beg the question.

Grounded Theory is potentially more promising as a methodology. It is the inverse of the usual scientific method: data is gathered and codified. Out of these categories a theory or 'reverse-engineered hypothesis' emerges. The original work in this area was carried out by Glaser and Strauss (1967) although since then each author has promoted his particular strand of Grounded Theory. The Glaserian approach forgoes audio recording of interviews, any 'talk' by the researcher doing the coding and, indeed, any pre-interview research into the literature of the area being discussed. The Straussian approach, on the other hand, is less emergent and more systematised, with more emphasis on validation criteria. Abductive reasoning (which Charles Sanders Peirce called a form of 'guessing') underpins Straussian Grounded Theory. The 'abductive leap' is therefore the reasoning that moving from *P* to *Q* involves *Q* being the most economical explanation for *P*. Instead of the emergence of Glaserian Grounded Theory based on the creativity of the researcher, Straussian Grounded Theory focuses much more on the four-step process of coding, conceptualising, categorising and theorising.

Grounded Theory is not a descriptive methodology but rather one that seeks to explain people's actions in a way understandable outside of a particular research area. This is achieved in Straussian Grounded Theory through 'open coding', a process in which a researcher goes through their notes line by line coding 'incidents' in the data. Once the core variables have been identified, a process of 'selective coding' takes place in which interviews and observations are coded in the light of these core variables. Finally, in the stage of 'theoretical coding' hypotheses are constructed which help explain the data. In Glaserian Grounded Theory, meanwhile, the process is more

[33] http://en.wikipedia.org/wiki/Cybermethodology

serendipitous, with a creative process of 'theoretical memoing' (no rules of writing pertaining to style or grammar) being followed by 'sorting' (where ideas emerge) and then 'writing' (different categories are related to the core variable).

As Thomas & James (2006) point out, Grounded Theory is popular, but this does not necessarily make it a reason to adopt the theory. Qualitative research is a legitimate form of study, they argue, but difficult to carry out. Grounded theory offers a solution to this problem by establishing a set of procedures and a means of generating theory. There have been critics, however: Layder (1993) is concerned that Grounded Theory highlights the immediately obvious and observable at the expense of the structural and invisible elements of social situtations (Thomas & James, 2006, p.3). Robrecht (1995) notes that the elaborate sampling procedure advocated by Straussian Grounded Theorists diverts attention away from the data itself and towards procedures and techniques. Dey (1999) presents a comprehensive list of criticisms pointing out the confusion and ambiguity present in Grounded Theory giving as an example the dichotomy between the Glaserian and Straussian strains of the theory (Thomas & James, 2006, p.4). Grounded Theory is therefore what Stanley Fish (1989) calls 'theory talk', that is to say 'any form of discourse that has acquired cachet or prestige'. It conflates everyday theory, 'I have a theory why squirrels have stopped stealing food from our bird feeder,' for example, with the type of more rigorous generalisations that follows data collection and analysis (Thomas & James, 2006, p.6-7).

It would appear that Glaser and Strauss had in mind an accelerated reverse-Kuhnian period of 'normal science' when defining Grounded Theory. That is to say that theory is said to 'emerge' from the data in a way that explains the phenomena and is refined and refined to fit it more closely. If it does not fit the phenomena then it is rejected in the same way as Kuhn describes the period of' revolutionary science'.

However, given that a theory can be refined *ad infinitum* to explain the phenomena, when should this process stop? As Allan (2003) suggests, Grounded Theory assumes researchers are machines, coming to situations as unbiased observers and free from prejudice and interest. What, for example, constitutes the 'saturation point' at which no more refinement is deemed necessary? Would this be different in different disciplines and for different researchers?

Perhaps the most pertinent reason why Grounded Theory is not a suitable methodology for this thesis is that it depends on the lens of one researcher in one particular context. Given that this is a non-empirical thesis drawing on the work of a diverse mix of educators and academics to approach the literature in such a strictly systemised way, looking to 'code' the data would be inappropriate. There is no data *to* code. The underlying epistemology - the 'revisability' of Grounded Theory - *is*, however, appropriate to Digital and New Literacies. Fortunately, there are other methodologies that avoid some of the problems making Grounded Theory problematic for a non-empirical thesis.

Dismissing Cybermethodology and Grounded Theory from the list leaves us with three candidate methodologies: Critical Theory, Post-Structuralism and Pragmatism. I will consider each in turn, using the three tests for a methodology (outlined earlier) as a guide.

Critical Theory

Critical Theory is a complex fusion of two different schools of thought. Although based upon a critique of society and culture, Critical Theory remains an umbrella term within which are found Marxist theory and the ideas of the 'Frankfurt School'. Whilst the

former has a normative dimension (there is a way that the world 'ought' to be) the latter is more of a hermeneutic approach (gaining knowledge through interpretation of 'texts').

These two distinct streams are merged by Postmodern such as Michel Foucault and Jean Baudrillard in the sense that they consider almost everything be a 'text' that can be opened up to multiple (and potentially infinite) interpretations. In addition, a 'linguistic turn' in the social sciences from the 1960s onwards led to theorists such as Horkheimer, Derrida, Chomsky and Barthes redefining the social sciences as dealing with symbolic representations of the world. The fusion of the two streams became complete when, from the 1980s onwards, Habermas redefined Critical Theory as a theory of communication.

Horkheimer defined a 'critical theory' as adequate only if it is simultaneously explanatory, practical and normative. 'That is, it must explain what is wrong with current social reality, identify the actors to change it, and provide both clear norms for criticism and achievable practical goals for social transformation' (Bohman, 2010). Critical Theory undoubtedly fulfils the third of the criteria set out as necessary for a methodology underpinning Digital Literacies: if Critical Theory were successful, society would be transformed. However, as Bohman goes on to elaborate, Critical Theory is 'rife with tensions' because of its ambition to transform capitalism into 'real democracy' (Bohman, 2010).

The failure of Critical Theory to revolutionise society is a result of 'the failure to overlook the most serious motive behind Critical Theory, its negative aspect and messianic impulse' (Blake & Masschelein, 2003, p.55). To respond to this negative aspect, continue the authors, 'is to accept as valid the cry, 'I don't know what, but not this!' - and thus to repudiate the fatalism of a seemingly compulsory acceptance of the present' (ibid.).

A second phase of Critical Theory led by Jürgen Habermas, one of the leading intellectuals of our time, seeks to transform it into 'the mode of inquiry that participants may adopt in their social relations to others' (Bohman, 2010). Habermas combines the transcendental idealism evident in the first phase of Critical Theory with a selection of ideas from the American Pragmatist tradition (Shalin, 1992, p.253). The latter is evident in Habermas' claim that universal consensus is the ultimate goal of communicative action, with anything short of this demonstrating our lack of commitment to the overall process. As Shalin points out, this differs with Pragmatism as, in the latter, a dissenting attitude is 'imminently rational in that it points to conflicting potentialities of being,' alerting us to the 'risks and uncertainties inherent in alternative lines of action' (Shalin, 1992, p.258).

Through the work of Habermas, Critical Theory, as defined in its second phase, is a recognised and respected methodology (or 'rationale'). It is an established and active research area with journals, professorships and many books dedicated to debates and developments. In this sense, Critical Theory not only meets the third of the aims of a methodology, but also the first (being recognised and respected as sound). It is only with the second criterion that issues emerge: Critical Theory's suitability to the research area of Digital and New Literacies.

There are three main issues with Critical Theory that I will outline here that I believe make it unsuitable as a methodology within the area of Digital and New Literacies. First, there is the difficulty of a theory which is general and universal in outlook, but which depends upon subjective experiences. Every approach is an 'interpretation' leaving little solid ground upon which to build. It leaves the individual in an epistemological dilemma: either their choice of approach seems arbitrary, or the Critical Theorist has a 'special ability' to make correct choices, with neither being

satisfactory. The way out of this dilemma explained by Bohman (2010), to treat the subjects of inquiry as 'knowledgeable social agents' and to focus on the goal of 'initiat[ing] public processes of self-reflection', seems to beg the question when it comes to fostering digital literacies. One cannot assume competencies and behaviours that one is hoping to instil.

Secondly, Critical Theorists conceptualise *praxis* (the enactment of a theory) almost solely in terms of *work*. Whilst Critical Theorists set their sights against the 'scientification' and 'technologization' of society, they often fall back onto instrumentalist thinking. Even Habermas, claim Blake & Masschelein (2003), strips individuals of the 'humanness' of their interaction, conceptualising communication in terms of 'the economic and rational logic of performance and counterperformance' (Blake & Masschelein, 2003, p.54). A methodology suitable for understanding and putting into practice work around Digital and New Literacies should not be continually reduced (or necessarily even be *reducible*) to such considerations.

Finally, and perhaps most importantly, a methodology should help make clear the path from theory to practice for a research area. Critical Theory does the opposite of this, adding a layer of complexity to an already confusing and contested field. Using Critical Theory as a methodology for research into Digital and New Literacies would be to multiply uncertainty and confusion. There is quite enough of that, as we shall see, due to the propensity of theorists for 'umbrella terms' in the arena of new and digital literacies.

Post-Structuralism

The next candidate methodology or rationale I will consider is Post-Structuralism, a name give to a loose collection of (mainly French) ideas and authors by US academics.

Related to Postmodernism and likewise lacking a 'manifesto', Post-Structuralism is a rejection of many schools of thought, including Structualism, Phenomenology, Analytical philosophy, and Marxism. The reasons for Post-Structuralism as a candidate methodology for this thesis are threefold. Firstly, the 'subject forms the object' - that is to say that the reader replaces the author as primary, with no one particular view being classed as 'authoritative'. Secondly, Post-Structualists tend to avow practical expression rather than abstract arguments, with Jacques Derrida's (1985) anti-apartheid writing being an example of this. Thirdly, there is a close link between Post-Structuralism and Constructivism, a movement favoured by progressive educators.

Despite the insistence of Post-Structuralists that their focus is upon radical activity and practical expression, their writing is often fraught with complexity and nuance that translation into English can amplify. In the following quotation, for example, Derrida explains both 'deconstruction' and the difficulty in translating the word (originally *coined* by Derrida) into languages other than French:

> '[I]n spite of appearances, deconstruction is neither an *analysis* nor a *critique*… It is not an analysis in particular because the dismantling of a structure is not a regression toward a *simple element*, toward an *u*n-*decomposable origin*. These values, like that of analysis, are themselves philosophemes subject to deconstruction. No more it is a critique, in a general sense or in a Kantian sense. The instance of *krinein* or *krisis* (decision, choice, judgment, discernment) is itself, as is all the apparatus of transcendental critique, one of the essential 'themes' or 'objects' of deconstruction.'
>
> (Derrida, 2008, p.4)

With even less of a structure or basis to build upon than Critical Theory, the writings of Post-Structuralists can be self-referential and the ideas expressed difficult to break into. For a *practical* thesis, therefore, this is problematic.

To sidestep this problem some theorists (such as Roland Barthes, who went through a Post-Structuralist phase) have called for a 'metalanguage' whereby we could

talk about the meaning and grammar of language(s) in a systematised way without prioritising the intentionality of the author. Barthes talks of the author being 'a modern figure, a product of our society… emerging from the Middle Ages with English empiricism, French rationalism and the personal faith of the Reformation' (Barthes, 1977). In this way Barthes and his peers rejected the doctrine of Structuralism, the idea that each domain of knowledge can be understood through a linguistic structure.

Assister (1984) has identified four ideas common to the various forms of structuralism: (i) every system has a structure, (ii) the structure determines the position of each element within it, (iii) structures are real things that lie beneath surface meaning, and (iv) structural laws deal with co-existence rather than change. Structuralism appeals, therefore, to a 'third order', a reality external to that of reality and the imagination (Deleuze, 2002). Post-Structuralism, in rejecting Structuralism, posits that the latter is *synchronic* (or 'descriptive') whilst the former *diachronic* (or 'historical'). There is no rational way to evaluate preferences relating to truth, morality or aesthetics, argue Post-Structuralists - leading to what Michel Foucault (1976:2003) terms the 'insurrection of subjugated knowledges'. Language and texts are not natural but are instead constructs which may be interpreted, and interpreted in an infinite number of ways.

In terms of this thesis, Post-Structuralism seems to be, at first blush, a useful methodology to employ. It rejects the binary opposition between, for example, signifier and signified meaning that we can use it to make sense of what has been termed the 'Read/Write Web' in which the reader is in some way also the author. Post-Structuralism also rejects the concept of a single, stable notion of 'self' and instead embraces the tensions between multiple personas and ways of being. This helps explain the variety of ways in which we represent ourselves in both physical and digital worlds. Interestingly, some Post-Structuralists claim that the 'truth' of a population is located at the *edges*

rather than the core, at the places in which it is changing rather than the places at which it remains static. '[Words] signify from the 'world' and from the position of one who is looking' states Lévinas (2003, p.12), meaning that although the limits of knowledge are important they cannot be observed directly, only identified through their *effects*. Given that the debate around digital literacies presuppose that the practices they contain lie on the outer boundaries of what we know, the Post-Structuralist approach would seem suitable.

There are, however, some issues with Post-Structuralism which make it unsuitable as a methodology for this thesis. As I identified in the introduction to this chapter, there are broadly three criteria for a methodology. Whilst Post-Structuralism certainly seems suited to the aims of the thesis, it is questionable as to whether it can fulfil completely the other two aims. The first criterion, that the methodology is 'recognised and respected as sound' would seem unproblematic to progressive educators and those embracing Constructivism (a theory that we generate meaning and knowledge through the interplay between the ideas we encounter and experiences we have), but would be rejected by more conservative colleagues.

Closely allied to this issue of recognition across the political and educational spectrum is the third criterion: that the methodology will allow for results making a difference to the research area. Post-Structuralism emerged from France in a period when Cold War collaboration with the USSR led to a dissatisfaction with 'Marxism' (if not with Marx). Post-Structuralist authors define their approach almost entirely in negative terms, as a rejection of what has gone before and therefore, it could be claimed, define a philosophy that is more an expression of a problem than a method of finding a solution. Post-Structuralism has been attacked as relativist and nihilist by a range of critics and, lacking a clear manifesto and coherence of approach, certainly seems to be an amorphous

collection of ideas difficult to apply in practice. It is not a methodology but rather an *anti*-methodology.

Finally, there is the issue of application. Although the concepts allied to Post-Structuralism are appealing to those investigating New and Digital Literacies, the movement lacks the power of an epistemology that can make a difference in practice. Stating, for example, that the limits of knowledge play an unavoidable role at its core is more of a reminder to consider elements in their totality rather than epistemological bedrock.

Post-Structuralism is an approach that, although appealing, is defined too much in negative to be useful for this thesis. As with Critical Theory, it appears it has no way to build its way out of a potential collapse into solipsism and subjectivism.

Pragmatism

To recap once again, a methodology suitable for this thesis must be:

1. Recognised and respected as sound.
2. Well-suited to the research area and aims of the thesis.
3. Allow for results that will make a difference to a research area.

So far I have rejected Cybermethodology, Grounded Theory, Critical Theory and Post-Structuralism. The next candidate methodology to consider is Pragmatism. I will find that this methodology is especially suited to the current thesis as it fits the three criteria set out above. In addition, it is a methodology and rationale with which I am acquainted.

As William James explained through the title and content of *Pragmatism: A New Name for Some Old Ways of Thinking*, there is little 'new' in the philosophy of Pragmatism other than its name. Indeed, although it was Charles Sanders Peirce who coined the term 'Pragmatism'[34] the ideas it represents have older origins and wider usage. Ralph Waldo Emerson, for example, demonstrated his adherence to a proto-Pragmatist project, stating:

> 'Our life is an apprenticeship to the truth that around every circle another can be drawn; that there is no end in nature, but every end is a beginning; that there is always another dawn risen on mid-noon, and under every deep a lower deep opens.'
>
> (Emerson, 1841)

Pragmatism has evolved over the last century and a half and therefore has many definitions but I will begin here with a definition by the populariser of Pragmatism, William James:

> 'Pragmatism… asks its usual question. 'Grant an idea or belief to be true,' it says, 'what concrete difference will its being true make in anyone's actual life? How will the truth be realized? What experiences will be different from those which would obtain if the beliefs were false? What, in short, is the truth's cash-value in experiential terms?
>
> The moment pragmatism asks this question, it sees the answer: True ideas are those that we can assimilate, validate, corroborate and verify. False ideas are those we cannot. That is the practical difference it makes to us to have true ideas; that, therefore, is the meaning of truth, for it is all that truth is known-as.'
>
> (James, 1995, p.77)

In this sense, it is already clear that Pragmatism is well suited as a methodology that fits the third of the criteria specified above. Pragmatism is focused on a 'difference' making a difference *in practice*, with truth being defined by James elsewhere what is

[34] Peirce later switched to the term 'Pragmaticism' as it was 'a term 'ugly enough to be safe from kidnappers'.

'good in the way of belief'. Truth, he explains, 'is one species of good, and not, as is usually supposed, a category distinct from good.' (James, 1995, p.30). A thing is not good because it is true, but may be true because it is good. Pragmatists reject the Correspondence Theory of truth, which holds that a statement is true if and only if it accurately describes (i.e. corresponds with), that being described in the external world. This causes a problem in terms of verification; how can we know whether our ideas are true? Pragmatists answer this question by reference to a 'community of inquirers' rather than individuals. Truth becomes what is 'expedient in our thinking' (James, 1995, p.86) and dependent upon discussion and debate within society:

> 'The 'absolutely' true, meaning what no farther experience will ever alter, is that ideal vanishing-point towards which we imagine that all our temporary truths will some day converge... Meanwhile we have to live to-day by what truth we can get to-day, and be ready to-morrow to call it falsehood.'
>
> (James, 1995, p.86)

I will explore in the next section how Pragmatism has been developed by philosophers such as Dewey, Quine, Davidson and Rorty but, for now, we must examine whether the core of Pragmatism constitutes a sufficient basis - and meets the set criteria - as a methodology for this thesis. Having established already that the third criterion is satisfied by Pragmatism, we turn to the first and second criteria to see if they, too, can be satisfied.

Pragmatism is a philosophy that, in its present form, is around 150 years old but with roots that go back further. Several research journals are dedicated to the field and three of the best-known and most influential philosophers of the 20th century, William James, John Dewey and Richard Rorty, were all Pragmatists. It is a coherent approach taught in modules in high ranking and respected universities with academic papers and books based on the Pragmatist method being contributed to the world's body of

knowledge every day. It is safe to say, therefore, that Pragmatism can be deemed an approach that is 'recognised and respected as sound'.

As for the second criterion, I would argue that Pragmatism is well suited to the 21st century world, *particularly* suited to research in the digital sphere, and *especially* suited to research on digital and new literacies. The reasons for this suitability are threefold. First, Pragmatism is what John Dewey calls a 'practical fallibilism' (Biesta & Burbules, 2003, p.13). This uncertainty is not because of a gap between mind and matter but 'stems from the fact that we can never be certain that the patterns of action that we have developed in the past will be appropriate for the problems that we will encounter in the future' (ibid.). In terms of Digital and New Literacies, we cannot be sure what kinds of 'texts' (and therefore what kind of literacy practices) will emerge in future. As a result, although we may do our best to make provision for what we see on the horizon, Pragmatists cannot be certain that past patterns of action will suit future problems. Such practical fallibilism is well-suited to such an uncertain or rapidly changing future.

Second, Pragmatism does not constitute a 'recipe for educational research and educational researchers' being 'as much a way of *un*-thinking certain false dichotomies, certain assumptions, certain traditional practices and ways of doing things' (Biesta & Burbules, 2003, p.114). Given that the central question of this thesis is 'What are digital literacies?' it seems particularly appropriate to explicitly analyse the boundaries of literacy practices as well as question dichotomies, assumptions and traditional practices. Whilst this may also have been true of Critical Theory, Pragmatism provides some ground upon which to make judgements. Verification is available through what a community of enquirers would settle upon 'in the long run'.

Third, Pragmatism does *not* aim to close the book and end the story by reference to definitions and postulating static theories. Instead, theories have a 'cash-value' and constitute tools:

> 'But if you follow the pragmatic method, you cannot look on any such word [such as 'God' or 'the Absolute'] as closing your quest. You must bring out of each word its practical cash-value, set it at work within the stream of your experience. It appears less as a solution, then, as a program for more work, and more particularly as an indication of the ways in which existing realities may be *changed*.'
>
> (James, 1995, p.21)

It is us who impose categories on the world, argues the Pragmatist, and 'truth' is a process of assimilation - not of discovery.

Pragmatism, therefore, is a philosophy that provides a sound methodology on which to base the remainder of this thesis. In the next section I will give an overview of the development of Pragmatism as a theory in order to define what will be referred thereon as a form of shorthand as 'The Pragmatic approach'.

The Pragmatic approach

I have suggested that Pragmatism is a philosophy *particularly* suited to the digital world, and *especially* suitable for research into Digital and New Literacies. This is due to its focus on the provisionality of knowledge and truth, as well as the communitarian and democratic values upon which it is based. Pragmatism as a methodology is interested in the 'cash-value' of propositions and theories and does not see theory and practice as separate spheres. Instead, as Dewey indicated, it is the choice between intelligent practice and uninformed practice. In this section I give an overview of some of the leading Pragmatists, outline the modifications and improvements they have suggested, as well as

indicate debates and disagreements between them. From each I will take away a number of 'guiding statements' which result in a series of ten such statements which will guide the subsequent work in this thesis.

We have already seen that it was Charles Sanders Peirce who first formally began the Pragmatist project and William James who popularised it. Peirce's project was anti-Cartesian in approach and focus, whereas William James was concerned with the concept of 'truth' - especially as it related to religious belief. In addition, they both discussed the debilitating habit of Descartian skepticism: James in particular thought that cultivating a habit of doubt in relation to truth statements was indicative of an *attitude* rather than an intellectual position (Mounce, 1997, p.88). Skepticism is the result of confining one simply to the intellectual and theoretical sphere, as dangerous as confining one solely to the non-rational. Instead, James argued, we should allow our 'passional nature' to help us decide upon the truth or falsity of statements and propositions:

> 'Our passional nature not only lawfully may, but must decide an option between two propositions, whenever it is a genuine option that cannot by its nature be decided on intellectual grounds; for to say, under such circumstances, 'Do not decide, but leave the question' is itself a passional decision - just like deciding yes and no - and is attended with the same risk of losing the truth.'
>
> (James, 1896, no page)

Just like an historian, we gain certainty through *commitment*, by leaving certain areas unquestioned. Certainty both in history and science comes through being 'imperfectly theoretical' or, in other words, being theoretical *up to a point*. As Mounce puts it, 'It is only in philosophy, where commitment is at a minimum, that scepticism flourishes without limit' (Mounce, 1997, p.99)

As a result of the need for commitment to gain certainly it can be seen that endless definitions do not serve to advance our understanding of the world and move

closer towards truth. ‘Bachelor’ is an oft-cited example of a definition that means something precise. However, an alien to our planet would have to understand the institution of marriage before grasping the meaning of ‘bachelor’. This, without the usual frames of reference, is not something that can be done quickly. Instead of definitions, then, it is the *commitment* to a statement, proposition or belief that helps us make our ideas clear. To use another example from Mounce, there is no sharp demarcation between day and night yet we still find it useful to use these terms. It is, to foreshadow a later discussion, a ‘convenient hypocrisy’.

It is precisely the fact that Pragmatism allows for error and chance that makes it a practical philosophy. Instead of committing ourselves to a form of omniscience when using the words ‘know’ and ‘certainty’ we use them as practical instruments to go about our business in the world. For example, I may know that I am soon to attend a conference in a foreign country. I can express this certainty despite the fact that attendance there depends upon my continued health, an absence of airline strikes, and various geological phenomena (such a volcanic ashclouds) not taking place.

For Pragmatists, and James in particular, truth becomes close to *utility* - what is ‘good in the way of belief’. James’ *The Varieties of Religious Experience* (1902) is a defence of this position: we cannot base beliefs on a theoretical conception of the world because this would, in effect, be a ‘view from nowhere’. Pragmatism, it will be remembered, is a philosophy that rejects the existence of an objective standpoint from which to ascertain the truth or falsity of a statement or belief. Reasoning is allied to experience rather than replacing it. For Peirce and James, meaning can only be grasped through practice, not through armchair philosophising. The ‘Pragmatic Maxim’ as formulated by Peirce states explicitly that a conception does not differ from another

conception (either in logical effects or importance) other than in the way it could conceivably modify our practical conduct.

Whilst James wrote in an accessible style, sometimes to the detriment of cohesion, Peirce wrote cohesively, sacrificing some accessibility. The core of his Pragmatist (or 'Pragmaticist') philosophy was the theory of 'signs', which Peirce derived from his universal categories of 'First', 'Second' and 'Third'. A sign (First) always stands for an object (Second) to somebody who interprets that sign (the interpretant - 'Third'). Much of Peirce's philosophy was based upon these categorisations: 'Firstness' (monadic: to do with quality of feeling), 'Secondness' (dyadic: to do with reaction) and 'thirdness' (triadic: to do with representations and habits). The categorisations, outlined in 'On a New List of Categories' (1867), mapped onto his three grades of clarity in 'How To Make Our Ideas Clear' (1878). These three grades form a spectrum from clarity relating to everyday conceptions, through clarity regarding parts of a definition, to clarity regarding the conceivable practical implications of the object under consideration.

The triadic relationship outlined by Peirce is important in collapsing the assumed subjective/objective dichotomy. Ordinarily, a cube perceived to be 'red' would either be assumed to be *objectively* so (i.e. to all observers, at all times), or *subjectively* so (i.e. to a particular observer under certain conditions). Common sense tells us that the 'red' cannot be a property of the cube itself: if a blue light were shone the cube would appear to be a different colour to an observer than if a yellow light were shone upon it. Peirce explains that the 'redness' of an object can nevertheless be a 'real' fact because of the triadic relationship between First, Second and Third:

> 'It is said that what is relative to thought cannot be real. But why not, exactly. *Red* is relative to sight but the fact that this or that is in relation to vision that we call being red is not *itself* relative to sight; it is a real fact.'
>
> (Peirce, 1935(V) quoted in Mounce, 1997 ,p.20)

The quality of 'redness' is a 'sign', a First, standing for a Second (the object) to a Third (the observer). Peirce explains that the interpretant of a sign is itself always *itself* a sign, meaning that it stands in a triadic relation to another. Every action has its concomitant symbolic action; this is the 'sign'. Firsts and Seconds are universal categories containing non-rational reality - but not objects and other things which make the up the universe. The latter are Thirds, understandable only in a triadic relationship with Firsts and Seconds. In the example above, the individual (interpretant) is understandable only through her experience of 'redness' (a sign) as it pertains to the cube (the object).

In many ways, this is similar to Wittgenstein's argument against the possibility of a 'private language'. For an individual to use such a language, they would have to name a sense experience and thereafter use the same term when referring to it. However, because the interpretant is prevented from herself being a sign (because of the private nature of the language) the triadic relationship is broken. Hence a private language is not possible (Mounce, 1997, p.27).

Ever-fond of placing things into categories of three, Peirce analysed the process of inquiry as comprising three fundamental forms of inference: abduction, induction and deduction. The beginning of inquiry comes through abduction, or 'hypothetical inference'. Whilst standard inference involves hypothesising from existing cases (for example, 'all swans are white'), abduction begins with a problem which is solved intellectually before being confirmed empirically. Further inquiry tests the theory: abduction precedes induction (and relates to the 'abductive leap' referenced earlier). Finally, deduction allows us to determine the consequences of the first two stages of

inquiry. This conception of science, and inquiry in general, is *fallibilist*. As Mounce explains:

> 'The view is that as scientific inquiry proceeds it is always liable to replace its own results. This means that the picture of the world that it develops or suggests at any given time is not absolute. Tomorrow we are likely to change… Science can progress because what is true at one stage can be taken up into the view that replaces it, so that at a later stage we are in a better position to appreciate the earlier one.'
>
> (Mounce, 1997, p.18)

Instead of building huge structures upon a basis that may shift, we instead constantly evolve and re-evaluate the basis of our beliefs, jettisoning them if they become unusable or are no longer 'good in the way of belief'.

For there to be a continuum in this evolutionary account it makes no sense to talk of individual events, beliefs and experiences forming a whole. This, for Peirce, assumes a homogeneity that can be turned at will into heterogeneity. Although dealing with cosmology in his explanation, Peirce explains that the move is made *as a whole* from potentiality to existence:

> 'From this point of view we must suppose that the existing universe, with all its arbitrary secondness, is an offshoot from, or an arbitrary determination of, a world of ideas, a Platonic world; not that our superior logic has enabled us to reach up to a world of forms to which the real universe, with its feebler logic, was inadequate.'
>
> (Peirce, 1935(VI), quoted in Mounce, 1997, p.63)

Experience and the universe is given to us *in toto* and we gradually refine our understanding of it. There is nothing to which we can refer over and above that which is given. It is like a blackboard, Peirce explains, that provides a continuum in two dimensions upon which a chalk line is drawn. The continuity inherent in the line must be

explained through the original continuity of the blackboard 'which makes everything upon it continuous' (Mounce, 1997, p.65).

Pragmatism, then, for its early adherents, represented a significant shift away from the correspondence theory of truth and from religious justifications and ways of understanding the world. From these we will take away three guiding statements:

1. Pragmatism is an anti-skeptical endeavour.
2. Dividing lines between theory and action are arbitrary.
3. Truth is conditional and dependent upon a community of inquirers.

Those who followed Emerson, Peirce, and James took Pragmatism in new directions. The first of these was to do so in a positive way was John Dewey. In a similar vein to William James taking Peirce's ideas and applying them to a particular context (religion and the search for truth), John Dewey took and expanded upon the philosophy of James. Dewey's focus was education, seeing schools as a means of accelerating democracy and social reform. Like Peirce, he rejected Cartesian representationalism, believing that sensory experience is *ineffable*.

Because sensory experience is ineffable, any description of the world will be imperfect as it will fail to express the full context within which it operates. Dewey gives uses the metaphor of a bowl: a description of its contents will fail to include the bowl itself. In order to include the bowl in the description, another bowl would be required, and so on. 'In short, the world as experienced, in its qualitative reality, always goes beyond anything that can be put into words' (Mounce, 1997, p.167). Given this, the aim of knowledge is not to correspond to an external world, independent of human experience, but to anticipate future experience (ibid., 163).

Pragmatists see experience as overwhelmingly ineffable, as more than merely the sum of its parts. However, whereas Peirce saw the scientific process as being compatible

with, and explainable by, the Pragmatist project, Dewey argued *against* the scientific view as being an abstraction from the real world. A scientific formula of water is an abstraction from the real substance; the 'thick' description of it, from sensory experience, is the more accurate description. Indeed, Dewey sees the scientific formula as more of an instrument than a description. An object, situation or concept has to be grasped in its totality and cannot be usefully sub-divided. For example:

> 'A painting is said to have a quality, or a particular painting to have a Titian or Rembrandt quality. The word thus used most certainly does not refer to any particular line, colour or part of the painting. It modified all the constituents of the picture and all of their relations. It is not anything that can be expressed in words for it is something that must be *had*. Discourse may, however, point out the qualities, lines and relations by means of which pervasive and unifying quality is achieved.'
>
> (Dewey, 1938, quoted in Mounce, 1997, p.168)

For Dewey, inquiry begins as a result of disturbance of customary experience, a 'felt difficulty'. This is the first of fives stages through which the process of inquiry must pass. From the felt difficulty the inquirer goes on to (ii) find its location and definition, (iii) define a possible solution, (iv) consider the implications of the possible solution, and (v) make further observations and experiments leading to an acceptance or rejection of the belief underpinning the possible solution.

Likewise, Dewey outlines five ways in which the 'traditional view of experience' needs to be corrected. First, Dewey believes that treating experience primarily as a matter of knowledge is incorrect. Instead, knowledge is merely one element of experience. Second, experience is not essentially subjective - it is a relationship and interaction between subject and object. Third, experience anticipates further experiences; it is concerned not with the past but with the future. Fourth, there is no problem about how experiences are related. Each is related to another, and 'pregnant with connections'. Fifth,

experience should not be contrasted with inference. Experience is anticipatory, so is therefore full of inference. As a result of the above there is, for Dewey, no conflict between Empiricism and Pragmatism, as the latter is the former in its truest form (Mounce, 1997, p.150).

Finally, in this brief consideration of his evolution of Pragmatism, Dewey was at pains to point out that it is we who place a causal structure upon the world. 'We are given to forgetting,' said Dewey, 'with our insistence upon causation and upon the necessity of things happening as they do happen, that things exist as just what they qualitatively are'.[35] When we explain an occurrence, therefore, it is only that occurrence that we explain, not the thing itself:

> 'Go as far back as we please in accounting for present condition and we still come upon the mystery of things being just what they are… Their occurrence, their manifestation, may be accounted for in terms of other occurrences, but their own quality of existence is final and opaque. The mystery is that the world is as it is…'
>
> (Dewey, quoted in Bernstein, 1960, p.224-43)

Dewey was expanding upon the work James had done in this regard relating to the 'genetic fallacy' - that to explain how a phenomenon has arisen is to explain it away. Value and fact for both James and Dewey, are separate and should not be confused.

Pragmatism, for Dewey and others, does not contain an epistemology or 'theory of knowledge'. For this to be the case Pragmatist philosophers would have to accept a distinction between mind and matter, something they reject. Dewey famously stated that, 'a problem well put is a half-solved' and indeed many Pragmatists see their project as creating a method of 'un-thinking' rather than providing an explicit framework. This is important in terms of the use of Pragmatism as a methodology for this thesis. Instead of

[35] Quoted in Bernstein, 1960, p.224-43

providing a rigid framework and set method of approaching the question of digital literacy, Pragmatism instead provides us with a toolkit that allows us to 'open up new possibilities for thought' and un-think false dichotomies and established ways of doing things.

Whereas Peirce focused on meaning, and James upon truth, Dewey set his sights upon *value*. Dewey believed custom and habit to be more important than instinct; it's what we do and what we value in life that brings value. What all three had in common was their desire to help us sharpen our thinking, state problems well, and to be able to explain the 'cash value' of a theory, description or proposition. We can add another two guiding statements to our overview of Pragmatism:

4. Human experience of the external world is ineffable.
5. Pragmatism is a method of 'un-thinking' rather than providing an explicit framework.

Although there are other prominent Pragmatist philosophers such as Josiah Royce, Donald Davidson and Hilary Putnam, we will consider only two more here as their innovations relate directly to this thesis: Willard Van Orman Quine and Richard Rorty. Quine's major contribution to the development of Philosophy can be considered briefly as it was simple but profound. Rorty's, however, will require more explaining and contextualising.

Quine provided a more visual metaphor for conceiving of the 'false dichotomies… assumptions… [and] traditional practices' mentioned by Dewey. In his 'Two Dogmas of Empiricism' (anticipated to a great extent by James and Royce) Quine rejected the Kantian distinction between analytic and synthetic propositions - analytic propositions being true by virtue of their meaning (for example, 'all triangles have three

sides') and synthetic propositions relying upon something else (such as empirical observation or inference) to be counted as 'true'. Without rehearsing Quine's arguments in detail, he showed that the analytic/synthetic distinction is predicated upon reductionism, which is itself very difficult to prove.

It is Quine's 'web of beliefs' for which he is best known, whereby each individual has beliefs that are closer or further away from their 'core' belief system. Certain beliefs are dependent upon others leading to our always making observations in the light of previous assumptions and theories. Another way of putting this would be that Quine argued that all observation is *theory-laden*. There are no truths independent of human experience and a universally-held set of beliefs is impossible. This means that disagreements about the truth or falsity of statements involve, in essence, discrepancies between belief systems.

As literacy has, to some extent, to be predicated upon tool-use, the opinions and beliefs pertaining to those tools can affect literacies. Whilst disagreements predicated upon beliefs towards the edge of such web of beliefs may be easier to reconcile, those towards the centre of the web would involve a fundamental shift in worldview:

> '[I]t is misleading to speak of the empirical content of an individual statement - especially if it be a statement at all remote from the experiential periphery of the field. Furthermore it becomes folly to seek a boundary between synthetic statements, which hold contingently on experience, and analytic statements which hold come what may. Any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system. Even a statement very close to the periphery can be held true in the face of recalcitrant experience by pleading hallucination or by amending certain statements of the kind called logical laws. Conversely, by the same token, no statement is immune to revision.'
>
> (Quine, 1951, p.447)

This will directly influence the matrix of overlapping literacies approach suggested in Chapter 9 as it is a visual representation of the clash that can take place over literacies due to underpinning belief systems.

From Quine's work, then we can add two further guiding statements to the five we have gathered so far:

6. A universally-held set of beliefs is impossible.
7. Any statement can be accommodated as 'true' by amending a belief system to a greater or lesser extent.

Perhaps the most contentious of Pragmatist philosophers has been Richard Rorty. A modern Pragmatist writing in the late twentieth century, Rorty stood apart from Quine and Davidson (Quine's student), developing his own version of Pragmatism. He rejected the 'mirror of nature', or the representational theory of knowledge, denying that there exists an ineffable external world which we can only ever describe incompletely. Instead, he took an almost Kuhnian stance (Kuhn, 1962) on the development of theories as merely 'vocabularies' by which communities of inquirers describe their activities.

Throughout his career Rorty was plagued with criticisms of relativism; by denying the 'mirror of nature,' critics said, no statement could ever be said to be true or false. *Anything goes*. Rorty responded by rejecting entirely conceptions of epistemology, which many see as the bedrock upon which philosophy stands.[36] Philosophy, he believed, was an 'illusory activity' (Mounce, 1997, p.177) with philosophers merely 'clearing the road' for prophets and poets who had visions of new communities (Rorty, 1992, p.132). In *Philosophy and the Mirror of Nature* Rorty states that he and previous philosophers such as Quine and Davidson, 'see knowledge as a matter of conversation and of social

[36] The three central questions of epistemology are 'What is knowledge?', 'How do we acquire knowledge?', and 'How do we know what we know?' Rorty rejected these questions as irrelevant.

practice, rather than as an attempt to mirror nature' (Rorty, 1979, p.171). Rorty named his approach 'epistemological behaviourism' explaining that rationality and epistemic authority is governed by what society (or a given community) does or does not allow us to say.

As regards charges of relativism, Rorty labels his views 'ethnocentric': anti-representationalist, anti-universalist and anti-rational (in some readings of 'rational'). He believes us to have no external, rational warrant over and above open-minded, reflective discussion upon which we can base decisions, actions and judgements. Indeed, some have found Rorty's views so extreme that they have accused him of a misreading of Peirce and Dewey and other early Pragmatist philosophers. They argue that whilst the Pragmatist project, to paraphrase the title of one of Peirce's seminal works, is about 'making our ideas clearer', Rorty's 'pragmatism' effectively muddies the waters.

Mounce is a prominent critic of Rorty, believing that his version of Pragmatism is almost diametrically opposed to that of Peirce and James. Indeed, he claims that Rorty's philosophy fails the Pragmatic test because it is 'not fruitful, productive of good consequences' (Mounce, 1997, p.209). Mounce presents a sustained critique of Rorty's philosophy using a test devised by van Inwagen. Using the novel *Nineteen Eighty-Four* (is Rorty a Realist like the character of Winston or an anti-Realist like O'Brien?) Mounce argues that whilst Rorty the philosopher and O'Brien the character may differ in their politics, they agree in their philosophy. That is to say that, for Mounce andother critics, Rorty's evasive ethnocentrism collapses into either solipsism or meaningless relativism. Comparing Peirce and Rorty, Mounce states that 'The two have nothing in common except that they are called by the same name [Pragmatists]. It is evidently not through any continuity in the ideas that this development can be explained' (Mounce, 1997, p.229).

The ‘first Pragmatism’ Mounce terms ‘Classical Pragmatism’ and contains the work of Peirce and James along with lesser figures such as Morris Cohen. The second pragmatism began with Dewey, who believed that there can be nothing in reality which transcends the categories of the human mind. Mounce believes this to be ‘not a new philosophy but… a variation on Positivism, a form of extreme Empiricism. It is in conflict with the first Pragmatism, not at incidental points, but in its essentials’ (Mounce, 1997, p.231).

Whilst this is not the place to go into a detailed critique of Mounce’s understanding of Rorty’s philosophical approach, I would suggest that Mounce may be overly purist when it comes to the development of Pragmatism since the time of Peirce and James. Indeed, the title *The Two Pragmatisms* could be said to draw an arbitrary distinction in a more nuanced evolutionary spectrum of ideas. There are certainly some salvagable aspects of Rorty’s philosophy for the purposes of this Pragmatic methodology. The first is evident in his quoting with approval Sellars, who states that there are no beliefs that cannot be revised:

> ‘In characterising an episode or a state as that of *knowing,* we are not giving an empirical description of that episode or state; we are placing it in the logical space of reasons, of justifying and being able to justify what one says.’
>
> (Sellars, quoted in Rorty, 1990, p.41)

This would appear to be a synthesis of Peirce (in that we use ‘know’ in a practical sense) and James (the non-rational nature decides) within a Quinean ‘web of beliefs’. As such, it is relatively unproblematic although moving towards the linguistification of the Pragmatic project. It is the next step that Rorty takes with which critics take issue, the idea of the ‘hermeneutic circle’. Expanding upon Dewey’s statement that we have to take in the whole of a situation or conception to fully understand it, Rorty explains that this

makes our interaction with the situation or conception *conversational* rather than *confrontational*, as it is more like 'getting to know someone' than having something demonstrated:

> 'In both cases we play back and forth between guesses about how to characterise particular statements or other events, and guesses about the whole point of the situation, until gradually we feel at ease with what was hitherto strange.'
>
> (Rorty, 1990, p.319)

This 'hermeneutic circle' is a departure from the philosophy of Dewey, who in turn had moved away from that of Peirce and James. It rejects any idea of there being categories in nature to which human knowledge or even statements can refer: framing inquiry in terms of a conversation rather than truth-seeking involves dealing as much with psychology as philosophy. This, along with Quine's web of belief, influences my discussion of a matrix of digital literacies in Chapter 9. However, Rorty makes one further leap, announcing that the purpose of his philosophical project is 'edification':

> 'The point of edifying philosophy is to keep the conversation going rather than to find objective truth. Such truth, in the view I am advocating, is the normal result of normal discourse.
>
> (Rorty, 1990, p.377)

Whereas Peirce moved the ship away from land with his anti-Cartesianism, this is akin to cutting the anchor to be left at sea. Rorty claims that the philosopher mediates between incommensurable statements, criteria and principles, being called upon in Kuhn-inspired periods of 'abnormal discourse'. Scientists are 'creators' rather than 'discovers' in periods between 'normal science'. There is no objective 'real' world which we reveal; instead we *create* it through negotiation and alignment.

Rorty's 'settled position' is that we need to become 'ironists' without a permanent 'final vocabulary':

> 'I shall define an 'ironist' as someone who fulfils three conditions: (1) She has radical and continuing doubts about the final vocabulary she currently uses, because she has been impressed with other vocabularies…; (2) She realises that the argument phrased in her present vocabulary can neither underwrite nor dissolve those doubts; (3) Insofar as she philosophises about her situation, she does not think that her vocabulary is closer to reality than others, that it is in touch with a power not herself.'
>
> (Rorty, 1989, p.73)

Applauding the work of Davidson and Wittgenstein, Rorty talks of alternative vocabularies as 'tools' that help avoid both reductionism and expansionism. Instead of asking questions such as 'What is the place of value in a world of fact?' we should restrict ourselves to those such as 'Does our use of these words get in the way of our use of those other words?'. It is a question of tool efficiency, Rorty states, not of whether our beliefs are contradictory (Rorty, 1989, p.114). Language and culture are contingent upon thousands of non-teleological mutations in a similar way to a coral reef we first came across in Chapter 5 when discussing ambiguity: 'Old metaphors are constantly dying off into literalness, and then serving as a platform and foil for new metaphors (Rorty, 1989, p.118). In this sense, descriptions of the world are always *re-descriptions* in that they do not correspond to an absolute 'truth' but fit within what Rorty calls a 'language game'. What starts off as a metaphor gains a literal and common usage - in other words 'our theories about the linguistic behavior of our fellows will suffice to let us cope with its utterance in the same unthinking way in which we cope with most of their other utterances' (Rorty, 1989, p.120).

Unlike Hilary Putnam, who sought to divorce truth from 'warranted assertability', Rorty believes they are one and the same thing. Putnam is strongly anti-relativist but

believes that there is no 'God's eye view' from which one can judge the truth or falsity of a given statement. 'Our *lives*,' he stated, 'show that we believe that there are more and less warranted beliefs about political contingencies, about historical interpretations, etc.' (Putnam, 1985, p.70). Putnam holds that something can be verified (or an assertion warranted) yet not be true. A community of enquirers settling upon a particular description for Rorty would be true for that community, whereas for Putnam it would be a case of warranted assertability (Żegleń & Conant 2002, p.83). Without descending into the somewhat protracted debate between (and around) these two philosophers, Putnam has accused Rorty of being a nihilist, anarchist and a relativist. In particular, Putnam claims that no Pragmatist before Rorty was a cultural relativist in the sense of rejecting the difference between warranted assertability and truth. Putnam and others have therefore labelled Rorty a 'neopragmatist' claiming that his influence from French postmodernists such as Derrida has 'linguistified' his thinking into treating Science, and to a great extent, Philosophy, as a form of literature. Putnam believes that Rorty should stick with calling his philosophy 'Rortyanism' without claiming affiliation with the Pragmatist tradition (neopragvideo, 2007, p.9.43).

Although certain elements of Rorty's Pragmatist philosophy are problematic and, to a great extent, deserve several theses in their own right, there are three further guiding statements we can add to our project of defining a form of 'Pragmatic shorthand':

8. Knowledge is a matter of social practice rather than mirroring nature.
9. We 'create' rather than 'discover' truth.
10. New concepts are often understood through metaphor, enter common usage, and then 'die off into literalness'.

Pragmatism is a living, evolving philosophical approach, a method of unthinking rather than an explicit framework. It has developed from the time of Emerson

through to Rorty, and will continue to do so. I have extracted ten guiding principles from some of the principle exponents of Pragmatism in an attempt to formulate a methodology for this thesis.

In the next section I will list these ten guiding principles, explain how the 'Pragmatic approach'will serve as a shorthand for them, and apply them to the concept of Digital and New Literacies.

Pragmatism and digital literacies

In the preceding section we gleaned the following from an overview of five prominent Pragmatist philosophers: Peirce, James, Dewey, Quine and Rorty:

1. Pragmatism is an anti-skeptical endeavour.
2. Dividing lines between theory and action are arbitrary.
3. Truth is conditional and dependent upon a community of inquirers.
4. Human experience of the external world is ineffable.
5. Pragmatism is method of 'un-thinking' rather than providing an explicit framework.
6. A universally-held set of beliefs is impossible.
7. Any statement can be accommodated as 'true' by amending a belief system to a greater or lesser extent.
8. Knowledge is a matter of social practice rather than mirroring nature.
9. We 'create' rather than 'discover' truth.
10. New concepts are often understood through metaphor, enter common usage, and then 'die off into literalness'.

Superficially, the 'fuzziness' of Pragmatism as a philosophical approach may appear problematic when charging proponents of concepts such as 'Digital Literacy' with ambiguity. However, as we have seen, Pragmatism does not have a defined epistemology and is more a way of 'un-thinking' than providing an explicit framework or programme which can be followed. In relation to this thesis, then, references to 'the Pragmatist

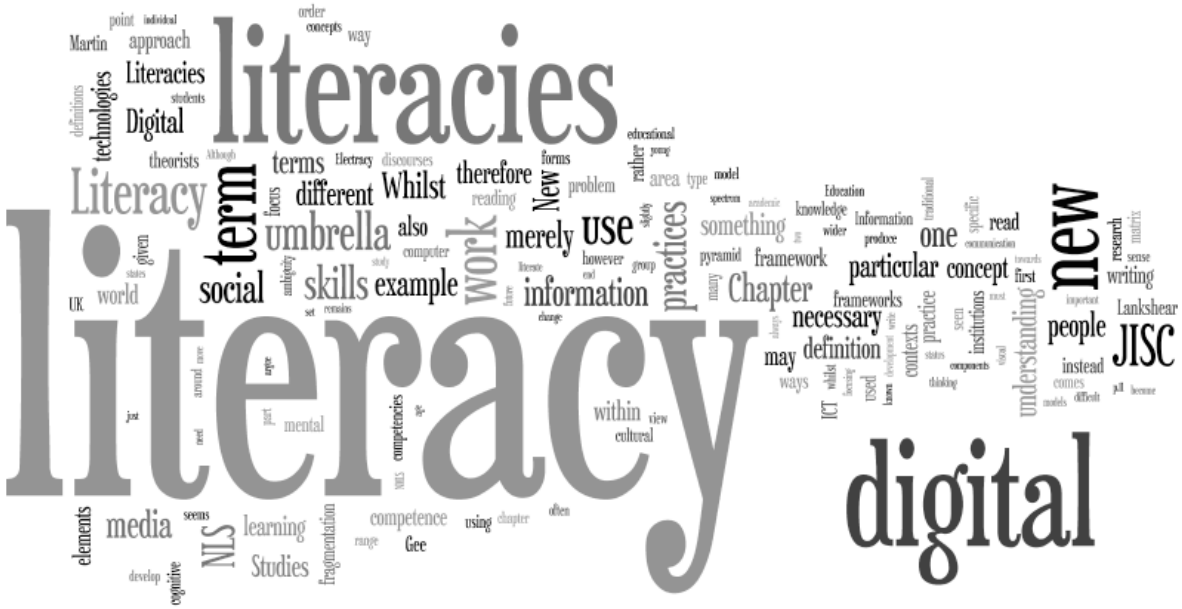
approach' or simply 'Pragmatism' will be taken as shorthand to mean the ten guiding statements set out above.

In addition, and as a starting point, I shall take into account the Deweyan maxim that the way in which a problem is stated can affect the way it is solved. I will avoid talking of the 'truth' or 'falsity' of a given definition or belief, instead talking of its *utility* and whether it is has a 'cash value' - in other words whether it works *in practice*. As Marx has been perhaps over-cited as bemoaning, 'The philosophers have only interpreted the world, in various ways; the point is to change it' (Marx, 1845;1969). This thesis, whilst non-empirical, has very firmly in its sights an aim to provide a bedrock upon which considered and reflective *action* can take place.

The second half of this thesis will be structured as follows. First, in Chapter 7, I will analyse the research in the arena of 'New Literacies' through the lens of Pragmatism. In Chapter 8 I will look at what constitutes digital literacies, examining definitions and considering whether they are 'good in the way of belief'. Chapter 9 will look for a way out of the problem of defining digital literacies drawing particularly on the work of Quine and Rorty. I will suggest that creating a matrix out of the elements of digital literacies solves many of the problems of rigid definitions and inflexible frameworks.

As I have argued, Pragmatism is *particularly* suited to digital environments because of its fallibilist and provisional approach to knowledge as well as its communitarian aspect. Pragmatism is *especially* suited to digital literacies, as we will see, because it allows us to avoid some of the problems holding back and providing a sticking point in the research into Digital and New Literacies.

Chapter 7: New Literacies



'Men's wit grows according as they encounter what is present.'
(Empedocles)

One method for understanding the changing nature of what we understand as 'literacy' comes in the form of New Literacy Studies (NLS). In this chapter I track the emergence and evolution of NLS which, because of its focus on the social elements of 'reading' and 'writing', is potentially conducive to the Pragmatic method. I also analyse the fragmentation within this area, which runs to a deeper level than merely a fragmentation of research. I critique the reliance of researchers and theorists upon 'umbrella terms' and 'micro-literacies' in the frameworks and models they produce. Finally, using the work of JISC, a UK government-funded body, as a case study I argue that the work of such bodies, whilst not perfect, is important in the development of an understanding of new forms of literacy. Note that I have purposely avoided inclusion of work by Henry Jenkins and related scholars such as John Seely Brown. Their

conceptualisation of Digital Media Literacies appears to focus more on the distinctiveness of the 'media' element and less on that of the 'digital'.

New Literacy Studies

In the last two decades of the twentieth century an interdisciplinary group of academics including Brian Street, James Paul Gee and David Barton started to approach literacy from a sociocultural point of view. They continued to view literacy in a traditional way, as 'reading and writing', but looked to move away from defining it as a merely cognitive process. This became known as the New Literacy Studies:

> 'The NLS opposed a traditional psychological approach to literacy. Such an approach viewed literacy as a 'cognitive phenomenon' and defined it in terms of mental states and mental processing. The 'ability to read' and 'the ability to write' were treated as things people did inside their heads. The NLS instead saw literacy as something people did inside society. It argued that literacy was not primarily a mental phenomenon, but rather a sociocultural one. Literacy was a social and cultural achievement-it was about ways of participating in social and cultural groups-not just a mental achievement. Thus, literacy needed to be understood and studied in its full range of contexts-not just cognitive but social, cultural, historical, and institutional, as well.'
>
> (Gee, 2010, p.10)

Literacy, therefore, was no longer a journey that a teacher could take a child upon to a predictable destination, but something that resulted from thought and an evolving understanding of the world. Literacy became, explicitly, a construct.

In fact, a *plurality* of literacies is necessary, NLS theorists argue, because texts can be read in different ways. The Bible, for example, can be read from a religious, historical or hermeneutic point of view meaning that literacy always involves

'apprenticeship' to a group. Being literate is always being literate *for* entry into a particular community or group:

> ‘Many different social and cultural practices incorporate literacy, so, too, there many different ‘literacies’ (legal literacy, gamer literacy, country music literacy, academic literacy of many different types). People do not just read and write in general, they read and write specific sorts of ‘texts’ in specific ways; these ways are determined by the values and practices of different social and cultural groups.’
> (Gee, 2010, p.11)

Proponents of the NLS therefore do not consider literacy directly but always through the lens of organizations, institutions and groups. The 'manifesto' of NLS is a book edited by Cope and Kalantzis published in the year 2000 entitled *Multiliteracies: Literacy Learning and the Design of Social Futures*. Despite this, Gee, one of the contributors to the book believes that NLS 'never fully cohered as an area' (Gee, 2010, p.12). Confusingly, NLS bred the New Literac*ies* Studies which, instead of focusing on viewing literacy in a new way, investigated literacies beyond print literacy. To demarcate the two, Gee refers to New Literacies Studies as ‘New Media Literacies Studies’ (NMLS). As suggested by its name, the latter is particular interested the 'literacies' associated with media and popular culture:

> ‘The emphasis is not just on how people respond to media messages, but also on how they engage proactively in a media world where production, participation, social group formation, and high levels of nonprofessional expertise are prevalent.’
> (Gee, 2010, p.19)

The NLS is part of a wider ‘social turn’ which shifted the focus away from individual minds towards social interactions. Proponents of NLS argue that literacy (i.e. ‘reading and writing’) is always *for a purpose* and therefore must be understood as operating within social and cultural contexts. The specific practices of literacies, taking

place within specific contexts are known as ‘discourses’. Understanding literacy as operating within such discourses can lead to two different types of ‘new literacy’.

The first type of ‘new literacy’ comes through understanding what is ‘new’ as being the ‘digital’ element of literacy: examples of this include word processing and hypertext. Whilst the context (and therefore the discourse) may have changed, literacy still involves reading and writing text. In terms of the denotative and connotative elements of ‘literacy’ we explored in Chapter 5, this definition remains towards the *denotative* end of the spectrum.

The second type of ‘new literacy’, however, resides closer to the *connotative* end of the literacy spectrum. Here, ‘literacy’ remains ‘reading and writing’ but these elements are understood in a post-typographical and metaphorical way. In the same way as a footballer might be said to ‘read’ a game, so this second type of ‘new literacy’ employs a definition towards the connotative end of the literacy spectrum that embraces non-written methods of communication. Examples here include the type of ‘mash-ups’ prevalent on video-sharing websites such as YouTube where several audio and/or video streams are combined to create something new - often including memetic and other meta-level elements.

As Lankshear and Knobel (2006) have pointed out, educational practices within the realm of the first type of new literacy often fall into the trap of ‘old wine in new bottles’. Just because new contexts are being used through the use of new technologies does not mean that any form of ‘literacy’ is involved. For new discourses to be created both new contexts and new literacy practices are necessary. In other words, literacy is *more* than merely the mastery of procedural skills.

Literacy also confers some kind of *status* to a set of practices. For something to be a ‘literacy’ means that it is a socially-acceptable practice to be engaged in and,

therefore, something with which an ‘educated’ person needs to be familiar. As with the Australian ‘literacy wars’ mentioned in Chapter 2, there is a tendency for educational institutions, conservative at the best of times, to focus on the denotative, procedural, and cognitive elements of literacy. The sop given to the ‘social turn’ of NLS is to use traditional literacy practices with new technologies: requiring students to ‘type up’ their essays, for example, or produce a PowerPoint presentation. These, however, fail to immerse and induct young people into the kind of ‘discourses’ that they encounter outside and beyond school, college and university. There is no ‘cognitive apprenticeship’ (Ghefaili, 2003) but merely a semblance, a veneer, of new literacy practices where older ones persist.

Fragmentation of research

Part of the reason that educational institutions have persisted in the ‘old wine in new bottles’ technique may be due to the research around literacy studies being extremely fragmentary. Some researchers and practitioners adhere to 'multiliteracies', some remain advocates of the NLS, whilst some are attempting to define NMLS under various different names. Some reject, or are unaware of, these categories altogether and continue to focus upon individual, cognitive definitions of literacy. This is complicated by the involvement of governments and big business in the landscape, as discussed in Chapter 2.

Given the ‘constantly changing practices through which people make traceable meanings’ (Gillen & Barton 2009, p.1), the changing technologies upon which they are based, and the fluid nature of ‘Communities of Practice’ (Wenger, 1998) that often spring

up within such discourses, it is difficult for researchers to devise universally-applicable frameworks. As Lankshear (2007) puts it, 'Literacies can involve *any* kind of codification system that 'captures' language' but, in order to do so, must be ''frozen' or 'captured' in ways that free them from their immediate context of production so that they are 'transportable'' (Lankshear, 2007, p.3). Such 'freezing' of dynamic and fluid discourses is necessary for the sake of encoding, but can mean that definitions, frameworks and models either age quickly or are so vague as to be meaningless.

In Chapter 4 I referenced one example of an attempted conceptual framework for digital literacy developed by Eshet-Alkalai (2004). This framework comprises:

- Photo-visual literacy
- Reproduction literacy
- Information literacy
- Branching literacy
- Socio-emotional literacy

As such, and as we will see later in this chapter, it is an example of using digital literacy as an 'umbrella term', considering both previously and newly-defined literacies as 'micro-literacies'. However, as the author points out in a subsequent article (Aviram & Eshet-Alkalai, 2006), focusing on the individual skills necessary for the literacies comprising the over-arching 'digital literacy' is a naive, conservative strategy. Digital literacy, it is suggested, is more than the sum of its parts. The authors conclude that digital literacy involves a different mindset that will lead to a 'clash of civilisations' and a 'forced choice for educational institutions.

Whilst it is difficult to see how Aviram and Eshet-Alkalai's article 'Towards a Theory of Digital Literacy' (2006) fulfils the promise set out in its title, the opposite problem is true of other frameworks. As we saw in Chapter 5 some organisations, including Microsoft, have sought to operationalise the concept of digital literacy by focusing on the technology rather than meta-cognition. By focusing on basic procedural

skills the critical dimension is almost entirely missing, making necessary the other 'literacies' to develop such notions of criticality.

Such frameworks are undoubtedly developed due to market demand for them: what is quantifiable will be quantified. There are those, for example, that believe that 'without these data and analyses, we have no understanding of what is working and not working' (ICT Literacy Panel, 2002, p.11). Such frameworks produce 'habits of thought and action' to understand the world that enable us 'to be confident and more or less secure in our relation to the world and to others' (Phillips, 2000, p.11). In creating mental models we are, in a very real sense, shaping the world:

> 'What is taken for granted as knowledge in the society comes to be coextensive with the knowable, or at any rate provides the framework within which anything not yet known will come to be known in the future.
> ...
> Knowledge about society is thus a realization in the double sense of the word, in the sense of apprehending the objectivated social reality, and in the sense of ongoingly producing this reality.'
>
> (Berger & Luckmann, 2002, p.49-50)

'Freezing' literacy practices in order to put them into a framework, therefore, becomes problematic. Digital literacy is an evolving concept: the training and personal development necessary to become 'digitally literate' will therefore also evolve (Rosado & Bélisle, 2006). However, as Adams and Hamm point out 'literacy' has jumped out of the frying pan and into the fire, having previously been squeezed into an established framework of reading and writing but now 'being almost synonymous with the word 'competence'.[37] Whilst competency in a given area does not require a level of criticality and reflexive practice, the use of the term 'literacy' would suggest that these are present.

[37] Quoted in Potter, 2004, p.29)

Returning to frameworks such as Eshet-Alkalai's shows that whilst it may be *possible* to produce neat diagrams of the ways in which elements of digital literacies fit together, they will not necessarily fit together in the same ways for everyone:

> 'And, whilst it may be possible to produce lists of the components of digital literacy, and to show how they fit together, it is not sensible to suggest that one specific model of digital literacy will be appropriate for all people or, indeed, for one person over all their lifetime. Updating of understanding and competence will be necessary as individual circumstances change, and as changes in the digital information environment bring the need for new fresh understanding and new competencies; as Martin (2006a) puts it, digital literacy is 'a condition, not a threshold'.'
>
> (Bawden, 2008, p.28)

We use binary terms when dealing with competencies; someone is either 'competent' or 'incompetent'. We are less likely to do so with literacies, recognising a *continuum* of literacy. This continuum is often then broken down into stages and used to recognise the ability of young people to read and write using traditional (print) literacy. The problem with transferring this approach to the world of new literacies is that it treats individuals as what the philosopher John Locke called a 'tabula rasa', a clean slate upon which can be imprinted knowledge and skills. Such functionalist definitions of literacy are problematic, as Holme (2004) explains:

> 'The 'banking' concept of education treats the student as passive or as a cerebral vault in which the teacher simply deposits knowledge against the possibility of the student's future need. The student-teacher relationship implied by 'the banking concept' reflects the wider socio-economic and philosophical framework in which the teacher as banker must operate. A banking pedagogy is fatalistic, having a 'tamed' or domesticated view of the future (Freire 1992:101). This can be seen quite plainly in a functional model of literacy. A functional literacy derives its construction of what people will use literacy for from what people do with literacy now. Functionality commits students to a naive objectivism that 'banks' the future as a version of the present.'
>
> (Holme, 2004, p.53)

The fragmentation, therefore, runs deeper than a fragmentation of research into new literacies: a fragmentation in approach, in mindsets, and in ethos is evident. Even if 'criticality' is seen as a necessary part of new literacies, there remains disagreement even as to what this means in practice (Sanford & Madill, 2007, p.288). Lankshear (2007) contrasts two dominant mindsets reminiscent of Aviram & Eshet-Alkalai's 'clash of civilisations'. Whilst 'Mindset 1' educators and researchers believe that 'the world basically operates on physical/material and industrial principles and logics,' those he classes in 'Mindset 2' believe that 'the world increasingly operates on non-material (e.g. cyberspatial) and post-industrial principles and logics' (Lankshear, 2007, p.6). Literacy becomes, therefore, a propaganda tool and a weapon of war.

Perhaps due to the fragmentation of research outlined earlier, many theorists seek to demarcate new forms of literacy. Once this has been done, they explain it in detail, and then assert its status as an over-arching literacy containing many sub- (or micro-) literacies. To borrow from Tolkien's *The Lord of the Rings* it is as if they claim 'one literacy to rule them all'. Information literacy can been seen as one such super-literacy or 'umbrella term':

> 'In the last decade a variety of 'literacies' have been proposed... All of these literacies focus on a compartmentalized aspect of literacy. Information literacy, on the other hand, is an inclusive term. *Through information literacy, the other literacies can be achieved.*'
>
> (Doyle, 1994, my emphasis)

Other theorists propose various 'literacies' as being the true umbrella term, the synthesising concept. Potter (2004, p.33), for example, states, 'Reading literacy, visual literacy and computer literacy are not synonyms for media literacy; instead, they are merely components.' It is perhaps most transparently and obviously stated in this definition of *transliteracy*:

> ‘Our current thinking (although still not entirely resolved) is that because it offers a wider analysis of reading, writing and interacting across a range of platforms, tools, media and cultures, *transliteracy does not replace, but rather contains, ‘media literacy’ and also ‘digital literacy’*.’
>
> (Thomas, et al. 2007, my emphasis)

In this way theorists not only deal with the third condition outlined in an earlier chapter[38] but they can claim the credit of, at least partially solving the 'literacy problem.' The umbrella term in the late 1980s until the turn of the century tended to be ‘information literacy,’ now superseded by references to ‘media literacy’:

> ‘Reading literacy, visual literacy and computer literacy are not synonyms for media literacy; instead, they are merely components.’
>
> (Potter, 2004, p.33)

Potter's use of the word 'merely' above (‘visual literacy and computer literacy... are *merely* components') betrays here what is only latent in other examples of writers using umbrella terms. That is to say, each comes at the issue from a particular point of view and with a particular bias and background. Each assumes that the particular literacy for their field of interest or specialisation is the 'umbrella literacy.' There is also an unfortunate element of theorists inventing terms in the hope that it may gain traction and they become synonymous with it. Perhaps the best example of this is the clumsy concept of 'Electracy' we came across in Chapter 2::

> ‘‘Electracy’ is a term that combines different forms of literacy related to the use of new technologies; for example ‘media or multimedia literacy’, ‘computer literacy’, ‘information literacy’and ‘visual literacy’. It could be described as literacy for a post-typographic world (Reinking et al., 1998)... Electracy is something young people develop by growing up in a digital culture, and their education is supposed to include their efforts to create knowledge and learning.’

[38] The status of a particular literacy in relation to other metaphorical concepts.

(Erstad, 2003, p.11)

Whilst at first glance this *sounds* insightful and promising it is an empty term, signifying nothing concrete. How are these literacies combined? How do young people 'develop' Electracy by 'growing up a in digital culture? Surely *all* education is about 'knowledge and learning'? Whilst Erstad attempts to use Tyner's (1998) distinction between 'tool literacies' and 'literacies of representations,' Electracy as a term is not explained adequately enough to belong to either group.

Even though information literacy is an established term, it is so broad and ambiguously applicable that it too can be considered as an umbrella term. Fieldhouse and Nicholas (2008) use a slightly different strategy in order to promote their tangential concept of being 'information savvy.' Instead of the latter being an umbrella term in its own right, they present it as being the other half of the jigsaw puzzle to 'digital literacy' in order for individuals to be 'information literate'.

Fieldhouse and Nicholas (2008) also use the rather jaded dichotomy of 'digital natives' and 'digital immigrants', terms coined by Prensky (2001) as we saw in Chapter 5. The idea is that those who grow up with digital technologies 'speak the language' as a native. On the other hand, 'digital immigrants' betray their age and lack of experience by 'speak[ing] a language which reflects their experience of pre-digital life, by describing things as ‘digital’ to differentiate between electronic and traditional versions' (Fieldhouse & Nicholas, 2008, p.60). However, whilst the dichotomies the authors use are interesting in helping frame the debate, they neither settle on one definition of digital literacy nor rescue the concept of being 'information savvy' from being an interesting colloquialism.

In order to ‘reconcil[e] the claims of myriad concepts of digital literacy, a veritable legion of digital literacies’ (Lankshear & Knobel, 2008c, p.4) some wishing to

employ an umbrella term have instead turned to the notion of 'competency' or 'competencies.' The *Oxford English Dictionary* defines being 'competent' as:

> **'adjective 1** having the necessary skill or knowledge to do something successfully.
> **2** satisfactory or adequate, though not outstanding: she spoke quite competent French.
> **3** having legal authority to deal with a particular matter.'

It is the first of these definitions targeted by those who would rather concentrate on 'competence' than 'literacy'. For example, Spitzer quotes the following 1995 definition of 'information competence' from the *Work Group on Information Competence, Commission on Learning Resources and Instructional Technology*:

> 'Information competence is the fusing or the integration of library literacy, computer literacy, media literacy, technological literacy, ethics, critical thinking, and communication skills.'
>
> (Spitzer, 1998, p.25)

No explanation, however, is given as to what 'information competence' would look like in practice nor is guidance given as to how one would go about achieving it (if it is a 'state') or entering into it (if it is a 'process'). Similarly prone to failure is Savolainen's suggestion of 'information-related competencies' as an umbrella term, covering 'information literacy, media competence and library skills.' His justification for suggesting such a term is:

> '[b]ecause new labels describing specific kinds of literacies are continually introduced, reflecting the developments of ICT*s*, the attempts to develop an exact classification of information-related literacies seem to be futile.'
>
> (Savolainen, 2002, quoted in Virkus, 2003)

Again, no explanation is given as to how or why using the term 'information-related competencies' is *useful* in any way, apart from being a shorthand for a number of arbitrary micro literacies deemed important by the author. If an umbrella term is to be employed there must a rationale for doing so.

Instead of attempting to come up with an umbrella ('macro') term in which to retro-fit micro literacies, it seems to make more sense for theorists to use 'new literacies' as a shorthand.[39] These 'new literacies' (uncapitalized) are not to be confused with the separate 'New Media Literacies Studies' (NMLS) emerging, as we have seen, from the previous 'New Literacy Studies' (NLS).

As Tyner states, separating out the multitude of literacies seems somewhat artificial as they overlap to such a great extent. Whilst they *can* be separated, this should only be done for positive purposes:

> 'The need to set one literacy apart from another can only be explained by a need to use the concepts for other reasons, that is, to strengthen the professional status of its constituencies, or to take issue with the approaches used by proponents.'
>
> (Tyner, 1998, p.104)

Our focus instead should perhaps instead be upon a particular literacy as an 'integrating (but not overarching) concept that focuses upon the digital without limiting itself to computer skills and which comes with little historical baggage' (Martin, 2006 quoted in Bawden, 2008, p.26). Here Martin seems to have in mind the concept of 'digital literacy' although it is not the name of the term that is the issue. Instead, it is its *explanatory power* and utility in terms of conceptual understanding and applicability that is key.

[39] See, for example, Beavis (1998), Kress (2003), Lankshear & Knobel (2006)

Interestingly, Martin (2008, p.156-7) lists the following as 'literacies of the digital,' hinting that his earlier (2006) thinking has evolved towards considering literacies as a kind of overlapping matrix:

- Computer, IT or ICT Literacy
- Technological Literacy
- Information Literacy
- Media Literacy
- Visual Literacy
- Communication Literacy
- Digital Literacy.

Although he does not use the term 'matrix,' it seems clear that Martin has something like this in mind. If so, then the above list contains only a few of a potential Pandora's box of 'literacies.' With no-one as the gatekeeper as to what constitutes a 'literacy of the digital' a recursive problem occurs: there is nothing to stop a macro literacy, integrative literacy or a matrix of literacies from themselves being seen as part of a bigger picture. New literacies, as Reilly (1996, p.218) states, seem to be created as soon as a 'new texts' are invented or conceived. Martin needs to be explicit as to whether new forms of ‘text’ necessarily mean new forms of literacy. I attempt to solve this problem in Chapter 9 by melding this with a more Pragmatic approach informed by the work of McLuhan and Ong that considered in Chapter 8.

It is also unclear as to whether Martin sees these as being 'wholly' digital literacies or whether they have digital *elements*. If it is the former, then he would have to explain how, for example, 'communication literacy' differs in the digital and analogue domains. If it is the latter, Matin should explain which *elements* of these literacies do indeed count as 'digital'. I hope to solve these problems in Chapter 9 through a slightly different approach.

The kinds of debates illustrated above are examples of what I introduced in Chapter 5 as being within the realm of 'Creative Ambiguity'. That is to say they involve a community discussing and debating terminology and issues. There comes a time, however, when even in an environment of flux some guidance and *operationalisation* of a term (and related concepts) is necessary. In the area of digital literacies this is a particularly difficult undertaking as codification and dissemination requires the choosing of a point at which to 'freeze' definitions and discussion. Although there is potential to later 'unfreeze' and 'refreeze', there is the danger that this does not occur and resources and discussions become out of date quickly.

Given that this thesis aims to be practical rather than merely theoretical, in the next section I aim to critique a burgeoning area of work by JISC. Whilst still in its infancy, it serves as a useful case study for bridging the gap between Creative ambiguity and Productive ambiguity.

Example: JISC

JISC, the UK body funded by the Higher Education Funding Council for England (HEFCE), is beginning a programme of work in the area of Digital Literacies after preliminary work in 2009 on 'Learning Literacies in a Digital Age'. I should note here that at the time of writing this thesis I am employed by JISC infoNet, a JISC-funded service through JISC Advance which (slightly ironically) is an 'umbrella' organisation for a range of sector-focused services. JISC has a great influence on the Higher

Education sector (in particular) and Further Education sector in the UK, funding and supporting programmes of work and 'inspiring innovation'.[40]

The work carried out by JISC so far in the area of digital and new literacies talks in terms of a spectrum of literacies, predicated upon an understanding of 'learning literacies':

> 'Our understanding of learning literacies encompasses the range of practice that underpin effective learning in a digital age. The phrase learning literacies expresses the tension between literacy as a generic capacity for thinking, communicating ideas and intellectual work - that universities have traditionally supported - and the digital technologies and networks which are transforming what it means to work, think, communicate and learn.'
>
> (JISC, 2009a, p.2)

The work of JISC is heavily bound-up with institutional change and wider notions of graduate employability and the take up of e-learning technologies and ecosystems by the Higher Education sector. The definition of 'digital literacy' used by JISC is, therefore, perhaps purposely vague: 'the range of practices that underpin effective learning in a digital age' or, elsewhere, using the EC's definition: 'the confident and critical use of ICT for work, leisure, learning and communication.' The first of these definitions incorporates academic practices, information literacy, media literacy and ICT skills, amongst others (JISC, 2009b, p.1). The second definition is represented in the following diagram that sits half-way between a matrix of literacies and an 'umbrella term':

[40] See http://www.jisc.ac.uk for further information.

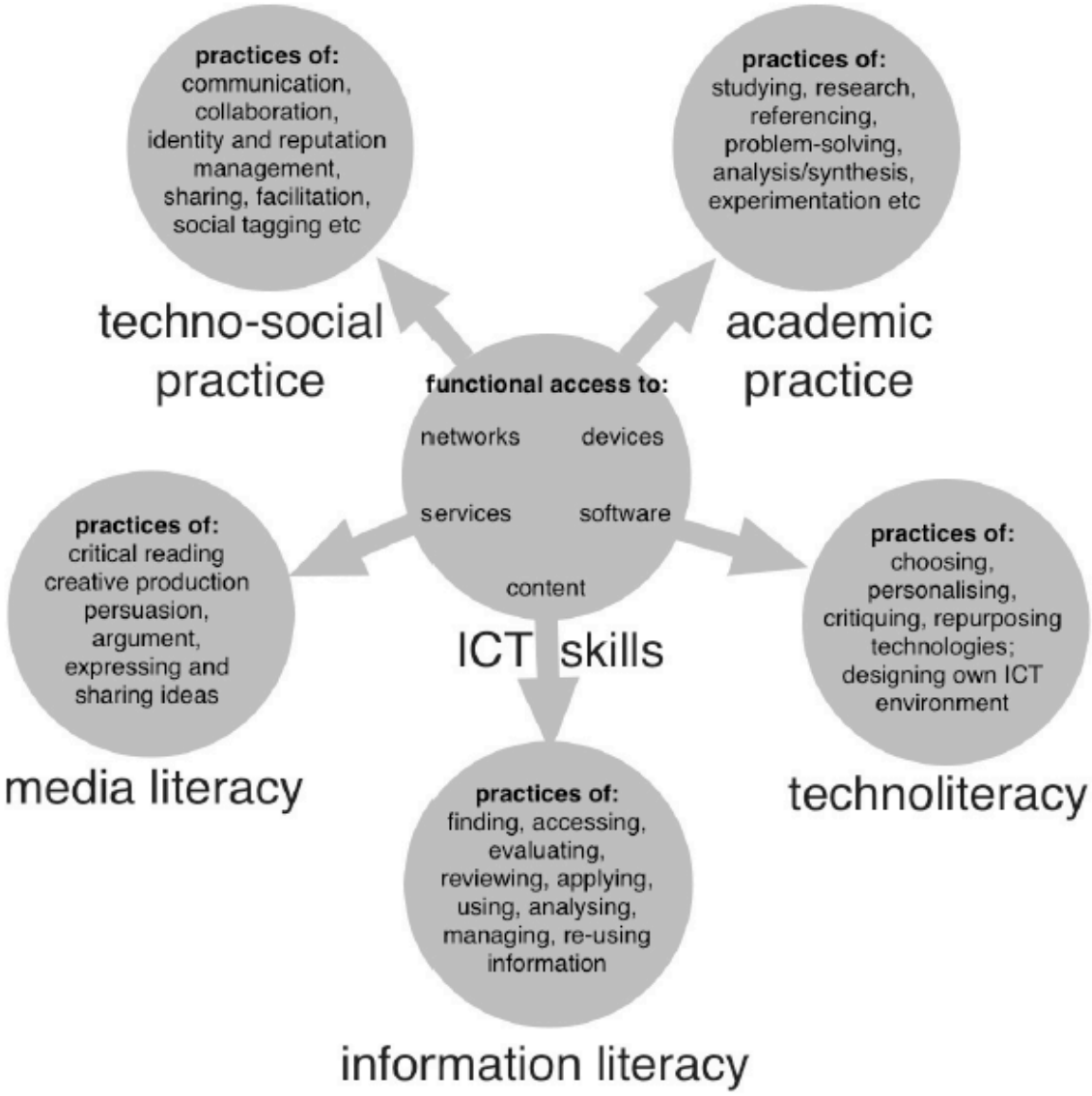


Figure 7 - JISCs mapping of ICT skills to various new literacies

Whilst Martin's matrix considers literacies to be 'overlapping' this diagram shows 'digital competence' (or 'ICT skills') to be foundational for further work in academic practice and media literacy (for example).

A further diagram demonstrates how these 'spokes' are themselves foundational to wider contexts. In this way, digital literacies are comprised of the literacy practices predicated upon ICT skills:

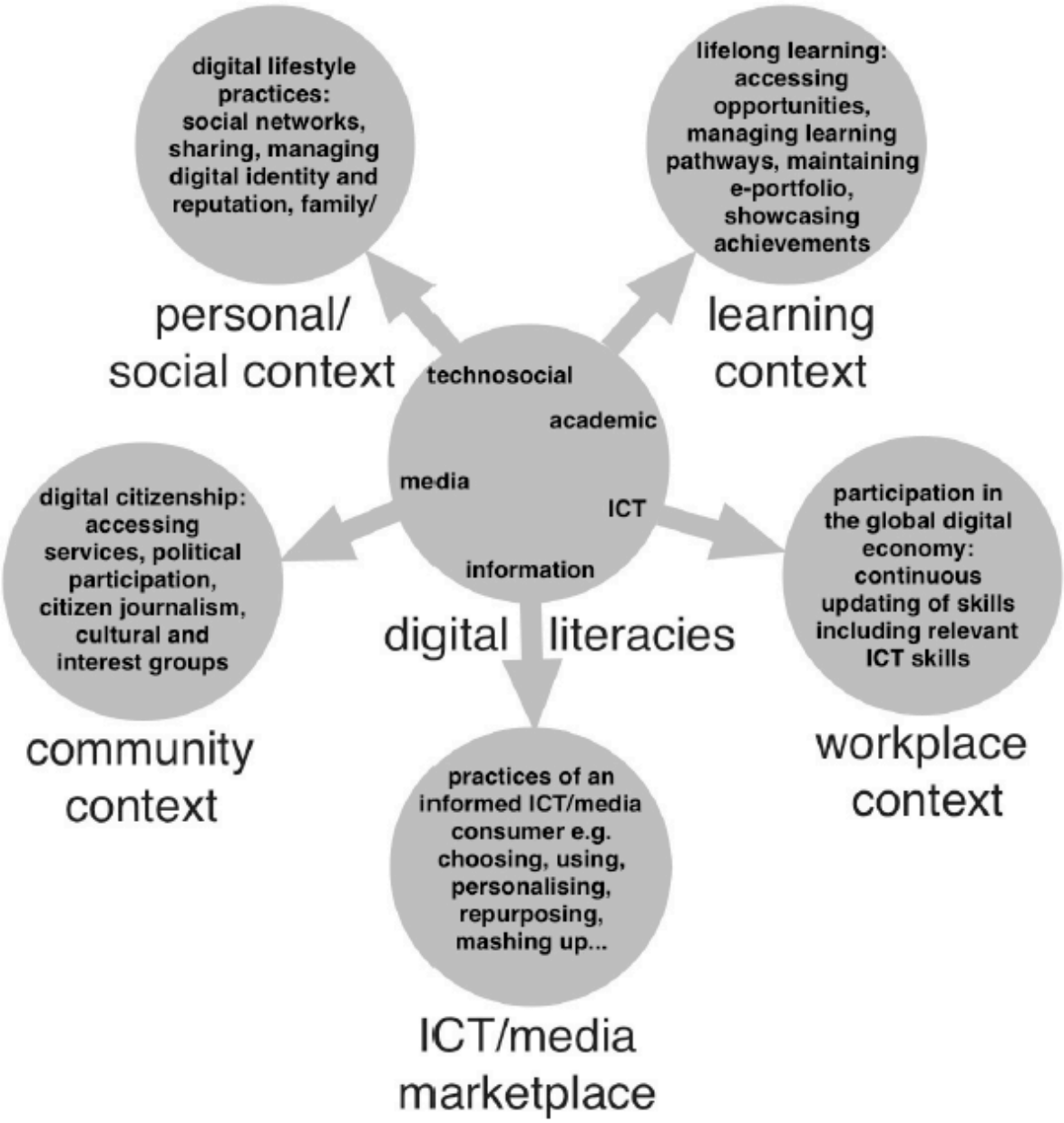


Figure 8 - JISC's mapping of digital literacies onto various contexts

One of the issues here is that micro-literacies, as defined above, are seen as flowing out of ICT skills, rather than out of the particular contexts. Although too much should not perhaps be read into diagrams, the one-way relationship from skills to practice belies the complexity and interaction between contexts and the abilities/competencies to interact effectively with others within those contexts.

It is difficult to argue, however, with the pyramid created in the JISC Digital literacies development framework (JISC, 2009d). This places 'Attributes/identities' at the top of a pyramid charting stages of development, followed by 'Practices', 'Skills' and, at the bottom of the pyramid, 'Functional access'. Access to digital devices is necessary to develop digital literacies, with skills coming from use. Practices, habits and mental models result from increasing use and immersion. Finally, a critical appreciation, resilience and adaptability and reflexive understanding of 'digital identity' constitutes the top of the pyramid. That is not to say, of course, that there is an inevitable trajectory from the bottom of the pyramid to the top merely through the use of digital technologies. Not only does the 'ladder' have many rungs, but those rungs (to extend the metaphor) change as technologies and accepted social practices move on.

An important piece of work around the (in)ability of students to apply their learning and practices from one area of their life to another is exemplified in JISC's work on 'Responding to Learners' (JISC 2009c) This study demonstrated that students often demonstrated a mental disconnect between the social software they used personally and that which they used, or were allowed to use, in an academic context. In addition, some JISC work on the 'Google Generation' (JISC, 2008) demonstrated that, far from this being merely the fault of reactionary institutions, students were not the 'Digital Natives' that they were assumed to be by many educators.

Before being abolished in 2010 Becta, a UK government organisation to promote educational technology in schools, commissioned some work on Digital Literacy. Created by by Tabetha Newman, the framework is intended to move 'from terminology to action' (Newman, 2009) after a comprehensive literature review. The five-step process model is: Define, Access, Understand & Evaluate, Create, Communicate. This has strong echoes of moving up Bloom's (revised) taxonomy (Anderson, et al. 2001) and

complements JISC's pyramid model. Defining digital literacies is, in Newman's model, merely the first step in the important job of operationalising a definition so that work around it makes a difference in *practice*.

The method, up to this point, for those wishing to begin a programme of work around 'New' or 'Digital' Literacies seems to be to concentrate on one particular definition as an umbrella term. This serves as a focus, with other literacies, skills and competencies retro-fitted into this overarching term. The same is evident with concepts such as '21st century skills'. What may be more useful, however, is to consider digital literacies an semi-fluid matrix of overlapping literacies that change due to time and context. Whilst this does not allow for effective soundbites and fails the test of fitting nicely upon one PowerPoint slide it is, nevertheless, an ultimately more accurate and responsive approach.

The advantages of major players such as JISC in the UK and the MacArthur Foundation in the US becoming involved in the arena of digital literacies are that traction is gained and terms can become operationalised. The downside is that, unless care is taken and guidance given, a 'freezing' of debate leads to implementation without evolution. In the digital literacies arena this is a particularly serious problem because of the fragmentation of research upon which this operationalisation is based.

Summing up

In this chapter I have given an overview of New Literacy Studies (NLS) as well as New Literacies Studies (NMLS) demonstrating that, far from bringing some semblance of order to a fragmented landscape, they may indeed have added to the

confusion. I have used the metaphor of an 'umbrella term' to conceptualise academics' desire to subsume other forms of literacy beneath their favoured term. This, I suggest, prevents terms such as digital literacy entering into the 'Productive ambiguity' part of the continuum of ambiguities I outlined in Chapter 5.

Whilst there is some value in the work that goes on in the realm of Creative ambiguity, the case study at the end of this chapter shows that a major player taking up the cause can be a positive step forward. Whilst JISC's work on digital literacies can be subjected to critique it is, nevertheless, a rallying cry to the UK Higher Education sector that something needs to be done around these issues. Despite this seeming move into the phase of Productive ambiguity, there remains a potential problem. Although institutions not part of the JISC-funded Digital Literacies programme may pick up the outputs from other institutions, there may be some that want something slightly more *pragmatic*. It is also arguable whether the work funded by JISC will cohere enough to meet the four criteria for a 'literacy' I set out in Chapter 3.

Chapter 8: What are (digital) literacies?

'No man knows, or ever will know, the truth about… everything I speak of;
for even if one chanced to say the complete truth, yet oneself knows it not;
but seeming is wrought over all things.'
(Xenophanes)

In Chapter 3 I noted that for digital literacy to be a tenable proposition it would need to satisfy four main requirements. To recap, these were:

1. 'Cash value'
2. Retrospective element
3. Metaphorical element
4. Digital element

In subsequent chapters I aimed to show that digital literacy is an ambiguous term (Chapter 5), that it is more appropriate to talk of 'digital literacies' (Chapter 7) and that a Pragmatic methodology is appropriate to use in this area (Chapter 6). In this chapter I attempt to navigate a path from Creative ambiguity to Productive ambiguity. I revisit the four requirements set out above, analysing the structures upon which new and digital literacies stand as well as focusing upon the 'digital' element in 'digital literacies'.

The evolution of communication

Since coming into existence, humans have had to communicate with one another. One method of doing so is through the written word, but this technology has come rather late in the evolution of communication. One way to represent this evolution would be with the aid of the following diagram:

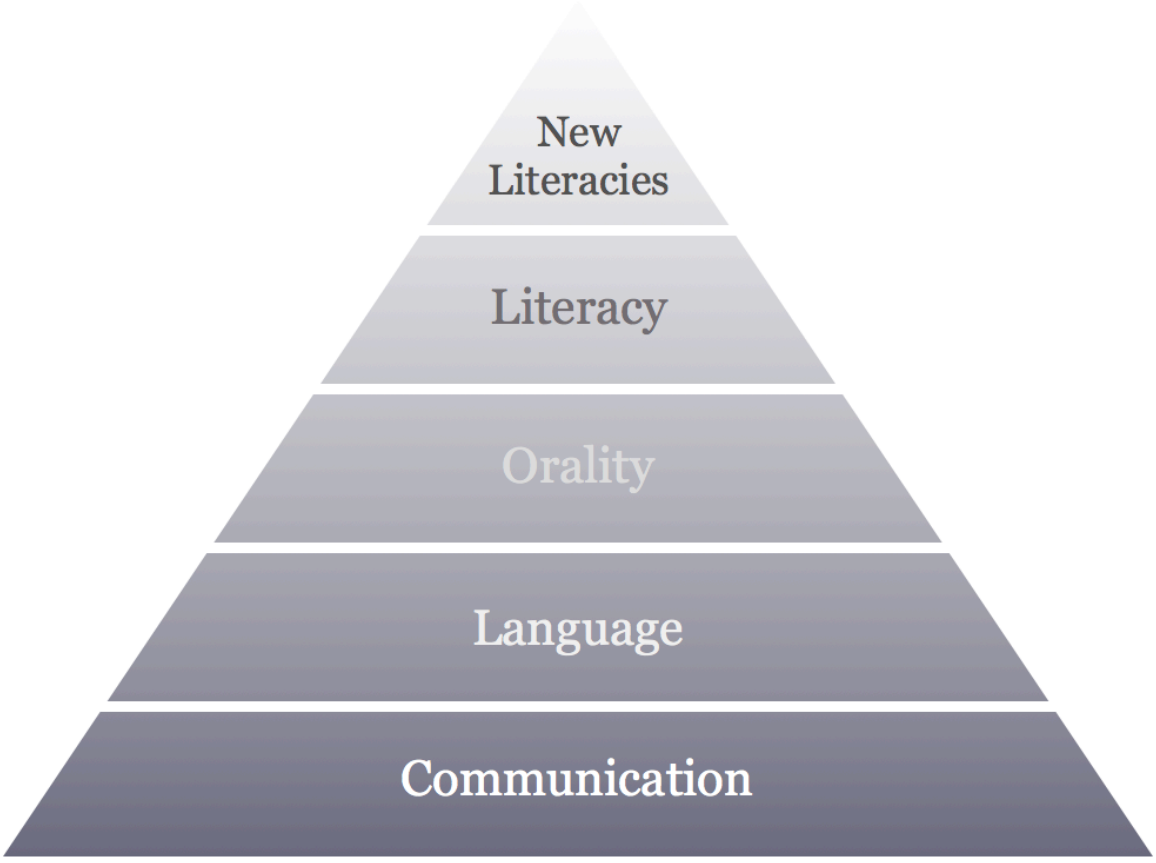


Figure 9 - A hierarchy of literacies

Writing in the age of mass communication and mass media, but before the dawn of the internet, Walter Ong and Marshall McLuhan were not disadvantaged by discussions of the latter clouding their thinking about previous technologies. It is from a synthesis of their thinking that the above diagram was created. As Ong explains,

language is, and has been, by far the most prevalent method of communication. Language is 'overwhelmingly oral':

> ‘Indeed, language is so overwhelmingly oral that of all the many thousands of languages - possibly tens of thousands - spoken in the course of human history only around 106 have ever been committed to writing to a degree sufficient to have produced literate, and most have never been written at all. Of the some 3000 languages spoken that exist today only some 78 have a literature.’
>
> (Ong, 1982:2002, p.7)

This is because, unlike writing, orality is 'natural' p.81 and *primary.*[41] The process of writing and becoming 'literate' actually *restructures consciousness*, believes Ong.[42] McLuhan goes a step further, calling writing 'the technology of individualism' (McLuhan, 1962, p.158) and reminds us that the typographic world is in its relative infancy. Although the written word as we know it did exist between the fifth century B.C. and the fifteenth century A.D. this was not 'mass communication' and was restricted to the elite few (McLuhan, 1962, p.74). It was the typographic world, as opposed to the scribal, manuscript-driven world previously in existence that led to the context-free nature of literacy, claims Ong (1982:2002, p.77) - 'written discourse has been detached from its author.' Whereas in an oral world things could be forgotten, stances changed and context necessarily understood, this changed fundamentally with the dawn of the typographic world. A difficulty arises when, at a distance from the author, and out of context, an individual attempts to separate the signifier from the thing signified:

> ‘Writing makes 'words' appear similar to things because we think of words as the visible marks signaling words to decoders: we can see and touch such inscribed

[41] ‘Oral expression can exist and mostly has existed without any writing at all, writing never without orality’ (Ong, 1982:2002, p.8)

[42] ‘Without writing, the literate mind would not and could not think as it does'‘ (Ong, 1982:2002, p.77)

'words' in texts and books. Written words are residue. Oral tradition has no such residue or deposit.'

(Ong, 1982:2002, p.11)

This 'residue or deposit' affects ideas surrounding human consciousness and identity. It gives human beings, both individually and corporately, additional 'powers' - especially in relation to 'memory' and communication over large distances. 'Conversations' (in a loose sense of the term) can happen asynchronously over many years and great distances. As Ong reminds us, there is no way to completely refute a written text as 'after absolutely total and devastating refutation, it says exactly the same thing as before' (Ong, 1982:2002, p.78).

The move to 'new(er) literacies' came at the end of the 20th century. Ong (1982:2002, p.3) would explain this through a move into what he would call 'secondary orality', whilst McLuhan (1962, p.253) speaks of the 'Gutenberg galaxy' coming to an end in the era of electronic communication. Although McLuhan points out that we are approximately as far into the 'electric era' as the Elizabethans were into the 'typographical age' (McLuhan, 1962, p.1), and that they had to justify books in education in a similar way that we have to justify technology (p.145), he explains that the two changes are nevertheless very different:

'Our extended senses, tools, technologies, through the ages, have been closed systems incapable of interplay or collective awareness. Now, in the electric age, the very instantaneous nature of co-existence among our technological instruments has created a crisis quite new in human history. Our extended faculties and senses now constitute a single field of experience which demands that they become collectively conscious... As long as our technologies were as slow as the wheel or the alphabet or money, the fact that they were separate, closed systems was socially and psychically supportable. This is not true now when sight and sound and movement are simultaneous and global in extent.'

(McLuhan, 1962, p.5)

It is this less individualised, more 'networked' world that has led to the discussion of 'new literacies'. The stimulus to traditional conceptions of literacy, says Ong (1982, p.85) was urbanization, partly because it led to the need and desire for record-keeping. The stimulus to newer conceptions of literacy, including 'digital literacy' is, therefore, perhaps the metaphorical 'proximity' of our relationships despite geographical distance. Whereas traditional literacy was predicated upon technologies that promoted individualism, newer conceptions of literacy depend upon access, collaboration and sharing.

Just as post-Gutenberg civilization struggled with the technology of the typographic world (and associated problems surrounding grammar/personal access to previously difficult-to-obtain works) so we struggle faced with a world where, quite literally, using the internet *anybody* can publish to a global audience cheaply and without delay. We are in a world where new literacies may be required or, as Ong puts it, a world of 'secondary orality':

> ‘The electronic transformation of verbal expression has both deepened the commitment of the word to space initiated by writing and intensified by print and has brought consciousness to a new age of secondary orality.
> ...
> This new orality has striking resemblances to the old in its participatory mystique, its fostering of a communal sense, its concentration on the present moment, and even its use of formulas (Ong 1971, pp.284-303; 1977, pp.16-49, 305-41). But it is essentially a more deliberate and self-conscious orality, based permanently on the use of writing and print, which are essential for the manufacture and operation of the equipment and for its use as well.’
>
> (Ong, 1982:2002, p.133-4)

The reference to the *self-consciousness* of this 'secondary orality' is important, but also causes problems. As LaFitte puts it, ‘because we are their makers, we have too often deluded ourselves into believing that we knew all there was to know about machines’.[43]

[43] LaFitte, quoted in McLuhan, 1962, p.155

We are tied to a print-based culture which, to some extent, limits our ability to express ourselves:

> ‘In the electronic age which succeeds the typographic and mechanical era of the past five hundred years, we encounter new shapes and structures of human interdependence and of expressions which are ‘oral’ in form even when the components of the situation may be non-verbal’.’
>
> (McLuhan, 1962, p.3)

Some want to call this knowledge of machines and new shapes and structures a form of *literacy*. Proponents of 'New Literacies' in particular are keen to widen the idea of 'literacy' in a similar way to postmodernists wanting to widen what is meant by 'text'. The issue, as I questioned in Chapter 7, is whether such 'New Literacies' are 'literacies' in any real sense of the word.

Evolution or revolution?

As we saw earlier through a quotation from Gee, Hull & Lankshear 'whatever literacy is, it [has] something to do with *reading*'. In addition, it must be reading with *understanding*. This idea of literacy being 'reading something with understanding' is what I will continue to refer to as 'Traditional (Print) Literacy’. This conception of literacy is *static* and *psychological*, focused on the individual's relationship, and interaction, with physical objects. The physical book comprises what Lankshear & Knobel call the 'text paradigm' - something over and above the simple act of reading with understanding:

> ‘[D]uring the age of print the book... shaped conceptions of layout, it was the pinnacle of textual authority, and it played a central role in organizing practices and routines in major social institutions. The book mediated social relations of control and power... Textual forms and formats were relatively stable and were 'policed' to

ensure conformity.'

(Lankshear & Knobel, 2006, p.52)

This perpetuation of hegemonic power through Traditional Literacy has complicated debates surrounding, and the evolution of the term, 'literacy'. Not only is 'reading with understanding' bound up with politics, but also with religion and with identity. Literacy is predicated upon a scarcity model, 'with literacy comprising a key instrumentality for unlocking advantage and status through achievements at levels wilfully preserved for the few' (Lankshear & Knobel, 2006, p.62). Schools and educational institutions, as Bigum notes, are mainly *consumers* of knowledge.[44] Meaning is made centrally and then disseminated to such institutions and individuals as can access the encoded texts used to convey ideas, thoughts, concepts and processes. These encoded texts consist of, ' texts that have been 'frozen' or 'captured' in ways that free them from their immediate context and origin of production, such that they are '(trans)portable' and exist independently of the presence of human beings as bearers of the text' (Lankshear & Knobel, 2008b, p.257).

Recently, with the dawn of first mass media, and then mass participation with the rise of the internet, conceptions of literacy have had to change. This has put a strain on the static, pyschological conceptions implicit in Traditional Literacy. As a result, what 'literacy' means (and therefore what it means to be 'literate') has changed. As Lanham puts it, literacy 'has extended its semantic reach from meaning 'the ability to read and write' to now meaning 'the ability to understand information however presented.'[45] There is no doubt that 'literacy' has become a fuzzy concept that gives the semblance of being straightforward but, on closer inspection, contains layers of complexity. Erstad, for example, comments on this fuzziness, noting that it is apparent 'especially among those

[44] Cited in Lankshear & Knobel, 2006, p.188
[45] Quoted by Lankshear & Knobel, 2006, p.21-2

educators and researchers whose professional interests are tied to how literacy is understood' (Erstad, 2008, p.181-2).

Given these difficulties, some commentators such as Sven Birkets in *The Gutenberg Elegies* yearn for a return to Traditional Literacy due to the decline in the reading of books. This, he believes, comes 'with the attendant effects of the loss of deep thinking, the erosion of language, and the flattening of historical perspective' (Birkets, 2006, p.15). He argues, along with Kress (1997) that literacy 'should be confined to the realm of writing'. Rejecting such a dichotomy, Tyner (1998) sought to reconceptualize the debate in terms of 'tool literacies' (the skills necessary to be able to use a technology) and 'literacies of representation' (the knowledge required to take advantage of a technology).[46] This middle ground gave space for multiple conceptions of literacy to flourish.

Unfortunately, and perhaps inevitably, these 'New Literacies' bear more than a hint of old wine in new bottles, as we saw in Chapter 7:

> 'It does not follow from the fact that so-called new technologies are being used in literacy education that *new literacies* are being engaged with. Still less does it imply that learners are developing, critiquing, analysing, or even become technologically proficient with new literacies.'
>
> (Lankshear & Knobel, 2006, p.54-5)

The problem surrounding new(er) literacies in educational institutions such as schools is fourfold. First, there is the very real problem of educators not having grown up in an environment where such digital skills, both Tyner's 'tool literacies' and 'literacies of representation', were necessary. The age-old problem of 'it was good enough for me when I was at school' applies as much to educators as it does to parents. If a problem cannot be seen and/or understood then it cannot be dealt with effectively. Second,

[46] Cited in Erstad, 2008, p.183

educators are sometimes unwilling to ascribe day-to-day problems they face to their own weaknesses (such as ignorance, or fear of change). If the mere presence of, for example, an interactive whiteboard in a classroom does not lead to increased examination performance, then the technology tends to be blamed; the suggestion that new technologies should not necessarily be used to prop-up a paradigm is not countenanced. Following on from this, and third, is what is known as the 'deep grammar' of schooling:

> ‘School learning is for school; school as it has always been. The burgeoning take-up of new technologies simply gives us our latest 'fix' on this phenomenon. It is the 'truth' that underpins many current claims that school learning is at odds with authentic ways of learning to be in the world, and with social practice beyond the school gates... It is precisely this 'deep grammar' of schooling that cuts schools off from the new (technological) literacies and associated subjectivities that Bill Green and Chris Bigum (1993) say educators are compelled to attend to.’
>
> (Lankshear & Knobel, 2006, p.57)

'School' then becomes a self-perpetuating institution, cut off from new(er) conceptions and forms of literacy. As a result, ‘education’ and ‘schooling’ become two very different things. Given that school is the place where most people (are supposed to) learn, this constitutes a problem of *relevance* and somewhat of a crisis for new literacies.

Finally, there is the problem of 'knowledgeable peers' when it comes to new forms of literacy in schools. Top-down, hierarchical, Traditional (Print) Literacy is perpetuated within schools because it is so difficult to come up with other practical models. League tables, and other, ostensibly 'rigorous' external measures, serve to restrict and limit the activities schools and teachers can perform. There is much invested in maintaining status quo. Whilst public debate and discussion has taken place in most western countries surrounding the place of technology in privacy and entertainment, the same is lacking within the sphere of education. Just what new technologies mean for the education of young people in the 21st century remains an open question.

Given the ubiquitous and mandated use of technology in almost every occupation, students are left with a problem. They 'seek to enter new communities... but do not yet have the knowledge necessary to act as ‘knowledgeable peers’ in the community conversation' (Taylor & Ward, 1998, p.18). Educators seeking to perpetuate Traditional (Print) Literacy often exploit the difference between students 'tool literacy' on the one-hand (their *technical ability*) and their understanding of, and proficiency in 'literacies of representation' (making use of these abilities for a purpose). Students are stereotyped at having great technical ability but lacking the skills to put these into practice. Given the 'duty of care' educational institutions have, reference is therefore made to 'e-safety', 'e-learning' and 'e-portfolios' - slippery terms that sound important and which serve to reinforce a traditional teacher-led model of education. As Bruffee points out, ‘pooling the resources that a group of peers brings with them to the task may make accessible the normal discourse of the new community they together hope to enter.’[47] The barrier, in this case, is the traditional school classroom and the view that Traditional Literacy is a necessary and sufficient conditional requirement for entry into such communities.

The assumption made by many is that Traditional Literacy has some form of counterpart in the form of 'Digital Literacy'. Such thinking places use of, for example, the internet on a continuum stretching neatly back from inventions such as writing on slate, through papyrus, the printing press and mass media (TV, radio, cinema). The danger with this 'artefactual' approach when examining new technologies, argues Ursula Franklin, is that ‘[technologies] involve much more than simply passing on and/or adding to written or visual texts or information *per se*... Rather, they are tied directly to ways of interacting with others... and to ways of being, knowing, learning and doing’.[48] 'Reading with understanding' on the internet is not as straightforward as the 'reading with understanding'

[47] Quoted by Taylor & Ward, 1998, p.18
[48] Quoted by Lankshear & Knobel, 2006, p.235

of a book or other printed matter. On the most basic level, unlike with most printed matter, there *is no correct way* to navigate via hyperlink the myriad websites that make up the digital world. But more than this, there is no *barrier* to publishing. No barriers means no editorial control. No editorial control means potential equal weight and emphasis given to extreme views, incorrect assertions and illegal acts. Thus access to, and use of, technology becomes a *moral* issue.

Given this and other 'problems', theorists have attempted to incorporate extra elements within literacy in an attempt to answer or avoid them. For example, the DigEuLit project conceived of 'Digital Literacy' as including ‘the ability to plan, execute and evaluate digital actions in the solution of life tasks’ (Martin, 2005), something without parallel in conceptions of Traditional Literacy. Martin also adds 'the ability to reflect on one's own digital literacy development' (ibid.) as being an important aspect of Digital Literacy, propelling the term into a level much higher than mere 'competence'. The heart of the tension is whether or not the technologies involved are *transformative* in their bearing on literacy. A difficulty arises, however, as improvements in technology mean that the goalposts are continually shifting and thus altering social practices. This is an important point raised by Graham (1999) who wonders at what point something (such as the internet) that *extends* literacy practices can count at transformative. There must be *some* revolutionary, transformative technologies, otherwise everything from the invention of the wheel would be an 'extension' of existing technologies and social practices. Those who support this 'revolutionary' view, such as Taylor & Ward , believe that because ‘computer networks... improve communicative interaction among students, teachers, and even texts’ then sociocultural practices are altered (Taylor & Ward, 1999, p.xvii). It is these changes in sociocultural practices that result in calls for the definition of new literacies.

This sociocultural practices model conceives of literacy as 'an active relationship or a way of orienting to the social and cultural world' (Rantala & Suoranta, 2008, p.96-7). Unlike models of Traditional (Print) Literacy based upon the printed word, the sociocultural practices model (as we saw in Chapter 3) conceives of literacy as being a *process* instead of a state. Literacy is thus bound up with identity, culture and involves a reflective element. Whereas Traditional Literacy is about training and competence, the forms of literacy put forward by the sociocultural practices model involve interaction and creativity. This almost 'meta' form of literacy is defined by the 'mashup' and the remix; it could be seen as post-postmodernism, making one's own sense of a fragmented 'reality'.

The difficulty is that the view of literacy put forward by the sociocultural practices model strains at the very edges of the word 'literacy'. This, believe Lankshear & Knobel, is a problem relating to conceptions of Traditional (Print) Literacy, not a new problem for the sociocultural practices model to face uniquely:

> ‘Sometimes… 'literacy' [is] a metaphor for 'competence', 'proficiency' or 'being functional'. Concepts like 'being computer literate' or being 'technologically literate' are sometimes used to mean that someone is more or less proficient with a computer or some other device like a video recorder: they can 'make sense of' and 'use' computers, or can program their video player or mobile phone.’
>
> (Lankshear & Knobel, 2006, p.20)

Presumably, Lankshear & Knobel's conception of true 'Traditional (Print) Literacy’ would be more than the ability to 'read with understanding' any printed matter. It would involve some meta-level remixing, the ability to deconstruct the text and reflect on what one has done. If not, then it is difficult to see how they could describe skills in the digital world as a 'literacy'.

If the use of, and interaction with, digital texts is not a 'revolution' and if theorists want to continue using the term 'literacy', then some type of middle ground must be sought. It would be difficult to disagree with Lankshear & Knobel's 'working hypothesis':

> '[T]he world is now significantly different from how it was two or three decades ago... this difference has a lot to do with the emergence of new technologies and changes in social practices associated with these... the changes are part of a move from what we have called 'industrial' values and ways of doing things and increasing embrace of 'post-industrial' values and ways of doing things.'
>
> (Lankshear & Knobel, 2006, p.53)

To establish a 'middle ground', then, a dialectic should be set up:

> '[T]he idea of 'new' literacies is a useful way to conceptualize what might be seen as one component of an unfolding 'literacy dialectic'. By a *dialectic* we mean a kind of transcendence, in which two forces that exist in tension with one another 'work out their differences', as it were, and evolve into something that bears the stamp of both, yet is qualitatively different from each of them.'
>
> (Lankshear & Knobel, 2006, p.29)

Indeed, Martin believes that 'transformation is not a necessary condition of digital literacy' as '[a]ctivity at the level of appropriate and informed usage would be sufficient to be described as digitally literate' (Martin, 2008, p.173). This is a rather conservative and non-specific conception of literacy. What would 'appropriate and informed usage' look like in practice? It allows, for example, for ICT-based, *procedural* definitions such as those that frame Microsoft's 'Digital Literacy Curriculum' and European Commission reports as well as more 'critical' conceptions such as thos as championed by authors like Buckingham.

To be clear, the forces that 'exist in tension with one another' in Lankshear and Knobel's view are, on the one hand, Traditional Literacy, and on the other, digital skills. The problem is that words used to describe the latter are used imprecisely. As Fieldhouse & Nicholas put it:

> ‘Definitions of digital and information literacy are numerous. Within this pool of definitions, terms often are interchangeable; for example, ‘literacy’, ‘fluency’ and ‘competency’ can all be used to describe the ability to steer a path through digital and information environments to find, evaluate, and accept or reject information.’
>
> (Fieldhouse & Nicholas, 2008, p.50-1)

Without an appeal to a dialectic, this 'ability to steer a path' would become tantamount to a naming dispute. Digital literacy, digital fluency, and digital competence could need touchstones on either side of the debate to be able to position themselves on a continuum. What remains to be seen, however, is whether the term 'literacy' can be stretched to accommodate the higher-level, 'meta', reflective elements that proponents of 'New Literacies' envisage. Recent developments in the US with digitalliteracy.gov[49] suggest that polarisation rather than integration is the trend, although there are rays of hope through initiatives such as the MacArthur Foundation-funded DML Central.[50]

There are some, however, who would reject the idea of a dialectic when it comes to literacy, calling for *revolution* not evolution. Instead of encouraging an interplay of old and new conceptions of literacy, they would espouse a clear demarcation. New technologies call for new literacies - and perhaps, epistemologies:

> ‘[A] seemingly increasing proportion of what people do and seek within practices mediated by new technologies - particularly computing and communications technologies - has nothing directly to do with true and established rules, procedures and standards for knowing.’
>
> (Lankshear & Knobel, 2006, p.242-3)

There are three main reasons why this is the case. The first relates to the *personality* traits of people involved.

---

[49] See Chapter 2
[50] http://dmlcentral.net

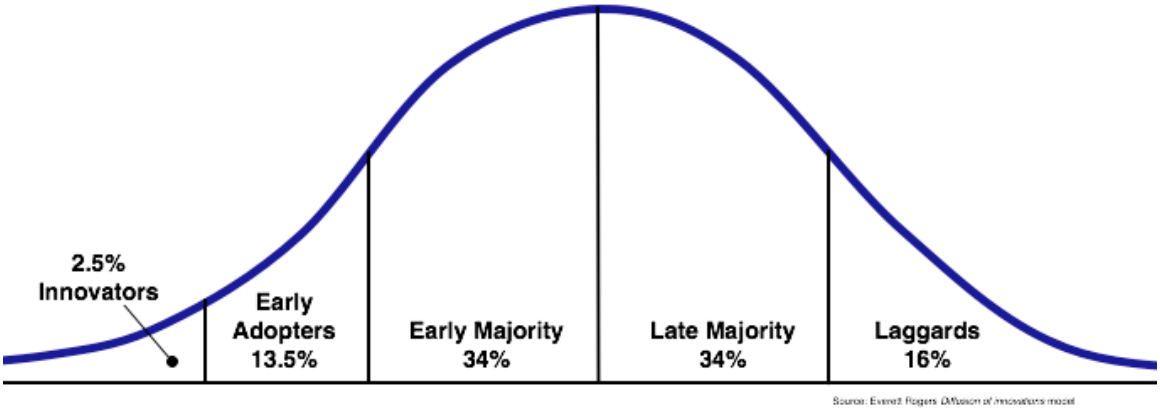


Figure 10 - The Technology Adoption Lifecycle (also known as 'Rodgers Diffusion of Innovation')

This distribution, shown as a Bell curve, is known as the 'technology adoption lifecycle' and, whilst an abstraction and over-simplification, gives a thumbnail sketch of how individuals position themselves with regards to new technologies. The early adopters are the first to figure out ways of using new technologies. By the time technologies reach the mainstream they are far from neutral having been tried, tested, accepted, rejected or accommodated by a 'digital elite'. Skewed epistemologies can therefore lead to skewed literacies.

The second reason why practices surrounding technology-mediated practices are different and perhaps require new literacies is down to *identity*. Digital interaction removes a layer of physicality from interactions. This can be liberating in the case of, for example, a burns victim or someone otherwise disabled or disfigured. They can use virtual worlds such as *Second Life, World of Warcraft* or *Playstation@Home* to regain confidence. It can also be 'dangerous' as individuals are often able to remain anonymous in online interactions. Physical interactions are *bounded* by time and space in a way that digital interactions are not. Whilst asynchronous interactions have been possible since the first marks were made in an effort to communicate, digital interactions go way beyond what is possible with the book. With printed matter, it is difficult to accidentally take something out of context as one has to deal with the book in its entirety. With digital

interactions, however, it is much easier to misrepresent what was intended by the author, even accidentally. Interactions and texts also tend to be shorter online. Thus, in the 'fight for the soundbite', distortion of the original message can occur.

Third, practices mediated by technology are different because of the element of *community* involved. Traditional Literacy is predicated upon a scarcity model of education and exclusionist principles. This was originally done for positive reasons: the belief in meritocracy necessarily leads to exclusion of 'all but the best'. When the only option is face-to-face teaching and learning, scarcity of resources is a major issue but also an opportunity to earn money or status. Communities embodying scarcity and exclusionist models focus on the *who* rather than the *what*, identity rather than interest. With technology-mediated practices, on the other hand, even 'niche' interests can be catered for in 'affinity spaces'.

These, then, are three reasons new technologies can be linked to new epistemologies: personality, identity, and community. Whether new epistemologies necessarily lead to new literacies is debatable. As Erstad (2008) notes, *all* interaction is mediated and involves social and psychological processes. This is transformed when technology is used to do the communicating:

> 'Regardless of the particular case or the genetic domain involved, the general point is that the introduction of a new mediational means creates a kind of imbalance in the systemic organization of mediated action, an imbalance that sets off changes in other elements such as the agent and changes in mediated action in general.'
>
> (quoted in Erstad, 2008, p.180-1)

It is at this point that Lankshear and Knobel's demarcation between 'conceptual' and 'standardized operational' definitions of literacy becomes useful. Conceptual definitions are what primarily interest us here, the extension of literacy's 'semantic reach'

as opposed to 'operationalizing' what is involved in digital literacy and ‘advanc[ing] these as a *standard* for general adoption’ (Lankshear & Knobel, 2008a, p.2-3).

Instead of coining terms and giving existing concepts a 'digital twist', those who reject the dialectical approach propose 'New Literacies'. They would reject Gilster's assertion that ‘digital literacy is the logical extension of literacy itself, just as hypertext is an extension of the traditional reading experience’ (Gilster, 1997, p.230). Instead, as we began to see in Chapter 7, New Literacies theorists such as Lankshear and Knobel believe that ‘the more a literacy practice privileges participation over publishing, collective intelligence over individual possessive intelligence, collaboration over individuated authorship..., the more we should regard it as a 'new' literacy’ (Lankshear & Knobel, 2006, p.60).

In an attempt to flesh out this conception of New Literacies, however, the authors 'muddy the waters' somewhat. By seeking to explain what is 'new' about New Literacies, Lankshear and Knobel make reference to: a certain kind of technical stuff – digitality’ (2006, p.93) which seems to somewhat beg the question. They do concede, however, that 'having new technical stuff is neither a necessary nor a sufficient condition for being a new literacy. It might amount to a digitized way of doing 'the same old same old'.' The authors attempt to deal with the difficulty of New Literacies involving *identity* by demarcating between 'Literacy' and 'literacy'. Their demarcation is worth quoting in full:

> ‘Literacy, with a 'big L' refers to making meaning in ways that are tied directly to life and to being in the world (c.f. Freire 1972, Street 1984). That is, whenever we use language, we are making some sort of significant or socially recognizable 'move' that is inextricably tied to someone bringing into being or realizing some element or aspect of their world. This means that literacy, with a 'small l', describes the actual process of reading, writing, viewing, listening, manipulating images and sound, etc., making connections between different ideas, and using words and symbols that are part of these larger, more embodied Literacy practices. *In short, this distinction explicitly recognizes that L/literacy is always about reading and writing something, and that this something is always part of a large pattern of*

> *being in the world (Gee, et al. 1996). And, because there are multiple ways of being in the world, then we can say that there are multiple L/literacies.*
> (Lankshear & Knobel, 2006, p.233, my emphasis)

Earlier, Lankshear and Knobel moved from new technologies to new epistemologies, here they move from ontology to literacy. It is not clear, however, that such a move can be sustained. What do the authors mean by stating that 'there are multiple ways of being in the world'? What constitutes a *difference* in these ways of being? Does each 'way of being' map onto a 'literacy'? The authors claim that to be 'ontologically new' means to 'consist of a different kind of 'stuff' from conventional literacies' reflective of 'larger changes in technology, institutions, media and the economy... and so on' (Lankshear & Knobel, 2006, p.23-4).

In effect, what we are asking is: what *changes* when a new technology is introduced? How does it affect how we interact, how we think and how we communicate? Useful here may be Marshall McLuhan's idea of 'tetrads' (as set out in his posthumously-published *Laws of Media*).

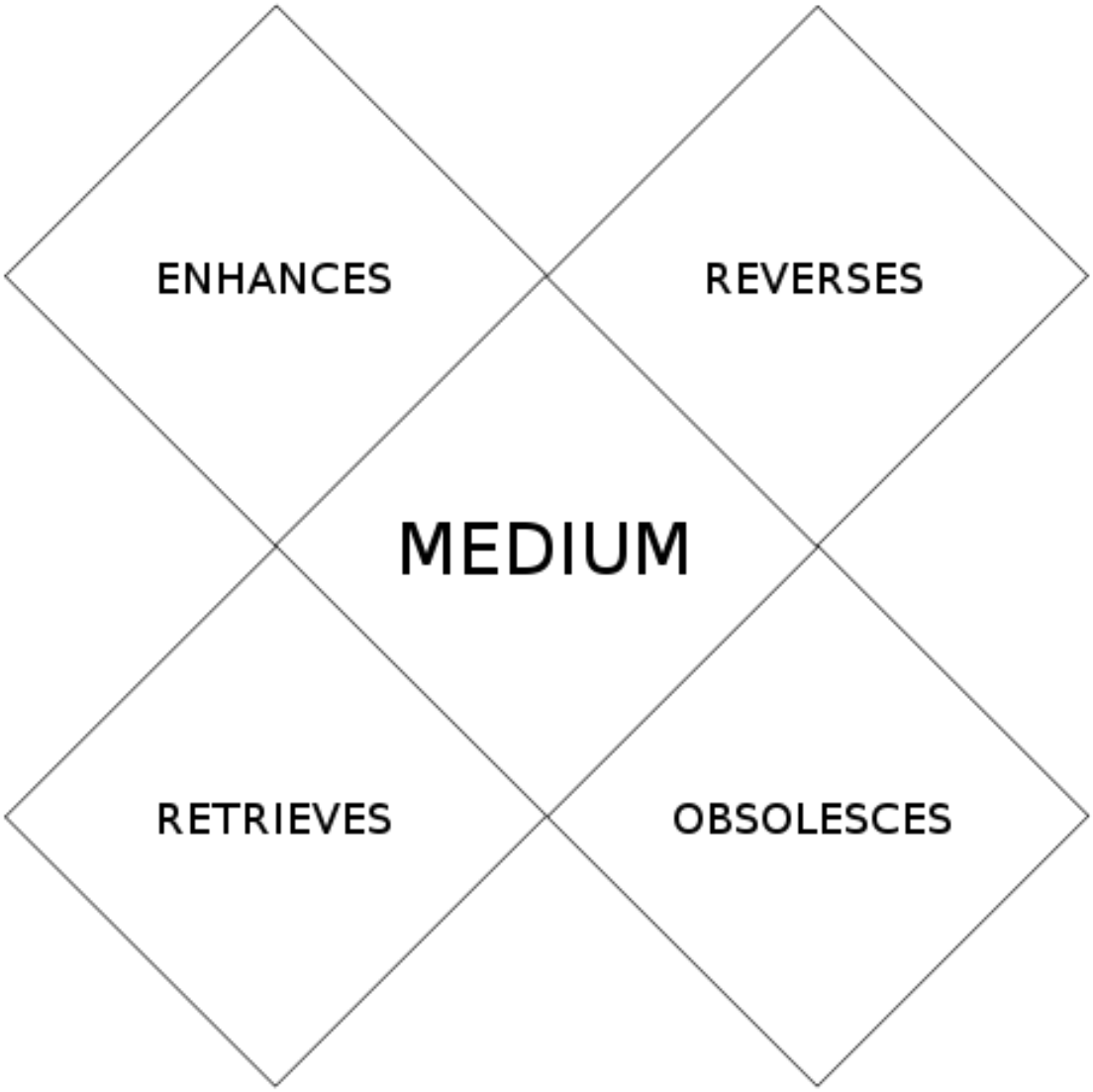


Figure 11 - McLuhan's tetrads

Any medium or human artefact simultaneously enhances, reverses, retrieves and obsolesces - although the effects in each area may take years to manifest themselves. If we take the mobile phone (cellphone) as an example to place in the centre of the tetrad, we observe the following. The mobile phone *enhances* communication by voice whilst *reversing* the need to keep people close in order to communicate with them. Public telephone booths become *obsolete*, but certain behaviours (such as infantile shouting) are *retrieved*.

McLuhan also believed that technologies have to be understood in their historical context, using the idea of 'figure and ground' to underpin his famous phrase ‘the medium is the message:. The figure (or medium) operates through its ground (or context) with both having to be understood *together* to make either intelligible. McLuhan believed that each technology reflects a way of understanding the world, especially in terms of time and space. Attempting to understand a particular technology or medium without the culture in which it was used would be at best anachronistic and at worst misleading.

This idea of each medium having its own tetradic influence, along with McLuhan's borrowing of the concept of 'figure and ground' from Gestalt psychology would seem to make the idea of a single, monolithic 'digital literacy' untenable. Not only does the 'digital' refer to devices that cover many cultural niches and time periods, but each obeys McLuhan's *Laws of Media* in different ways. We have moved from a psychological view of understanding literacy (as with Traditional Literacy) to a sociological view where '[l]iteracies are bound up with social, institutional and cultural relationships, and can only be understood when they are situated within their social, cultural and historical contexts' (Lankshear & Knobel, 2006, p.12).

As Lankshear and Knobel go on to mention, literacy is always connected to social identity, to being a particular type of person. This is necessarily singular in a world where communication is bounded by physicality, but in a digital world may be *multiple*. Online I may have as many personas and identities as I have accounts with various services and spaces. This has led to what is known as 'affinity spaces, places where informal learning takes place amongst people who have a shared activity, interest or goal (Gee, 2004). This could be a war-game played online through an identity symbolised by a 'butch' soldier avatar, involvement in a photo-sharing community where members post comments, ideas and tips on each others' work, or a fan fiction arena where members share a love of a

particular film/TV series/book. It is not difficult to imagine an individual involving himself in each of these communities simultaneously using a different identity, avatar, and persona in each space:

> ‘These multiple identities are predicated upon 'the recognition of ‘difference’ and hyperplurality... suggest[ing] that the emerging architecture of world order is moving away from territorially distinct, mutually exclusive, linear orderings of space toward nonlinear, multiperspectival, overlapping layers of political authority. Likewise, modern mass identities centred on the ‘nation’ are being dispersed into multiple, nonterritorial ‘niche’ communities and fragmented identities.’
> (Deibert, 1996, quoted in Hawisher & Selfe, 2000, p.288)

If communities are defined by communication and creative acts, and if these two activities are based upon some form of literacy, then literacies must be multiple, ever-changing and quickly evolving. This is consistent with Bauman’s idea of ‘liquid modernity’, that society has been transformed by a move from the ‘solid’ to the ‘liquid’ phase of modernity (Bauman, 2005). Social forms ‘melt’ faster than new ones can be cast which means that they cannot be used as frames of reference for long-term ‘life strategies’ or human action. It is difficult to see how a generalised notion of 'digital literacy' would have time to 'solidify' and reside within an individual in a pure form. Instead, using theories such as *Connectivism* to conceive of learning - and therefore literacies - as residing in networks may be more sustainable. Considering education in terms of Discourse(s) rather than as transmission leads to:

> ‘thinking of education and learning in terms not of schools and children (place-related and age-specific) but, instead, in terms of human lives as *trajectories* through diverse social practices and institutions... To learn something is to progress toward a fuller understanding and fluency with doing and being in ways that are recognized as proficient relative to recognized ways of 'being in the world’.’
> (Lankshear & Knobel, 2006, p.196)

Social practices become both all-important and compartmentalized. Learners as 'nodes on a network' can gain identity and status whilst simultaneously helping shape

what, for that particular community, is an accepted and recognized way of 'being in the world'. Methodologies and 'literacies' (if such a term is to be used) are negotiated and emergent. As Siemens, one of the developers of the theory of Connectivism puts it:

> 'The starting point of connectivism is the individual. Personal knowledge is comprised of a network, which feeds into organizations and institutions, which in turn feed back into the network, and then continue to provide learning to individuals. This cycle of knowledge development (personal to network to organization) allows learners to remain current in their field through the connections they have formed.'
>
> (Siemens, 2004)

In a world where the 'half-life' of knowledge, 'the time span from when knowledge is gained to when it becomes obsolete', is shrinking rapidly, such networked learning and associated literacies are essential.[51]

But is the word 'literacy' *useful* in such a context? Literacy is a state which has traditionally been ascribed (or not) to *individuals*. Is the state that writers on 'New Literacies' espouse simply a case of encoding and decoding texts? It would appear from the above, given the references to 'identity' and 'community' that perhaps we have moved *beyond* literacy. An idea to be explored in what follows is that a digital version of the concept of *Flow* may be a Pragmatically-useful concept to use in place of the seemingly never-ending 'umbrella terms' outlined earlier.

In his seminal work *Flow: the psychology of optimal experience*, Mihaly Csikszentmihalyi introduced the concept of 'flow' as being at the root of true happiness, successful learning experiences and intrinsic motivation. In a state of flow, individuals undergo what Csikszentmihalyi refers to as 'the autotelic experience':

'The term 'autotelic' derives from two Greek words, *auto* meaning self, and *telos*

[51] Gonzalez, 2004 quoted by Siemens, 2004

> meaning goal. It refers to a self-contained activity, one that is done not with the expectation of some future benefit, but simply because the doing itself is the reward... Most things we do are neither purely autotelic nor purely exotelic (as we shall call activities done for external reasons only), but are a combination of the two.'
>
> (Csikszentmihalyi, 1990:2008, p.67)

Focusing on the term 'literacy' and attempting to shoehorn 21st-century behaviours, technologies and attitudes into the concept could lead to anachronism. Literacy, as we have seen, is predicated upon technologies used to encode and decode texts. The reason Traditional Literacy was such a stable concept with a definite meaning in the minds of most people was due to it being built upon a technology (paper) that did not change significantly in hundreds of years. It is the pace of innovation in new technologies that has caused a problem for conceptions of literacy.

If instead of a 'top-down' approach to literacy ('x, y and z constitute literate activities') a 'bottom-up' approach is considered, this could potentially side-step the difficulty caused by the pace of technological change. Literacy would be therefore understood as a concept that emerged from activities that, retrospectively, would be deemed 'literate practices'. The reason that concepts such as 'digital literacy', 'cyberliteracy', 'New Literacies' and the like have been proposed is to give a name to a socially useful state to which individuals can aspire. Given that most proponents of such terms would agree that their thinking is *built upon* Traditional Literacy, it would seem that using 'literacy' as an epithet for these extra skills, abilities and behaviours is unnecessary.

What may be more useful in a Pragmatic sense may be to *assume* Traditional Literacy and combine these skills with digital tools and sociocultural practices that lead to socially and educationally-useful outcomes. Instead of viewing a 'digital' version of literacy as a pinnacle to be achieved or surmounted, the focus would be upon *Flow*.

When dealing with digital 'texts' (widely defined) this would result in *Digital Flow* depending upon literacy. Literacy becomes a staging-post on the journey instead of the destination itself:

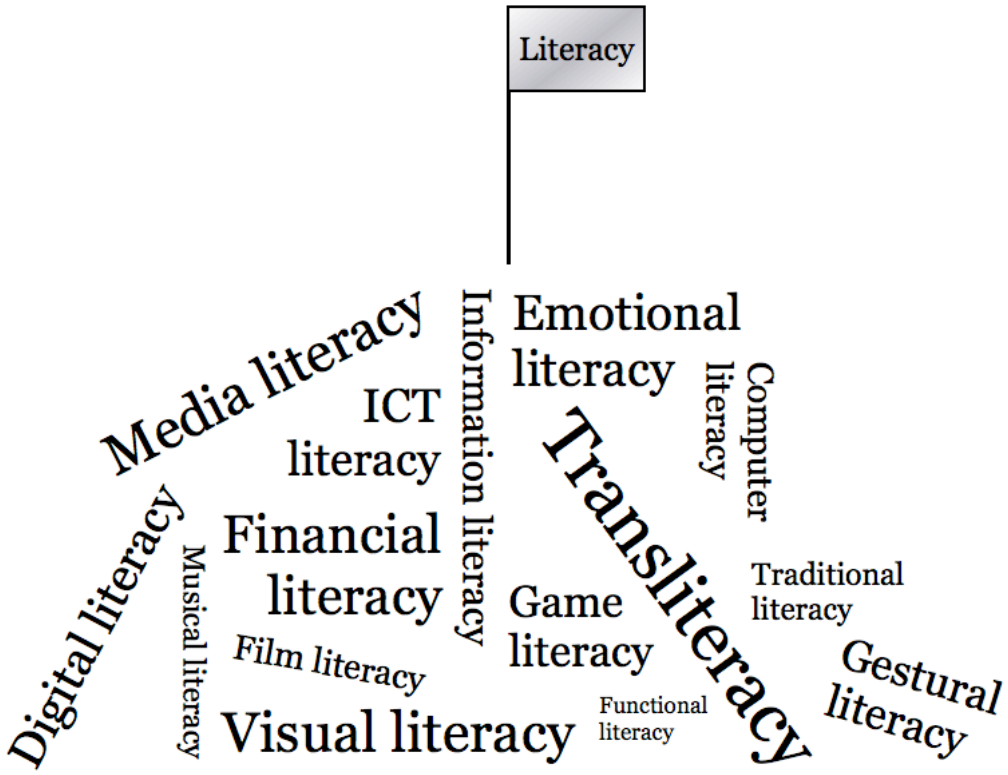


Figure 12 - Literacy as a destination

Mass education, as developed in the 19th century, served to instil a minimum standard through drill-and-practice within the realm of Traditional (Print) Literacy. Some have likened this to a factory model with bells signifying the end of 'shifts' and Taylorism as its guiding principle. This is slightly unfair, given the constraints, social problems and political landscape of the time, but does throw light upon how debates surrounding the purpose of education have shifted. It is no longer enough to ensure that young people leave school with the '3Rs'. Indeed, under initiatives such as Ofsted's *Every Child Matters* (ECM), wider concerns such as children's (mental) health, and their ability to achieve

'economic wellbeing' have necessarily been brought to the forefront of planning and curriculum design in UK schools.[52]

Despite this, skills and abilities in almost every area of the curriculum are, somewhat indiscriminately, designated 'literacies'. Courses are designed around concepts as 'health literacy', 'financial literacy' and 'emotional literacy' as a shorthand to convey action relating to the *ECM* agenda. It may be more productive and instructive to replace this 'scatter-gun' approach to literacy with a more far-reaching commitment towards helping young people develop their 'autotelic self':

> 'A person with an autotelic self learns to make choices… without much fuss and the minimum of panic… As soon as the goals and challenges define a system of action, they in turn suggest the skills necessary to operate within it… And to develop skills, one needs to pay attention to the results of one's actions – to monitor the feedback… One of the basic differences between a person with an autotelic self and one without it is that the former knows that it is she who has chosen whatever goal she is pusuing. What she does is not random, nor is it the result of outside determining forces.'
>
> (Csikszentmihalyi, 1990, 2008, p.209)

Instead of having to continually widen and redefine literacy to cater for new technologies and methods of social interaction, a focus on *Digital Flow* would be consistent with the idea of 'liquid modernity' mentioned earlier. It would serve to end the idea of a 'life-project' being something *external* to the individual and encourage individuals to embrace short-term, pragmatic strategies when approaching digital technologies (Martin, 2008, p.153). *Digital Flow* is focused on the creative act, as opposed to never-ending definitions of literacy predicated on the consumption of media or physical goods. As a result, *Digital Flow* could be considered the 'umbrella-term' for which theorists have been grasping and over which they have been arguing. Moreover, it

[52] See, for example, http://www.ofsted.gov.uk/resources/every-child-matters-summary-of-arrangements

can be seen as a coherent target at which to aim educational experiences. It would relegate literacy to the functional skill it was initially conceived as.

The problem with moving to a concept of *Digital Flow* is that 'flow' is not seen as related, much less coextensive, with 'literacy'. In contrast, using a modifier such as 'information', 'digital' or 'visual' in front of the term 'literacy' *does* give a sense of the kind of practices being aimed at. Perhaps it is better to start with what we have got rather than attempting to carve out an entirely new area, even if a jump from 'literacy' to 'flow' would be more productive in the long-run. As educators know, in order to move people's thinking forward, you have to start from the known and the familiar.

Digital Epicycles

Given the problems of pinning down just one Digital Literacy or conceptualising practices in terms of 'Digital Flow' it is tempting to question the whole enterprise. However, there does *seem* to be something out there worth talking about, something that transcends language barriers and, despite Prensky's assertions to the contrary, *generations* of learners.

Perhaps one of the difficulties is that researchers focus too much upon the 'literacy' part of 'digital literacy': they stress the part they believe to be problematic and assume that everyone knows what is meant by 'digital'. However, part of the problem may be that the adjective, commonly considered to be 'digital' is actually the *verb*, with adjective (literacy) and verb (digital) the wrong way around. Would conceptions of 'literacy digital' be any different from 'digital literacy'?

First of all, we need to get to grips with what is meant by the word 'digital'. At its most fundamental level, 'digital' is defined in opposition to 'analogue' with the former being made up of binary distinctions and numbers in a way the latter is not. According to the Oxford English Dictionary, the etymology of the word 'digital' is from the use of fingers (Latin: digitālis) and has to do with separate numerical values. However, it would seem counter-intuitive to consider a suitable definition of 'digital' as merely consisting of bits and bytes and binary states. Instead, much as a 'text' can be understood as more than simply a collection of printed words, 'digital' can be understood in a more metaphorical way. If 'digital' denotes bits and bytes, what does it *connote*?

Interestingly, as with 'literacy', 'digital' involves an aspect of *status*. The digital world is often compared in unfavourable terms in the mainstream media with the 'real' world. Increasingly, the 'digital' is synonymous with 'online' much as the 'internet' and the 'World Wide Web' is an elision that usually goes unquestioned, despite meaning separate things. This difference in status leads to pejorative and dismissive considerations of Facebook 'friends' and other types of online interactions which, it is argued (Daily Mail, 2011) are not as 'real' as those kinds carried out face-to-face. Alternative 'realities' such as Second Life, and to some extent *Minecraft* and *World of Warcraft*, are seen as somehow less legitimate places for interaction than the street, the classroom or the coffee shop.

Before mass-adoption of internet connections, 'digital' would apply to stand-alone computers with, for example, floppy disks containing a backup of a 'real' document that had been produced: the analogue world took precedence. Today, however, the digital version is seen as the 'real' taking precedence over any particular physical manifestation; documents, for example, are understood to be primarily digital with occasional printed iterations. If we ask the question of what has changed over the last 20

years, the answer is that the ease and speed of digital communications over networks (and networks of networks) has increased exponentially. Documents and other kinds of files can reside in multiple locations and it can often be as easy to get in touch with someone in a distant country and time zone than someone in an adjacent classroom or office.

This is not merely a change in *speed*. The ability to work differently leads, naturally, to different social and work practices. Thus, we have distributed teams and increases in home working amongst those whom are considered 'knowledge workers' (37 Signals, 2010). The 'digital' is no longer a different realm that one enters into from time-to-time, but fully integrated in a blended, 'augmented' way through the proliferation of personal devices such as smartphones, MP3 players and tablet computers.

Conceiving of 'literacy digital' must, to a great extent, involve some kind of understanding of the affordances 'digital' provides. The difference is not encapsulated merely in connecting to people one has never met face-to-face for a common purpose as, after all, social movements with their pamphlets and public meetings have been a feature of societies for hundreds of years. Nor is it the case that real world effects such as the so-called 'Arab Spring' of 2011 (Mason, 2011) are the result of face-to-face practices translated to, and accelerated by, a digital world. The difference can be explained with reference to the ways in which imitation and inspiration work in the analogue and digital worlds. In the analogue world, these are subject to stringent copyright laws; slight variations upon a theme may be known collectively as 'fashions' but copying is liable to end in a lawsuit. In the digital world, meanwhile, with much different copyright and remix cultures, memes become much more nuanced versions of mere 'fashions' and lawsuits are less likely.

Examples of well-known memes include LOLcats, 'all your base belong to us' and the phenomenon of 'Rickrolling'. These all involve some form of specific cultural awareness, in-jokes and technical expertise. Taking just one of these examples, Rickrolling, we can see that it is a classic bait-and-switch manouvere in which a seemingly-relevant link takes the unsuspecting person clicking upon it to the video of Rick Astley's 1987 hit 'Never Gonna Give You Up'. This video was chosen because of the seriousness and earnestness of the lyrics and facial expressions coupled with bad dancing. The tension and evident 'uncool' nature of the 1980s era video is humorous. Even a meme that depends heavily on a particular form of media (in this case, video) can evolve, with a spoof Wikileaks version making the rounds in late 2010 (Huffington Post, 2010) being a 'Rickroll' but entirely text-based. This official-looking document, which copied the format of a 'leaked' cable becoming increasingly well-known because of the furore surrounding the Wikileaks website at that time, simply featured the lyrics from 'Never Gonna Give You Up'. Amusing and largely innocuous, such practices highlight the importance of effective digital practices including the awareness of sources of information.

There are many ways to try to get at 'literacy digital'. Howard Rheingold, for instance, talks of a 'network literacy' being essential to life in the 21st century. He believes that 'humans appropriate communication media to self-organise collective action on their own behalf' (Rheingold, 2009a), something that would help explain the 'Arab Spring' mentioned above, and which was organised primarily through social networks such as Facebook and Twitter. Becoming 'network literate' is important, argues Rheingold, as it has to do with the locus of control: what you know about networks affects the freedom, wealth and participation both you and your children may enjoy. 'Literacy digital' for Rheingold is therefore allied to the protocols and methods for

connecting networks together to create added value. Such a 'literacy of the digital' is a key building block in Rheingold's choice of umbrella term: 'Participatory Media Literacy' (Rheingold, 2009b).

Perhaps, as the digital world and the physical world become increasingly blended, the need to append the word 'literacy' to what are, in many cases, examples of *awareness* will diminish. Focusing on the 'digital' aspect of digital literacies brings out the ways in which traditional notions of literacy are predicated upon embodiment as much as ideas and competencies. Digital copies are (usually) instantaneous, perfect copies of the original file which, amongst other things, changes the (perceived) value of the result of someone's work. The traditional deficit model (if I have a unique thing, then you do not) does not apply in a digital, networked world. Literacy, argue thinkers such as Rheingold, must at least take account of this difference.

In a way, then, digital literacy is a metaphorical term, a bridging concept that helps individuals move from one realm to another. In alternative versions of the distribution we saw earlier in this chapter there is often a gap in the curve between the 'Early adopters' and the 'Early majority'. In order for concepts and technologies to bridge this gap the value of that concept or technology has to be made explicit to a greater number of people. It could be argued that digital literacy has served, and continues to serve, as that bridging term between the early adopters and the majority, moving as a concept from the Creative ambiguity part of the spectrum I introduced in Chapter 5 towards a more Productive ambiguity. A concept that may be worth exploring for researchers is the idea of digital workflows and to what extent good design plays a part in minimising the functional digital literacy skills required by individuals. The launch of the Apple iPad in 2010 is a good example of this as designers specifically took into account previous frustrations (with devices that had effectively evolved from

typewriters) in forming something radically different. Changing towards a more human-centred design of technology potentially ameliorates some of the problems and learning curve associated with digital literacies.

Summing up

Despite the multiplicity of ways that digital literacy is used in practice, for any kind of academic rigour to be maintained the four requirements of digital literacy outlined in Chapter 3 still need to be met. It would appear that proponents of digital skills must jettison any claims to 'literacy' or, they must develop some form of framework of new and digital literacies. This framework must be resilient enough to include both those literacies no longer culturally or technologically relevant, as well as accommodating those that may be developed in future.

It would appear to be very difficult, if not impossible, to define a single new literacy that would do the same job as a matrix of digital literacies. If such a definition was to avoid being an umbrella term it would need to be so lengthy as to be unwieldy and unhelpful in practice. A semi-fluid, community-accepted matrix of literacies could be flexible enough to be adaptable to various current contexts as well as having the ability to be updated as necessary in future. In Chapter 9 I attempt to introduce a matrix of the core elements of digital literacy to serve as a flexible framework able to be easily contextualised and adapted to specific situations. To a great extent, then, the matrix I present in Chapter 9 is influenced by the new literacies work of Martin, the media work of McLuhan, and the philosophical work of Quine and Rorty.

Chapter 9: A matrix of elements

'For never shall this be forcibly maintained, that things that are not are, but you must hold back your thought from this way of enquiry, not let habit, born of much experience, force you down this way, by making you use an aimless eye or an ear and a tongue full of meaningless sound: judge by reason the strife-encompassed refutation spoken by me.'
(Parmenides)

Upon analysing many different definitions of Digital Literacy and New Literacies in the previous chapters I found that either they do not have the necessary explanatory power, or they become stuck in a potentially-endless cycle of umbrella terms and micro literacies. After critiquing other researchers' contributions to the digital literacy arena I intend in this penultimate chapter to contribute something positive of my own to the literature so that, in turn, educational *practice* can be improved. Whilst my research and analysis has led me to dismiss the idea of a single, overarching literacy, I argue in this chapter that something along the lines of the matrix of literac*ies* implied by Martin (2008) may be sustainable. I will expand up on the 8C's of digital literacies that I abstracted from the research literature in Chapter 4, making the case that these form an

essential ‘core’ of elements in a matrix of overlapping literacies.[53] This should be considered with reference to both Quine’s ‘web of beliefs’ (Chapter 6) and McLuhan’s tetrads (Chapter 8): the former in the sense that some elements are more ‘core’ than others in certain contexts, and the latter in the sense that the process of contextualizing digital literacies is a tetradic process of enhancing, reversing, retrieving and obsolescing. As a result, the second half of this chapter will be more lightly referenced than the rest of this thesis as it constitutes an original synthesis and abstraction predicated upon the work in previous chapters.

The transience of digital literacies

Technologies reflect ways of understanding the world, especially in terms of time and space. The literacies I have examined in this thesis are, in a very real sense, ways of ‘seeing’ the world and, as a result, have their own grammars and languages. Indeed, Stephen Downes has talked of quite literally ‘speaking in LOLcats’ (Downes, 2009), there being a grammar around even seemingly trivial and humorous memes such as adding cute or ironic messages to pictures of cats.

[53] I should note that I am using ‘matrix’ in the original Middle English sense of ‘womb’ or an environment within which something develops (rather than in a strictly mathematical sense).

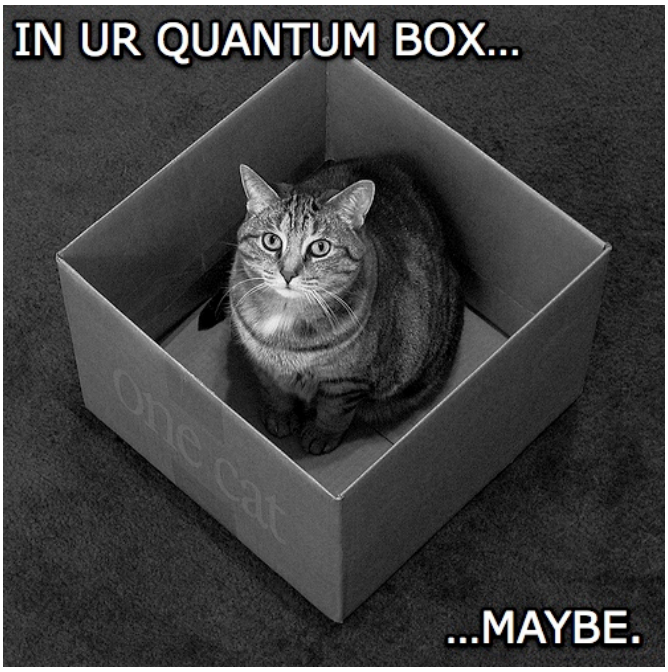


Figure 13 – Schroedinger's LOLcat

The example above involves not only knowing the form and function of the LOLcat meme, but that Schrödinger's Cat is a thought experiment about Quantum Theory. It is, therefore, to a great extent, a 'meta' joke involving its own grammar and vocabulary. It is a separate language that one has to learn to participate in the meme.

In other words, any sphere that involves co-constructing and using a grammar to express oneself in different semiotic domains could constitute a 'literacy'. As we may operate in many semiotic domains within the digital sphere, it may be more appropriate to apply McLuhan's tetrads (from Chapter 8) to these domains and affinity spaces rather than the hardware used for communication. For example, it is possible for me to project a different image, use a different form of language and interact with others in a different way on social networking platforms such as Twitter than I do in my day-to-day work using telepresence services such as Skype. Each tetrad therefore foregrounds some elements of knowledge, identity and communication whilst backgrounding others.

I showed in in Chapter 5 that digital literacies can be thought of as being on a continuum of ambiguity from Generative Ambiguity through to Productive Ambiguity. In this chapter I will argue that Generative and Creative ambiguity is a result of an unsustainable focus on an individual 'digital literacy'; the equivalent of mono sound reproduction in a world of surround sound. I argue that these digital literacies comprise of eight essential elements that form a core around which other elements may accrete. As with McLuhan's tetrads, certain contexts and semiotic domains may call for certain elements to be foregrounded and other elements backgrounded.

Since the publication of Gilster's (1997) *Digital Literacy* there has been an undue focus upon 'one literacy to rule them all,' which has been to the detriment of progress in the arena of new and digital literacies. As I demonstrated in Chapter 7, a multitude of 'umbrella terms' have been suggested by academics, relegating other proposed literacies to what I term 'micro-literacies'. Whilst this war of attrition has been taking place amongst researchers, those in government and big business have, as we saw in Chapter 2, managed to formulate policies and accreditation schemes. In addition, rapid changes in the digital environment have become a real problem for educational institutions who have suffered a crisis of relevance. There is a dearth of guidance for schools, colleges and universities in terms of how to evolve in ways that remain pedagogically-sound and, perhaps more importantly, in ways that do not upset parents and other stakeholders such as examining bodies.

The fact that curricula are out of date with the latest research and with what employers desire is, however, nothing new. As Benjamin pointed out in the 1930s with *The Saber Tooth Curriculum*, we cannot define the specifics of what young people are going to need to know in the future, but we can and must define the principles upon which curricula should stand (Benjamin, 1939). People who feel overwhelmed by the

rapid pace of change is not a new phenomenon; there have been those complaining about feeling overwhelmed since at least the Luddites at the dawn of the Industrial Revolution, over 250 years ago.

Digital literacies are *transient*: they change over time, may involve using different tools or developing different habits of mind, and almost always depend upon the context in which an individual finds herself. They *can* be scaffolded and developed but to do so involves more than training, it involves *education.* Digital literacies cannot be developed in a one-off, uncontextualised half-day workshop.

We need look no further than the concept of 'learning' something for a concept that is difficult to pin down in a way that allows for measurement and development. How, after all, do we actually go about learning something new? Models such as the *Structure of Observed Learning Outcomes* (SOLO) Taxonomy[54] can assist us in understanding the process. This approach, related in some ways to Bloom's taxonomy, posits a developmental journey from 'Prestructural' through 'Unistructural', 'Multistructural', and 'Relational' levels of understanding through to 'Extended Abstract'. The diagram below, taken from the website of one of the authors helps explain this:

[54] See, for example, Biggs (1995), Biggs & Collis (1982) as well as Moseley, et al. (2005).

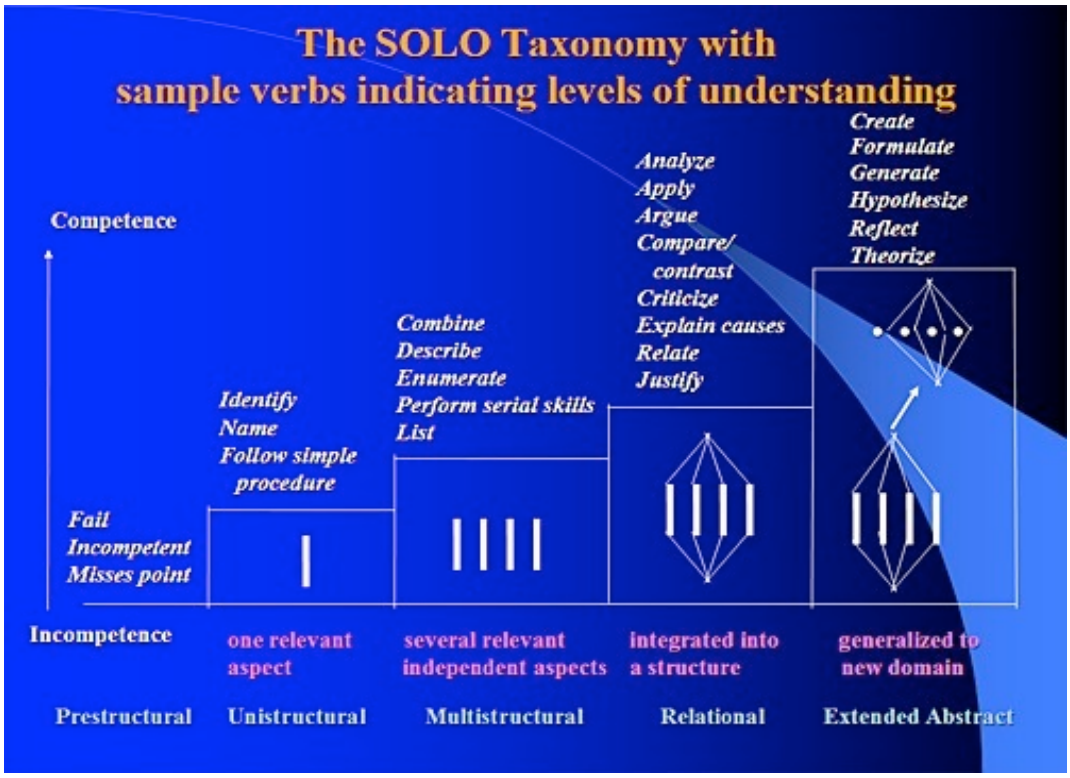


Figure 14
- The SOLO Taxonony (Biggs, no date)

The SOLO Taxonomy points to a way that we can integrate two elements of literacy that are often seen to be in tension. On the one hand, some conceive being 'literate' as having the necessary functional skills (this would be 'Unistructural or 'Multistructural), whilst others conceive of it as the complexities of meaning an individual can express ('Relational' or 'Extended Abstract'). Literacy is a condition, not a threshold and, as such, involves a spectrum of development that the SOLO taxonomy can help us conceptualise.

The next section of this chapter introduces the eight elements that I believe can form a core of a contextualised, negotiated definition of digital literacy for organizations and institutions. Just as the SOLO taxonomy focuses on the *structure* of knowledge and skills, so the matrix of digital literacies I propose can be developed in a structural, contextualized manner.

The eight essential elements of digital literacies

Although context is extremely important with digital literacies (for example from working with primary school pupils to working with university students) there are, I would suggest, certain core and essential elements that serve as a starting point. Just as there are different forms of bread, there are certain core ingredients usually required as a minimum such as flour, yeast and water. As I first introduced in Chapter 4, I have identified eight such elements that I will now consider in turn. None of these elements are objectively 'more important' than any other. In addition, it must be remembered that the overall matrix is itself subject to the Pragmatic approach detailed in Chapter 6. Four of the ten guiding Pragmatic principles established in that chapter are particularly appropriate to emphasise here. Firstly, that dividing lines between theory and action are arbitrary. Secondly, that this is less an explicit framework than a method of 'un-thinking' certain commonly-held assumptions. And finally (eliding the eighth and ninth guiding principles) knowledge is *created* rather than 'discovered' being a matter of social practice rather than in some way 'mirroring nature'.

With these caveats in mind, I would suggest that the eight essential elements of digital literacies are:

1. Cultural
2. Cognitive
3. Constructive
4. Communicative
5. Confident
6. Creative
7. Critical
8. Civic

The first of these is the *Cultural* element of digital literacies. By this I mean the need to understand the various digital contexts an individual may experience. For example, a teenager may need to understand that their school's Virtual Learning Environment (VLE) or learning platform is a different semiotic domain to games such as World of Warcraft or social networks such as Facebook. In each of these contexts are found different codes and ways of operating, things that are accepted and encouraged as well as those that are frowned upon and rejected. As Hannon points out, 'The nature of literacy in a culture is repeatedly redefined as the result of technological changes' (Hannon, 2000, p22-3). Important technological changes can be unevenly distributed and, increasingly, take place not at the hardware layer but at the software and web applications layer. As devices become cheaper and easier to use, the barrier to entry becomes less to do with technology and affordability and more to do with cultural and social factors. Digital literacies are not solely about technical proficiency but about the issues, norms and habits of mind surrounding surrounding technologies used for a particular purpose.

This Cultural element of digital literacies is best acquired through immersion in a range of digital environments. Although the situation is slowly changing, this element is not helped by the banning and heavy-handed filtering policies put in place by many educational institutions. In addition, given that educational institutions are tasked with preparing young people for an uncertain future, they should expose them to the widest range of semiotic domains possible. In a similar way to learning a new language or a musical instrument, this would enable and encourage them to learn to approach the wider world in a different way. The Cultural element of digital literacies is all about seeking ways to give people additional 'lenses' through which to see the world. If we look back to, for example, how Singapore (see Chapter 2) has historically sought to develop digital

skills we can see the opposite of this approach: a top-down, planned-economy approach foregrounding homogeneity.

The second element of digital literacies I would suggest is essential is the *Cognitive* element. One way of interpreting this element has been the mainstay of traditional forms of literacy. That is to say that with the traditional definition, literacy is about 'expanding the mind,' a psychological phenomenon in which an individual interacts with an objectively-defined form of literacy. As explained earlier (see Chapter 3) this approach, when examined closely, is untenable. There is, however, an important point to be made here. As Johnson explains, it is not about 'the ability to use a set of technical tools; rather, it is the ability to use a set of cognitive tools'(Johnson, 2008, p.42). The psychological part of literacy is certainly *part* of the Cognitive element, but the 'mind-expansion' comes through the co-creation and contextualization of digital literacies, not through attempting to impose an 'objective' definition.

One way in which the Cognitive element (and a 'cognitive toolkit') can be developed is to focus upon a variety of mental models and lenses. In a similar way to the Cultural element, we should encourage those in whom we seek to develop digital literacies to see nuance where they have previously seen only dichotomy. An example of this, as we saw in Chapter 5, is the notion of 'digital natives' and 'digital immigrants'. Instead of taking this as fact and presenting it as 'Truth' we should present it as just another way of understanding the world. Exposure to various ways of conceptualising and interacting in digital spaces helps develop the Cognitive element of digital literacies. It is not the practice of using tools, but rather the 'habits of mind' such use can develop.

The third of the essential elements is the *Constructive* element. This pertains to creating something new, including using and remixing content from other sources to

create something original. It is very close the definition given by the DigEuLit project for Digital Literacy:

> '[Digital literacy is] the awareness, attitude and ability of individuals to appropriately use digital tools...in order to enable constructive social action.'
> (Martin, 2005, p.135-6)

The digital world is qualitatively different from the physical world in that perfect copies can be made in ways that do not affect the original version. Although a 'property'-based definition of copyright was originally assumed in the digital realm (i.e. copying something is stealing) this is gradually being supplanted by a more nuanced definition. New forms of licensing such as Creative Commons[55] allow publishers and individuals sharing content online to specify the conditions under which it may be used. One part of the Constructive element of digital literacies is therefore understanding how and for what purposes content can be appropriated, reused and remixed. Lawrence Lessig (2005) has written at length on this relation between the 'remix' and wider culture..

It would appear obvious that any form of literacy must involve some form of communication. Literacy, after all involves writing as well as reading. Another essential part of digital literacies is therefore the *Communicative* element. Closely aligned to the Constructive element (which is itself closely aligned to the Cultural element), the Communicative element of digital literacies is about understanding how communications media work. It is, in essence, the nuts and bolts of how to communicate in digital networked environments.

As we saw in Chapter 8, Howard Rheingold considers this to be a separate 'network literacy,' believing that the 'structure and dynamics of networks influences political freedom, economic wealth creation, and participation in the creation of culture'

[55] See http://www.creativecommons.org

(Rheingold, 2009a). As with the Cultural (and indeed *every* essential) element of digital literacies, improving at the Communicative element involves practical application. Developing a true understanding of the power of networks (and of networks of networks) involves not only learning about them but being *part* of them. This can present a problem for educational institutions that are used to banning access to such networks using 'duty of care' as an excuse.

I will argue after outlining these eight elements that digital literacies are an overlapping matrix in which certain parts are either foregrounded or backgrounded, depending upon context. The Communicative element could be seen as 'pivotal' element involving, as it does, 'a systematic awareness of how digital media are constructed and of the unique 'rhetorics' of interactive communication' (Buckingham, 2007, p.155). This is closely allied to the Critical element of digital literacies but is much more concerned with reproducing the forms themselves rather than deconstructing how they work. It is the difference between making a successful 'LOLcat' as opposed to writing an essay on why it is amusing.

The fifth essential element of digital literacies I have identified, the *Confident* element, seems at first glance to be out of place. Surely an individual may be 'digitally literate' and unconfident? What I am proposing, however, is a different kind of confidence, a confidence based on the understanding that the digital environment can be more forgiving in regards to experimentation than physical environments. For example, the ability to 'undo' an action allows individuals to approach situations in digital environments differently. It is often this more cavalier approach that can hold back those with mindsets that Prensky (2001) would stereotype as belonging to 'digital immigrants'. This links closely to the mention I made in Chapter 3 of the theory of Structuration proposed by Giddens holding that 'social structures are both constituted by human

agency, and yet at the same time are the very medium of this constitution' (Giddens, 1976). In other words, individuals who successfully capture the Confident element of digital literacies understand that such literacies are *mutable.*

The OECD identified the unique affordances of technology and digital environments to promote confidence in problem-solving - a skill seen as important in the 'information' or 'knowledge' society:

> 'Modern society is increasingly looking to [people] who can confidently solve problems and manage their own learning throughout their lives, the very qualities which ICT supremely is able to promote.'
>
> (OECD, 2001, p.9)

Earlier I discussed Walter Benjamin's *Saber-Toothed Curriculum* and the need to define principles even if the specifics cannot be agreed upon. This is particularly important with the sixth essential element of digital literacies: the *Creative* element. If there is no longer a 'canon' of knowledge that all young people should know, if students need to 'learn how to learn', and if the number of traditional gatekeepers to careers is diminishing, then creativity is undoubtedly a vital attribute to develop. Sir Ken Robinson, internationally-renowned speaker and educational thought leader, is quoted as stating: 'My contention is that creativity now is as important in education as literacy, and we should treat it with the same status' (Robinson, 2008). I would contend that, in digital environments, creativity is indeed an essential element of literacy.

For creativity to be developed in those seeking to improve their digital literacies, they need to be guided by those who have a different mindset than that which educators have traditionally been encouraged to demonstrate:

> 'The creative adoption of new technology requires teachers who are willing to take risks... a professional culture that is dominated by a prescriptive curriculum, routine

> practices... and a tight target-setting regime, is unlikely to be helpful.'
> (Conlon & Simpson, 2003, p.149)

The Creative element of digital literacies is therefore about doing new things in new ways. It is about using technologies to perform tasks and achieve things that were previously either impossible or out-of-reach of the average person. Instead of using Microsoft Powerpoint as a technological substitute for writing on a blackboard, for example, the Creative element of digital literacies encourages the reconceptualization of what is possible using, for example, a collaborative wiki-based platform. Returning to Puentadura's (2010) SAMR model it is the equivalent of focusing upon 'redefinition' rather than 'substitution'.

The final two essential elements of digital literacies, the *Critical* and *Civic* elements, are particularly closely-linked with, and help explain the power of, the other elements. The *Critical* element, for example, to which I alluded to above is closely allied to the Communicative element. Likewise, the Civic element is about participation, social justice and civic responsibility, meaning that it is linked to the Confident element. I will approach the Critical element first, attempting to explain why, in the words of Gurak, 'communication in the online world is not quite like anything else' (Gurak, 2001, p.14).

As we saw in Chapter 8, Walter Ong's notion of 'secondary orality' is useful in helping describe the status of non-written media. Digital literacies, therefore, must include more than dealing with text in a digital environment. Gurak helpfully lists Ong's nine features of oral discourse noting that orality is 'additive rather than subordinative' and that each sentence builds on the previous one using certain parts of speech and rhythm:

> 'Others of Ong's oral characteristics - aggregative rather than analytical; redundant; conservative; close to the human lifeworld; agonistically toned; empathetic and

> participatory; homeostatic; situational - are useful in seeing how the 'written' e-texts of electronic discussions (like email) resemble both writing and speech.'
> (Gurak, 2001, p.14)

Digital literacies, viewed through the lens of secondary orality, become a three-dimensional matrix of attributes, skills and attitudes that are dependent upon the Critical seventh essential element. Every type of technology, be it clay tablets or real-time editing of documents stored online, fosters approaches which eventually become conventions. These conventions are often borne out of necessity and good practice but may linger long after the literacy practices 'atrophy from widespread disuse' (Gurak, 2001, p.16). The Critical element of digital literacies therefore involves the reflection upon literacy practices in various semiotic domains. Who is excluded? What are the power structures and assumptions behind such literacy practices?

The eighth and final essential element of digital literacies to consider is the *Civic* element. This involves the ability for the literacy practices resulting from new technologies and tools to support the development of Civil Society. If we define the latter as made up of the organisations and relationships over and above those provided by the state and commercial institutions, then the importance of the Civic element of digital literacies becomes clear. The ability for people to use digital environments to self-organise into social movements is perhaps best demonstrated in the 'Arab Spring' mentioned in Chapter 8.

Although an over-used comparison, the ability for people connect to one another using digital technologies is a revolution akin to the invention and use of the Gutenberg printing press in the 15th century. The history of literacy practices broadly mirrors the spread of democracy, with the ability to instantaneously connect to people across the world from the late 20th century onwards a catalyst for societal change and upheaval. This, however, can be not only good but for ill, as the rise of Al-Quaeda and the events of

September 11th, 2001 demonstrate. Indeed, closer to home, rioting in English cities in August 2011 was reportedly facilitated by the use of social networks such as BlackBerry Messenger, Twitter and the Sony Playstation Network. In response, the UK government has talked of the potential of 'turning off' such networks during periods of unrest. This has been seen by many as an infringement of civil liberties, the whole episode demonstrating the disruptive power of online social networks.

The eight essential elements of digital literacies I have outlined above are those that, based on my research, I believe to be the core of an overlapping matrix. This matrix may be customised and used to help people develop attributes, skills and attitudes as, in the words of Bawden (quoted more extensively in Chapter 7), 'it is not sensible to suggest that one specific model of digital literacy will be appropriate for all people or, indeed, for one person over all their lifetime' (Bawden, 2008, p.28). Digital literacy is a *condition*, not a threshold and, as with all 'conditions' requires maintenance and context. In line with Quine's 'web of beliefs', as elements are added to the core (depending on context) the structure of the overall matrix of digital literacies may change.

Although the logical next step at this juncture would be to use a diagram to provide an overview of the matrix of digital literacies I propose, doing so is problematic and would be at the expense of emphasising the contextual nature of developing digital literacies. I have deliberately placed the matrix within the Creative ambiguity part of the spectrum of ambiguities, on the borderline with Productive ambiguity. This is so as to give conceptual breathing space and to encourage communities to contextualise the essential elements. Without wishing to be blasphemous, self-aggrandising and/or offend readers' sensibilities, this is similar to Jesus Christ's discussion of the 'Kingdom of Heaven'. In the gospels he uses parables (metaphors in the form of stories) to try and help listeners and readers understand what he believes it will look and feel like. I propose

to do something similar by using five metaphors which each capture part of what can be easily understood without being easily represented diagrammatically.

The first metaphor is of a dartboard. Imagine ‘digital fluency’ in the centre of this dartboard, as the bullseye, with the eight essential elements distributed clockwise around this centre point. Whilst this captures nicely the way that the elements can be focused upon a centrally-organised concept of ‘digital fluency’ there is no sense that these are all aspects of a single thing.

A second metaphor, therefore, is an eight-sided die upon which could be inscribed the essential elements. This captures the multi-faceted nature of digital literacies but leaves out the ways in which they overlap and can be configured in almost an infinite number of different ways.

In order to sidestep this problem of the die, one could conceive of a third metaphor being the eight elements mapped onto a type of Rubik’s cube. This does indeed allow for many different configurations but, at the same time, treats each element as always being of equal importance.

A fourth metaphor of a kaleidoscope showing eight different colours would certainly convey the infinite configurations of the essential elements and allow for some to be foregrounded and some backgrounded. However, kaleidoscopes are essentially random in nature meaning that the aspects of human agency and intentionality are overlooked.

As I alluded to earlier in the chapter, a fifth metaphor of baking bread could be used. There are many different types of bread, some including yeast, some without, some involving a lot of kneading and some not. However, all (I believe) involve the use of flour, water and heat meaning that there are essential elements that are configured in various ways for different results. All are recognisable as ‘bread’ but can be very

different in appearance, taste and texture. Another aspect of this metaphor that is useful is that some additional 'elements' (or ingredients) can be added without prejudicing, and indeed enhancing, the final product. However, to argue that developing digital literacies is akin to baking a loaf of bread is likely to give the wrong functionalist signals to be of socio-cultural value.

One way to use the proposed overlapping matrix within an educational institution would be for representatives of various stakeholders (senior leaders, students, teachers, parents, governors) to each rank the elements in order of importance. Once the order of these have been discussed and debated (this being one of the most important parts of the process) a working group could look at how the development of each element could take place. This process would take into account the tetradic nature of digital literacies and examine how programmes or curricula seeking to develop each element may enhance, reverse, retrieve or obsolesce other practices.

Whilst a definition of digital literacies should be produced by the above process it should (as befits the Pragmatic methodology of this thesis) be *provisional* and *revisable*. In other words, those looking to develop digital literacies should understand that the ground is currently shifting under their feet. The advantage of such an emergent approach to defining digital literacies is that doing so makes the likelihood of agreement and alignment more likely than imposing a rigid framework or hard-and-fast definition of digital literacies.

To round off this chapter, I shall return to the Pragmatic tests outlined in Chapter 3. These constituted the necessary features of a definition of digital literacies:

1. **'Cash value'** – it must be useful and must be able to make a difference in practice.
2. **Retrospective nature** - it must include past (and future) instances of 'digitally-literate practice.'
3. **Metaphorical nature** - its position to other metaphorical terms in the literate

practices arena must be explained adequately.

4. **Digital element** - advocates must be able to explain to what the 'digital' part of 'digital literacy' pertains.

I believe that the overlapping matrix of elements of digital literacies I have proposed does indeed pass these four tests, but in some cases obliquely.

First, the ‘Cash value’ test focuses on the Pragmatic maxim that theories must be ‘good in the way of belief’ and make a difference *in practice*. I believe that defining digital literacies with reference to a core set of elements allows this to happen. It is a *useful* approach as it provides enough information to get started but mandates discussion, debate and collaboration to operationalise effectively within a given context. By considering separately what each element means in that context and then as a totality, definitions of digital literacies are likely to be grounded in everyday practices.

The second test, that any definitions of digital literacies must include past and future instances of digitally-literate practice, is unproblematic for users of the matrix of elements. Definitions emerging from the use of the matrix are understood as context-dependent, tentative and fallible, so future changes and revisions are not problematic. In terms of past instances of digitally-literate practice, moving from a single definition of ‘digital literacy’ to an overlapping matrix of digital literac*ies* makes this a moot point. Instead of one overarching definition the focus is instead upon a set of context-dependent, evolving definitions. In this regard the matrix approach passes this test by seeing literacy as ‘deictic’, as a term whose meaning is dependent on the context in which it is used.

In terms of the third test, adopting the iterative and collaborative approach suggested in the previous section avoids, to a great extent, the need to unpick the metaphorical nature of digital literacies. Instead of applying a single, rigid definition of digital literacy to a particular context, a collection of digital literacies are seen as

emergent by first considering a core set of elements. These may be added to and, importantly, each element can be contextualised before wider definitions are adopted.

Finally, explaining what the 'digital' in 'digital literacy' means (the fourth test) again depends, to a great extent, upon context. A digital literacies programme amongst a geographically-dispersed population in Africa might consider interaction via mobile phones to constitute the 'digital' aspect, whereas a Silicon Valley organisation might consider it to consist of the wider ecosystem that the various tools they use are plugged into. The important insight of the matrix of essential elements is that both parts of 'digital literacy' are, in fact, negotiable, contextual and emergent.

Without invoking the fallacy of *post hoc ergo propter hoc*[56] I would argue that following a Pragmatic methodology has led to what Johnson (2010) calls an 'adjacent possible'. The tests outlined in Chapter 6 may have been appropriate when considering separate, distinct notions of New Literacies. However, this approach seems to be predicated upon an attempted evolution of traditional (print) literacy and an unspoken effort to define one literacy as an umbrella term for the others. Focusing on the underpinning and wider notions of what we want digital literacies to *do* seems to sidestep the inherent problems. There is no longer a need to endlessly define and marshal new forms of literacy into an objective, rigid framework. Instead, identifying the principles *behind* what we want a definition to do allows for a subjective, but highly contextualised (and therefore much more relevant), definition of digital literacies. Researchers and theorists are able to use the continuum of ambiguity introduced in Chapter 5 to position their work accordingly. As I have already explained, in this chapter I have consciously positioned the matrix of essential elements of digital literacies within 'Creative ambiguity' and on the cusp of 'Productive ambiguity'. I believe that definitions need to

[56] Translation: 'after it therefore because of it'

be co-created within specific contexts to have power. Whilst previously this was difficult without being immersed in the research area, the matrix can, I believe, encourage discussion and debate leading to productive and useful work in the digital literacies arena.

Chapter 10: Conclusion

'Here I end my trustworthy discourse and thought concerning truth; henceforth learn the beliefs of mortal men, listening to the deceitful ordering of my words.'
(Parmenides)

In this thesis I have focused upon the question of what constitutes 'digital literacy'. Applying a Pragmatic methodology, I have outlined the difficulties and ambiguities of defining what constitutes digital literacy (Chapters 4 and 5). This is particularly tricky given the often-overlooked discrepancies and irregularities in defining what I have termed 'traditional (print) literacy' (Chapter 3). I have argued that a singular definition of digital literacy will necessarily be exclusionary as it would simultaneously enhance, reverse, retrieve and obsolesce other aspects (Chapter 8): to define something is to also define what it is not. A pluralistic, multi-faceted, contextualized and contingent definition of digital literaci*es* allows McLuhan's tetrads to be embraced rather than avoided.

I have also outlined, with supporting quotations from leading researchers in the field of digital and new literacies, the problem of *static* and *psychological* definitions of literacy. Literacy is a social construct and the process of exploring and defining literate

practices is at least as important as the outcome, making a a Pragmatic methodology appropriate for this thesis (Chapter 3). The ten Pragmatist principles garnered from the theories of Pragmatist philosophers in Chapter 6 have guided the subsequent discussion. This is evident through the influence of the third principle (truth is dependent up on a community of inquirers), the seventh principle (any statement can be accommodated as 'true' by amending a belief system) and ninth principle (we 'create' rather than 'discover' truth) upon my discussion and analysis of the 'umbrella terms' and 'micro literacies' used by researchers in the field of new literacies (Chapter 7). Again, in Chapter 9, the matrix of essential elements of digital literacies I have proposed is guided by the second principle (dividing lines between theory and action are arbitrary), fifth principle (Pragmatism is a method of 'un-thinking' rather than providing an explicit framework), and eighth principle (knowledge is a matter of social practice rather than mirroring nature).

As I showed at the end of Chapter 9, applying 'objective' criteria that in an attempt to come up with an adequate, overarching, definition of digital literacy is inappropriate. Indeed, as evidenced by the discussion in Chapter 8, researchers and theorists need to make the case for *why* what they propose should be counted a 'literacy' at all. Much of what has been proposed by theorists could equally come under the heading 'competence' or 'skill'. Many of the problems around digital and new literacies stem from two issues: attempting to retro-fit new socio-cultural practices into conceptions of 'literacy', and/or not adequately explaining to what the 'digital' or 'new' aspects pertain (Chapter 7).

There is, however, something else that needs to be addressed in the area demarcated as new literacies. This is perhaps best addressed through Ong's notion of 'secondary orality' (Chapter 8) in which literacy is seen as much more wide-ranging than

simply text (either on a screen or in print). The spectrum of ambiguities (Chapter 5) is useful here as a way of categorising different approaches to digital literacy and in the way it allows groups who co-define terms to target different audiences. Sometimes, for example, a definition may *need* to be situated in the realm of 'Creative' (rather than 'Productive') ambiguity in order to obtain buy-in from members of an educational institution or organization. Ensuring a cross-section of (enthusiastic) stakeholders were involved in the process is sometimes all that is required. Similarly,, if a vision statement is necessary, leaders of an organisation may actively seek definitions that could be placed in the 'Generative' or 'Creative' parts of the spectrum of ambiguities.

The co-construction of definitions by embracing various forms of ambiguity is, as I allude to in Chapter 9, a process that is at least as important as the outcome. It is the reason why applying off-the-shelf, 'objective' definitions of digital or new literacies is likely to ultimately lead to failure. Not only does top-down imposition make buy-in from other stakeholders less likely, but the definition is likely to either be so vague as to be meaningless, or so specific that it is irrelevant. *Context* is key.

However, to go too far the other way and say that subjective definitions of digital and new literacies are always and in all circumstances *better* than objective ones can lead to potentially unpalatable outcomes. As we saw in Chapter 6 with charges against Richard Rorty of 'relativism', subjective definitions can potentially lead to practitioners and researchers 'talking past' one another and using similar terms in vastly different ways. One way to avoid this would be to embrace Rorty's idea of 'ethnocentrism'. Another would be to use a common, but extremely flexible matrix such as that proposed in Chapter 9.

The matrix of elements for digital literacies is purposely situated in the 'Creative' part of the spectrum of ambiguity. This allows for contextualisation and acknowledges

the fact that no definition can be completely unambiguous. The aim for those contextualising the elements in the matrix is to move the ambiguity towards the 'Productive' end of the spectrum of ambiguity so that the definition they come up with can do some work and be useful in *practice*. By foregrounding some elements, backgrounding others, and defining what is meant by not only digital literacies in their totality but the elements that constitute it, a core matrix can lead to an almost unlimited number of configurations. A common basis of the eight essential elements allows for core standards and a degree of commonality, whilst the flexibility of their configuration allows for contextualization.

As is traditional when rounding off a research project or extended piece of writing, I am going to propose that 'further work needs to be done in this area'. In this case, however, it is more than a platitude. There is a burgeoning area of work around games-based learning led by academics such as James Paul Gee and, coupled with the research looking at the notion of 'Flow' discussed in Chapter 8 as it pertains to gaming, we need to perhaps completely re-assess whether to use the term 'literacy' at all. If we do use it, however, I would suggest that using the continuum of ambiguities presented in Chapter 5 is a useful way for researchers to help position and explain their theories and frameworks.

The aim of this thesis was to answer the question 'What is digital literacy?' My short answer to such a question would be that it is a 'convenient hypocrisy'. By this I mean that it is a term used ambiguously (both consciously and unconsciously) by people with multitude of different backgrounds and intentions. However, given that it is a term that has entered common parlance, I would hope that this thesis clarifies at least four things. First of all, I have argued that speaking of a plurality of 'digital literacies' makes more sense than endless attempts to define 'one literacy to rule them all'. Second, I have

suggested the essential elements that should make up any contextualised and emergent definition of digital literacies. Finally, I have attempted to argue that the process of coming up with a definition of what constitutes 'digital literacies' is at least as important as the outcome of that process.

'Truth,' as Pragmatic philosophers from Peirce to Rorty have agreed upon, is conditional and dependent upon communities of inquirers. By focusing on what makes a *practical* difference, pointing out the necessarily ambiguous nature of concepts and frameworks, and stressing that definitions are temporary, I believe this thesis makes a valuable contribution to research into digital and new literacies. In particular, the matrix of essential elements to definitions of digital literacies outlined in Chapter 9 allows for contextualization and application in contexts from educational institutions to businesses and third sector organizations. In other words, using the term 'digital literacies' is a handy heuristic and, by using the tools I have proposed in this thesis, conceptual and self-referential problems can be avoided. Using the continuum of ambiguity and matrix of essential elements in tandem allows for strategic and rigorous use of outputs from the research literature without getting stuck in circular discussions about 'umbrella terms' and the applicability of third-party definitions to specific contexts.

To return to Steven Pinker's words in the introductory chapter, 'some categories really are social constructions: they exist only because people tacitly agree to act as if they exist' (Pinker, 2002, p.202). I believe literacy to be a useful human construct and the consideration of literacies in their plurality even more so. I hope to see the matrix of eight essential elements of digital literacies that I have proposed used to influence *practice.* As I have argued throughout this thesis, literacy is a condition, not a threshold. It is my desire, therefore, that my intellectual labours help in a practical, tangible and material way to improve other people's conditions.

Appendix 1

Trajectory of ambiguities

	7	6	5	4	3	2	1
Empson (1930)	Two words, in context, mean opposite things	Statement says nothing so reader has to invent meaning	Author discovers idea in act of writing	Two meanings combine to make clear a complication	Two ideas given through one word (connected by context)	Two different metaphors used at the same time	Two things are said to be alike
Abbott (1997)	Interactional ambiguity	Contextual ambiguity	Narrative ambiguity	Durational ambiguity	Syntactic ambiguity	Ambiguity of locus	Semantic ambiguity
Robinson (1941)			Relational univocity		Sliding ambiguity		Naive ambiguity
	GENERATIVE AMBIGUITY			CREATIVE AMBIGUITY		PRODUCTIVE AMBIGUITY	

DEAD METAPHORS

Sources:

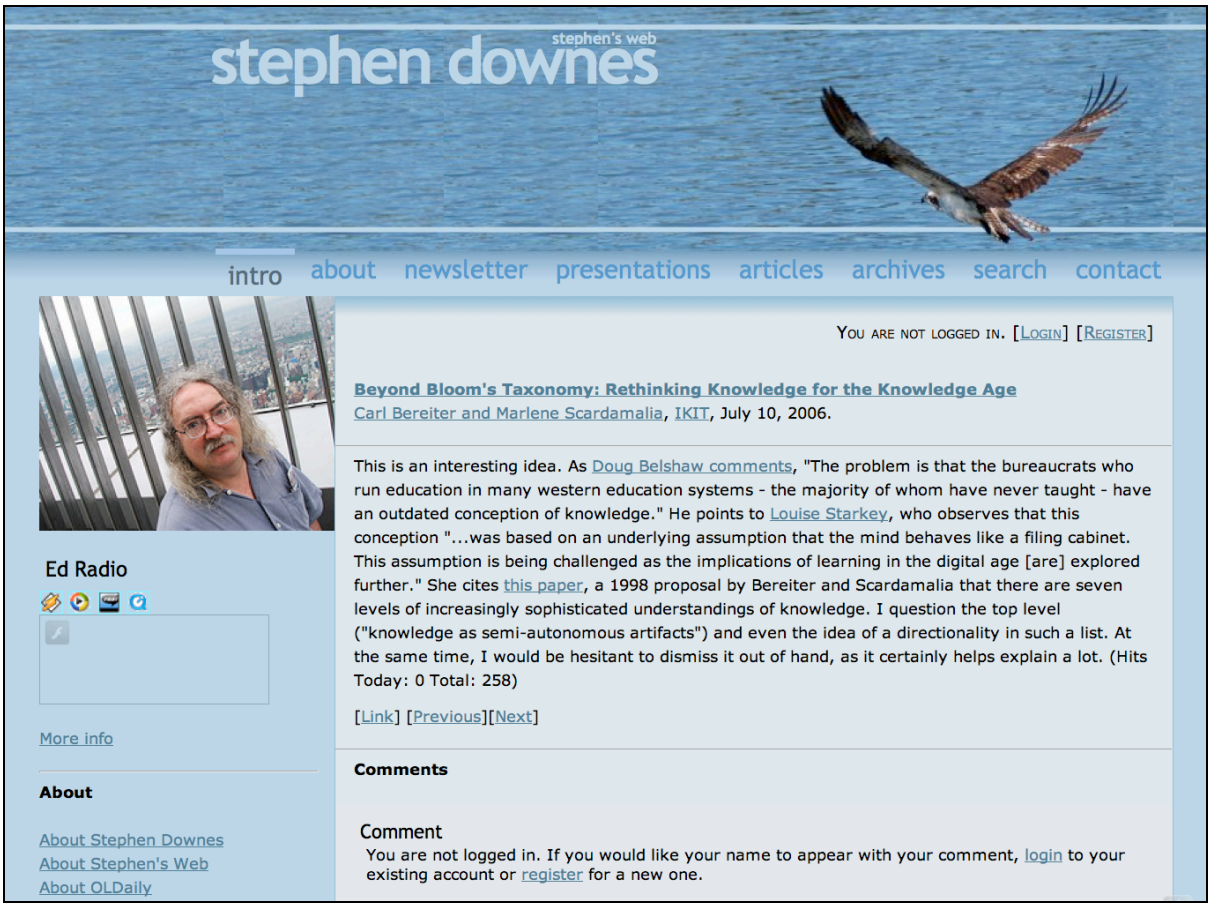
- Abbott, A. (1997) 'Seven Types of Ambiguity' (*Theory and Society* 26(2-3), pp.357-391)
- Empson, W. (1930;2004) *Seven Types of Ambiguity* (Routledge, London)
- Robinson, R. (1941) 'Ambiguity' (*Mind*, 50(198) pp.140-155)

Appendix 2

As I have undertaken this thesis in a public, open and slightly unusual way, I thought it important to chart the development of this activity and give examples of the feedback I have received.

As I explained in the Preface, I transferred from the MA in Education at Durham to an Ed.D. in 2006. Upon doing so I set up a blog at http://eduspaces.net/dougbelshaw/weblog which was powered by Open Source Software (OSS) called Elgg. The hosted version of this was shut down in December 2007, whereupon I transferred all the content to Edublogs, a hosted service for educators built on the WordPress platform (also OSS). The latter, as of September 2011, is still accessible at http://dajbelshaw.edublogs.org.

Although I do not intend to mention *every* interaction I have had with the people listed in my bibliography and more widely, it is interesting to note that Stephen Downes had a hand in pointing me in the direction for my thesis proposal:



At this point, I was receiving no significant feedback on my Ed.D. blog but had a healthy readership (in the thousands) at http://teaching.mrbelshaw.co.uk (which the link including my name in Downes' post points towards). My teaching blog was for thoughts and links relating to teaching, and my Ed.D. blog was a space for me think through (in a public way) what I was doing. It was, in effect, an open research journal.

On New Years' Eve 2006 I shared my Ed.D. thesis proposal outline via my Ed.D. blog.[57]

[57] http://dajbelshaw.edublogs.org/2006/12/31/edd-thesis-proposal-outline-expanded

Doug Belshaw's Ed.D. Thesis Proposal Outline (expanded)

(see my Ed.D. blog for my latest/ongoing thoughts and this for my latest brainstormed ideas and links...)

In my initial thesis proposal outline I stated that my guiding, over-arching idea was to examine 'changing conceptions of, and reactions to, the nature of knowledge by educational institutions.' This was prompted by feelings that the *nature* of knowledge is changing - or least our attitude towards it as a globalised, networked society. To quote George Siemens (2006), 'knowledge has broken free from its moorings, its shackles'. This, I believe, is evident in some recent initiatives in education and is reflected in the increasing use of educational technology in schools.

In my thesis I hope to look at four main areas:

- The changing nature of knowledge in the 21st century
- The stimulii for change for educational institutions
- How that change works out in practice
- Curricula for the 21st century

These areas are inextricably linked, so to approach them in separate sections of my thesis implying some sort of causation would be anachronistic. Instead, whilst I hope to demonstrate some sort of flow of ideas in education and investigate their origin, I hope to employ an approach that looks at the interplay and 'messiness' of educational reform and thinking. This, I believe, will avoid a simplistic, procrustean analysis, instead probing the ways in which educational thinkers and practitioners have approached the changing learning landscape.

There has been increasing talk over the past five years about the 'changing nature of knowledge' and the fundamental shifts happening in how we interact with one another in the world. A large part of this is due to the opportunities afforded by technology, but some of it has to do with societal trends and attitudes. In *Learning Throughout Life*, a 2002 publication by UNESCO, Robert Carneiro (p.64) identifies some of the resulting tensions in education:

1. The interplay between tradition and modernity
2. The trade-offs involved in public policy-making
3. Strains between the long and the short term
4. The search for increased equity in a world dominated by fierce competition
5. The need to reconcile global (universal) approaches with local (individual) needs
6. An ever-growing expansion of knowledge with limited human capacity to assimilate it
7. The delicate interplay between the spiritual and the material

Schools and educational institutions are shielded from some of the difficult decisions caused by these tensions by policy-makers. However, they still have to translate policy into practice and some of the smaller decisions are indeed left to each institution to decide.

To begin with an example of these smaller-scale decisions, my current school - along with a good many others - is currently reviewing its Key Stage 3 (KS3) provision in light of the Qualifications and Curriculum Authority's (QCA's) *Futures in Action* initiative. This seeks to investigate ways in which the multitude of directives, advice, legal requirements, and initiatives from various bodies can be synthesized. To this end, they have produced the Big Picture, a diagram which is hoped will gives schools a helping hand in developing, modifying and enhancing their current KS3 programme(s) of study.

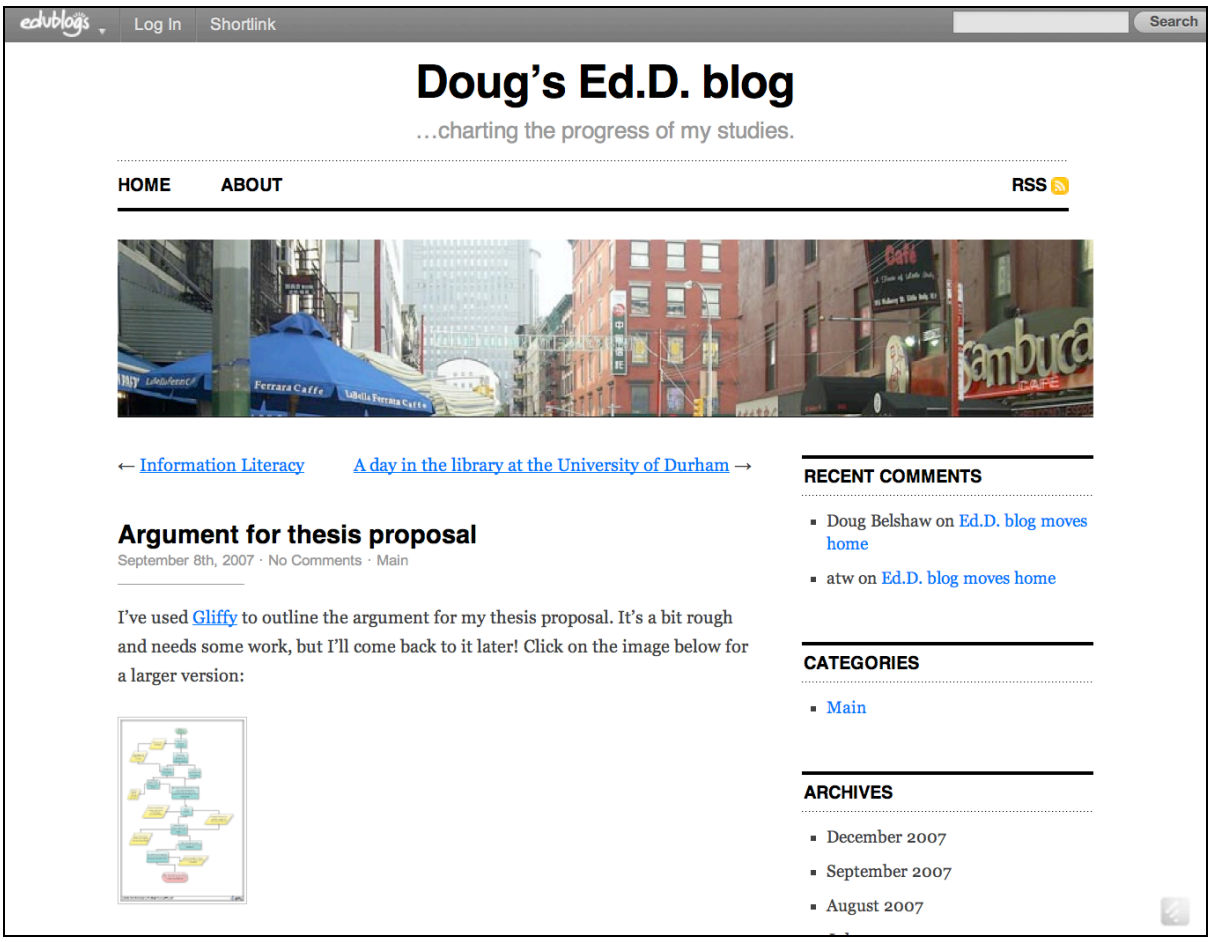
Recently, I looked at where educational ideas come from, prompted by my work for the school's steering group on the QCA initiative. I was expecting the flow of ideas to look something like this:

I have no way of now checking whether this received any feedback on my Eduspaces blog, but it was rejected by Durham University as not being focused enough. Version two was accepted, as it was less blog-like and more academic.[58] At this point I was still thinking of a title along the lines of 'What does it mean to be 'educated' in the 21st century?'

By mid-2007, partly as a result of my experiences in the classroom and partly due to my research interests, this title had morphed into 'What does it mean to be 'educated' and 'literate' in the 21st century? The impact of ICT and the knowledge society upon education.' I shared my completed Ed.D. thesis proposal with this title via Google Docs and my Ed.D. blog in April 2007.[59] Unfortunately, this proposal was failed by both my supervisor and the mark of 48 was confirmed by the exam board. This was the last 'module' I had to take in my academic career and the first time I had even come *close* to failing one.

[58] http://dajbelshaw.edublogs.org/2007/01/28/edd-thesis-proposal-v2.
[59] http://dajbelshaw.edublogs.org/2007/04/22/edd-thesis-proposal-finished

I had not been happy with my supervisor, so was pleased when his leaving the university meant I was allocated Steve Higgins, with whom I share an interest in both educational technology and Pragmatism. He gave me, and continues to give me, valuable, useful and actionable formative feedback. Steve encouraged me to use different methods to represent the argument for the thesis proposal I was to re-submit. I used mindmaps and, in the example below, an online flowcharting tool which suits the way I think through such concepts:



At this point the only feedback, apart from the occasional 'thanks for sharing your work!' comment came from my thesis supervisor.

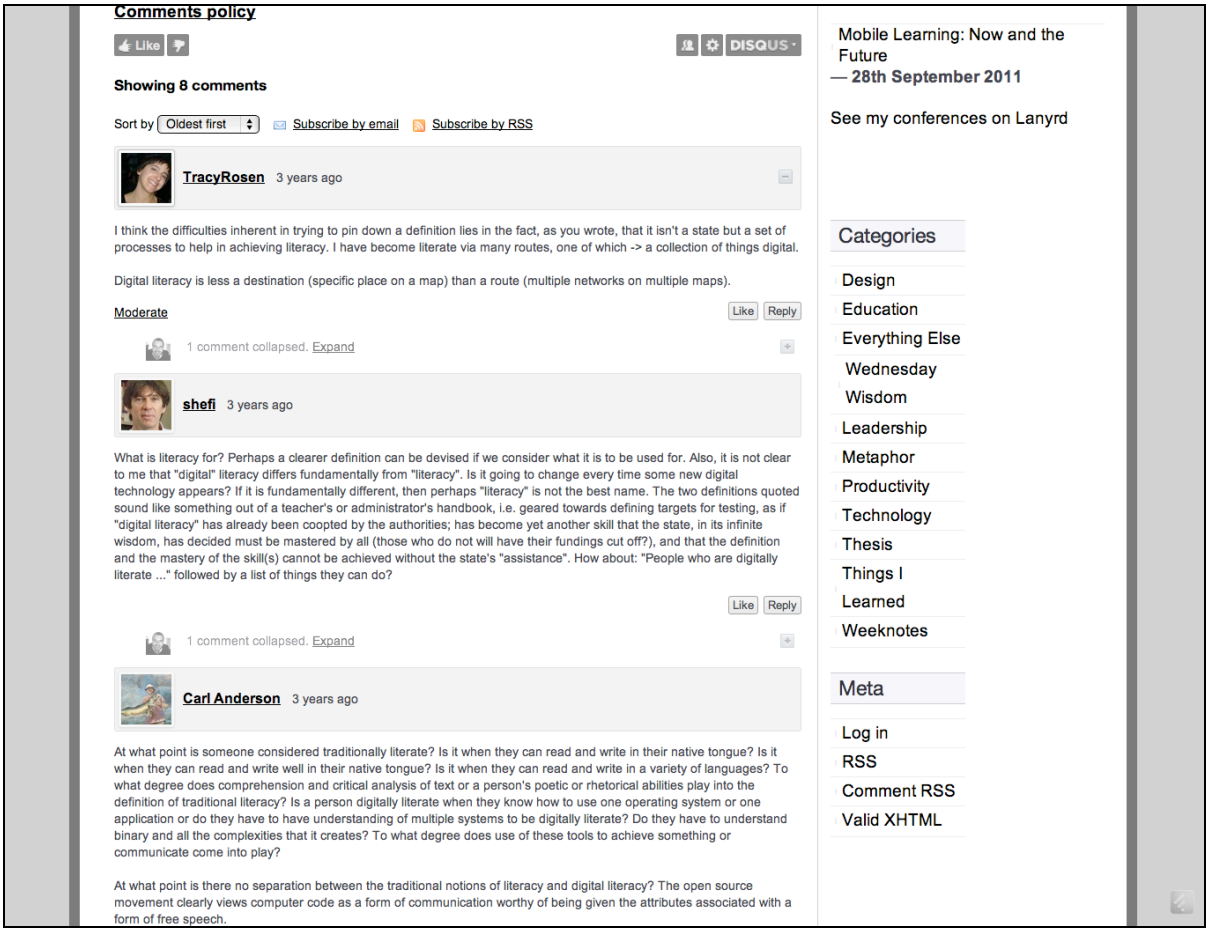
This changed, however, for two reasons. The first was signing up for Twitter in early 2007 and starting to use it to interact with educators worldwide. At first these were mainly people in what was then termed the 'edublogosphere', a relatively small world where it was

possible for everyone to keep up with each other's blog posts. I have made connections using this social media platform about which I could write another thesis. The second was my decision at the beginning of 2008 to consolidate the various blogs I kept up in one place at http://dougbelshaw.com/blog.

I blogged about my consideration of various research methodologies[60] to a readership who were used to me discussing either teaching, my family, or educational technology. By the time I re-submitted my thesis proposal I had slightly shifted my focus to 'What does it mean to be digitally literate?' I posted the fact that it had been successful along with the full text on my blog.[61] Although I still received no comments on the blog post, I do remember engaging in conversations about it on Twitter. Unfortunately, in 2011, such conversations are now difficult to access.

Convinced that badging my posts as 'doctoral level' and 'academic' was putting people of commentingI attempted to gain feedback by making them a little more accessible and intriguing. This was successful in encouraging people to comment. One of the first of these, 'Buddha knows best, or why 'digital literacy' is so hard to pin down'[62] led to comments from educators in the USA, Canada, and Singapore:

[60] http://dougbelshaw.com/blog/2007/12/08/research-methodologies
[61] http://dougbelshaw.com/blog/2008/05/17/my-edd-thesis-proposal-what-does-it-mean-to-be-digitally-literate
[62] http://dougbelshaw.com/blog/2008/08/18/buddha-knows-best-or-why-digital-literacy-is-so-hard-to-pin-down



These comments, longer and more considered than the 140 character interactions on Twitter, forced me to reflect on what I was doing and how my thesis would affect educational practice.

As I began to post on my blog more and more frequently about my explorations into digital and new literacies I began to receive more comments and feedback. Those shorter blog posts that were written in a style more conversational than academic unsurprisingly gained more traction.[63] Those that were mainly for my own benefit, such as writing-up Skype conversations with my supervisor, were less popular, although they did begin to interest academics. For example,Joan Vinall-Cox, a Canadian academic, commented on one such post:

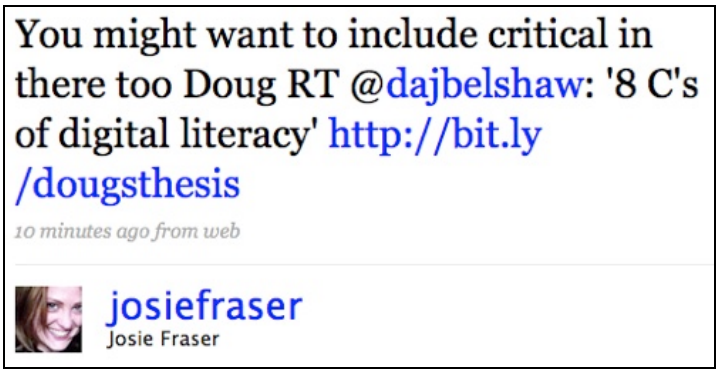
> 'Really enjoyed reading your description of meeting with your supervisor. I received my Ph.D. in education in 2004 with a thesis describing my change from technophobia

[63] http://dougbelshaw.com/blog/2009/08/19/why-digital-literacy-the-aftermath-of-literacy

to technophilia - http://www.scribd.com/doc/2063617/Following-the..... - I have a couple of suggestions, but you may already be aware of them. One is the idea of networked literacies as described > http://www.thethinkingstick.com/digital-literac..... - just to add more to your literacies complexities ;-> The other, tied in with Csikszentmihalyi's concept of flow, is Steve Rubel's lifestreaming idea >http://www.socialsquared.com/2009/07/17/the-blo.....

Good luck with your work!' [64]

It was this that encouraged me to look into the concept of 'Flow' discussed in Chapter 8. In addition, it was about this time that I began to think about the possibility of the '8 C's of Digital Literacy'. This list originally looked slightly different, but after some feedback from a well-known educational technologist and strategist by the name of Josie Fraser (herself no stranger to the world of digital literacy), I combined two of the elements and added 'critical':



Earlier in 2009, overwhelmed by the complexity, diversity and scale of my research, I created a huge, hyperlinked concept map using cross-platform OSS called XMind. Being 'open by default' I posted it online and it was very well received.[65]

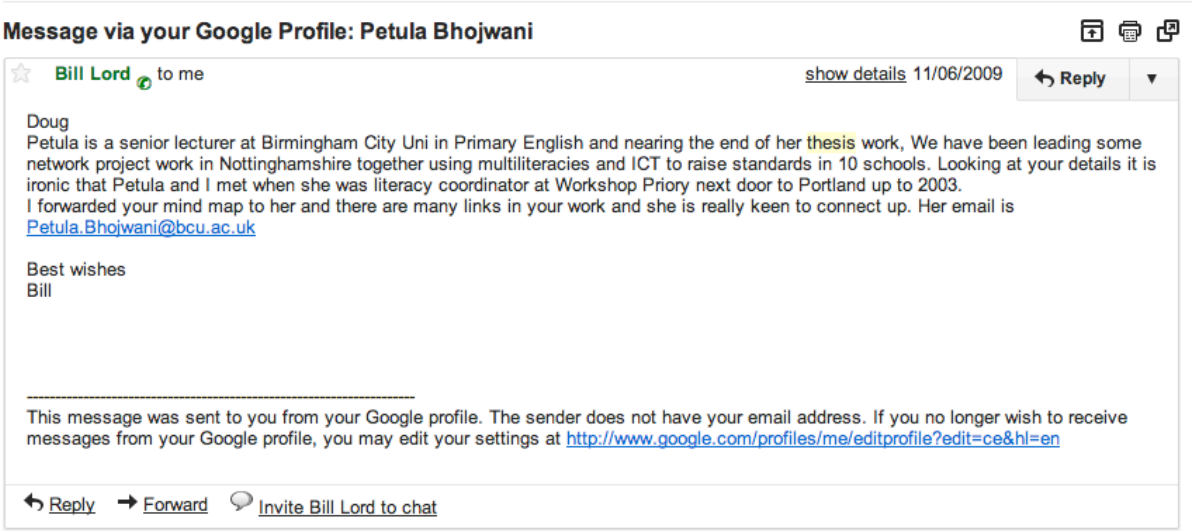
In August 2009, buoyed by the comments (some helpful, some encouraging, some self-serving) I was now receiving on almost everything I posted online to do with my thesis, I decided to share the writing of it in real-time.[66] I had already begun to do this, posting my

[64] http://dougbelshaw.com/blog/2009/08/08/meeting-with-ed-d-thesis-supervisor-aspirational-naming-hegemonic-power-and-finishing-early
[65] http://dougbelshaw.com/blog/2009/02/01/my-edd-thesis-concept-map-on-digital-literacy
[66] http://dougbelshaw.com/blog/2009/08/01/watch-my-thesis-grow-in-real-time

introduction in October 2008.[67] As I used a single Google Doc at this time to write my thesis, anybody could see what I was writing *literally* as I wrote it. As Ryan Bretag commented on the blog post where I explained what I was doing,

> 'Making this a transparent process is excellent! Not only does it help show the evolution of your ideas in a high academic form, it helps others considering a terminal degree to see the depths of what is happening.'

Although there was no obvious way to give feedback on the Google Doc itself, several people got in touch with me via email with advice and useful connections. For example, Bill Lord, a specialist on literacy in Primary schools got in touch via my Google profile suggesting a connection with another doctoral student:



Message via your Google Profile: Petula Bhojwani

Bill Lord to me — show details 11/06/2009 — Reply

Doug
Petula is a senior lecturer at Birmingham City Uni in Primary English and nearing the end of her thesis work, We have been leading some network project work in Nottinghamshire together using multiliteracies and ICT to raise standards in 10 schools. Looking at your details it is ironic that Petula and I met when she was literacy coordinator at Workshop Priory next door to Portland up to 2003.
I forwarded your mind map to her and there are many links in your work and she is really keen to connect up. Her email is Petula.Bhojwani@bcu.ac.uk

Best wishes
Bill

This message was sent to you from your Google profile. The sender does not have your email address. If you no longer wish to receive messages from your Google profile, you may edit your settings at http://www.google.com/profiles/me/editprofile?edit=ce&hl=en

Reply Forward Invite Bill Lord to chat

To prompt people to focus and comment upon specific parts of the thesis as I was writing it, I took sections and blogged about them, adding a disclaimer to the top of each post.[68] Not only was my writing available for public scrutiny, but my research (in the form of quotations from books/articles) was also available at my personal wiki.[69] Beginning to gain a reputation for writing my thesis in an innovative way and remaining productive whilst having a young family, I blogged about the digital tools I have used to research, organize and write

[67] http://dougbelshaw.com/blog/2008/10/11/my-edd-thesis-introduction-and-a
[68] http://dougbelshaw.com/blog/2009/12/15/the-evolution-of-communication
[69] http://dougbelshaw.com/wiki

this thesis.[70]

By February 2010 I had realised, especially through conversations with Steve Higgins, my supervisor, that not only should I be talking of digital *literacies* rather than 'digital literacy' but that these were extremely ambiguous terms. This was prompted through a chance purchase of a remaindered book, *Seven Types of Ambiguity* by William Empson, reprinted from an original 1930 version. I became fascinated at the potential application of these seven ambiguities to new literacies.[71] I set about mapping different types of new literacies onto Empson's seven types of ambiguities.[72] Ultimately, this led to my first journal article, co-authored with my supervisor, and Chapter 5 of this thesis.

In April 2010 I moved from working in schools to working in Further and Higher Education with JISC infoNet.[73] Whereas my previous readership had been predominantly teachers and those who worked in or with schools, suddenly I was interacting with those in universities. They not only had more time to explore these ideas, but more interest in the ideas themselves. I had a book review published in a journal[74] (I eventually sent this book on to Stephen Downes, who was interested in it) and continued to get increasingly-useful feedback upon the sections of my thesis that I wrote blog posts about.

The launch of the Apple iPad changed my thinking about digital literacies as it seemed that a certain amount of what was being included under its banner was *procedural*. I began to wonder how much poor design contributed to the need for 'digital literacy'.[75] It was also in summer 2010 that I began to feel the strain of using Google Docs as the place to write (as opposed to share) my thesis. Seeing software called *Scrivener* coming highly

---

[70] http://dougbelshaw.com/blog/2010/02/25/how-i-organize-my-ed-d-thesis
[71] http://dougbelshaw.com/blog/2010/02/18/meeting-with-ed-d-thesis-supervisor-digital-literacy-ambiguity
[72] http://dougbelshaw.com/blog/2010/03/11/seven-types-of-ambiguity-and-new-literacies
[73] http://www.jiscinfonet.ac.uk
[74] http://dougbelshaw.com/blog/2010/05/20/the-hyperlinked-society-full-review
[75] http://dougbelshaw.com/blog/2010/06/03/digital-literacy-a-function-of-poor-design

recommended by various authors and academics, I decided to invest in it.[76] This made it a lot more easy to manage the tens of thousands of words that now constituted my thesis.

I had a major breakthrough in November 2010 in terms of understanding the reasons for the lack of debate about digital literacies in the UK and in terms of increasing numbers of people becoming aware of my research. A blog post I wrote entitled 'Media Literacy: the biggest enemy of UK 'digital literacy' initiatives?'[77] (which eventually formed part of Chapter 2) was tweeted and re-tweeted on Twitter many times. By December 2010, however, I was feeling the strain of juggling a new job, writing in various places, my thesis, a three year-old son and a pregnant wife. I took three weeks off almost everything digital.[78]

[76] http://dougbelshaw.com/blog/2010/08/07/write-lots-buy-this
[77] http://dougbelshaw.com/blog/2010/11/12/the-problem-with-digital-literacy-in-the-uk-media-literacy
[78] http://dougbelshaw.com/blog/2010/12/17/belshaw-black-ops - this is something that work on my thesis (as a sustained project over a number of years) has taught me: there is a rhythm to engagement, interest, productivity and stamina. I have learned, for example, that November to February is an unproductive time for me and that I do my best work between March and October.

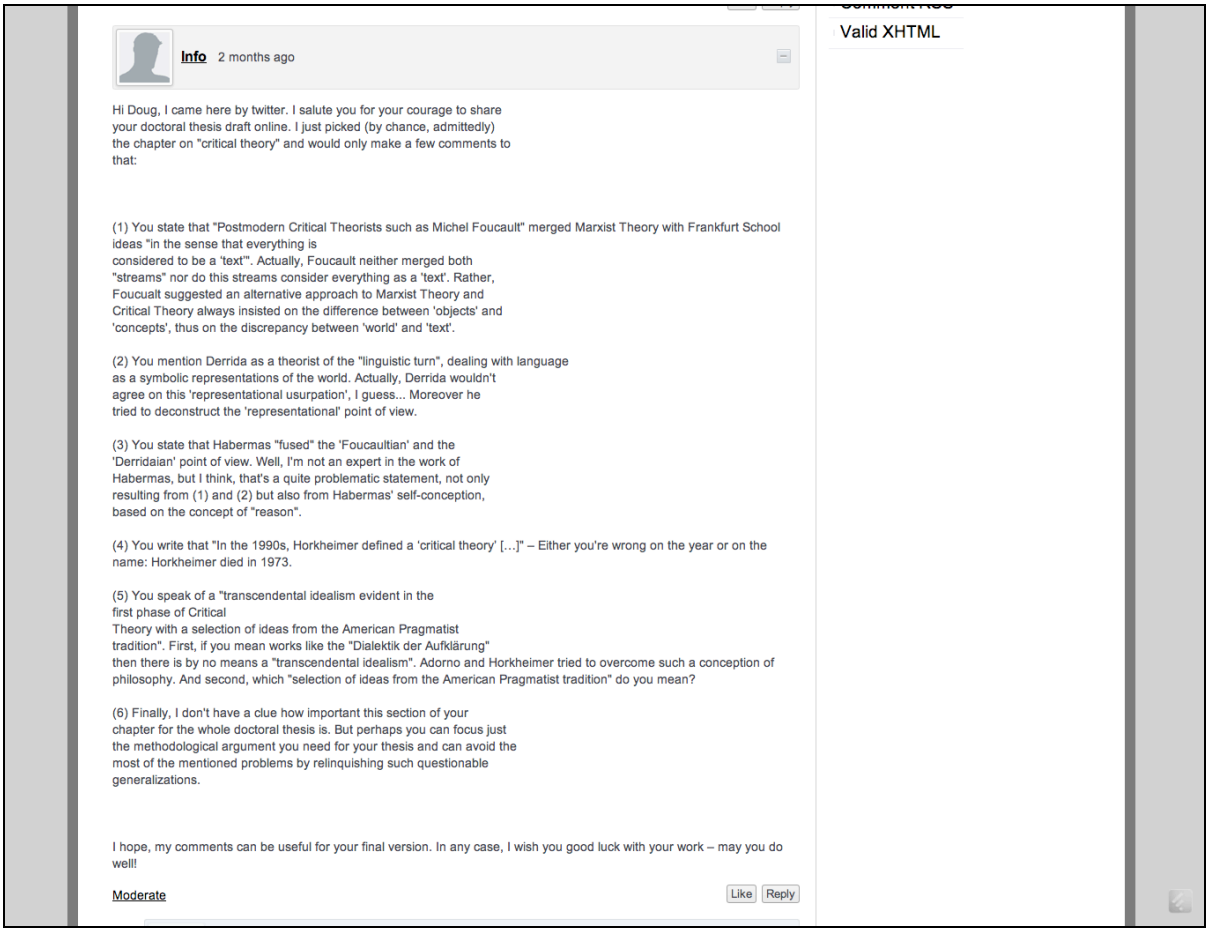
In early 2011, aware that I was likely to complete my thesis and submit my thesis this year, I began to think about again separating out my work on digital and new literacies from my personal blog. I registered the domain http://literaci.es and began to post updates and thoughts at this address. However, practicalities and distractions such as my newborn daughter's allergies, launching Purpos/ed[79] and setting up a consultancy business has meant that I have written less blog posts focusing instead on adding words towards this thesis.

Some of the best non-institutional feedback I received came in June 2011 as a result of posting that I had completed a first draft of my thesis.[80] Two comments on this went into detail about Chapter 6, my methodologies chapter. Although the example below shows that

[79] Purpos/ed is a Co-operative Community Interest Company aiming to provoke and sustain public debate around the question, 'What is the purpose of education?' (http://purposed.org.uk)

[80] http://dougbelshaw.com/blog/2011/06/30/read-the-first-complete-draft-of-my-doctoral-thesis-on-digital-literacies

the commenter wished to remain anonymous, I have his email address (from a German university) through which I thanked him privately:



Info 2 months ago

Hi Doug, I came here by twitter. I salute you for your courage to share your doctoral thesis draft online. I just picked (by chance, admittedly) the chapter on "critical theory" and would only make a few comments to that:

(1) You state that "Postmodern Critical Theorists such as Michel Foucault" merged Marxist Theory with Frankfurt School ideas "in the sense that everything is considered to be a 'text'". Actually, Foucault neither merged both "streams" nor do this streams consider everything as a 'text'. Rather, Foucualt suggested an alternative approach to Marxist Theory and Critical Theory always insisted on the difference between 'objects' and 'concepts', thus on the discrepancy between 'world' and 'text'.

(2) You mention Derrida as a theorist of the "linguistic turn", dealing with language as a symbolic representations of the world. Actually, Derrida wouldn't agree on this 'representational usurpation', I guess... Moreover he tried to deconstruct the 'representational' point of view.

(3) You state that Habermas "fused" the 'Foucaultian' and the 'Derridaian' point of view. Well, I'm not an expert in the work of Habermas, but I think, that's a quite problematic statement, not only resulting from (1) and (2) but also from Habermas' self-conception, based on the concept of "reason".

(4) You write that "In the 1990s, Horkheimer defined a 'critical theory' […]" – Either you're wrong on the year or on the name: Horkheimer died in 1973.

(5) You speak of a "transcendental idealism evident in the first phase of Critical Theory with a selection of ideas from the American Pragmatist tradition". First, if you mean works like the "Dialektik der Aufklärung" then there is by no means a "transcendental idealism". Adorno and Horkheimer tried to overcome such a conception of philosophy. And second, which "selection of ideas from the American Pragmatist tradition" do you mean?

(6) Finally, I don't have a clue how important this section of your chapter for the whole doctoral thesis is. But perhaps you can focus just the methodological argument you need for your thesis and can avoid the most of the mentioned problems by relinquishing such questionable generalizations.

I hope, my comments can be useful for your final version. In any case, I wish you good luck with your work – may you do well!

Moderate Like Reply

Valid XHTML

I took on board this feedback along with other comments. As Dave Cormier, a Canadian academic commented via Twitter:[81]

@davecormier
dave cormier

This comment, on @dajbelshaw 's thesis (on his blog), might be the best comment i've ever seen http://bit.ly/pZOcl7

7 Jul via TweetDeck Buffer

Something that proved hugely popular this year are the slides for a presentation I

[81] http://twitter.com/#!/davecormier/status/88791650717016064

uploaded to Slideshare based on Chapter 9 of this thesis. [82] I called the presentation *The Essential Elements of Digital Literacies* and delivered it virtually at 3am in the morning to a conference in Australia. As my daughter had been ill, I did not want to be away for up to a week. I also began to blog at DMLCentral[83], a MacArthur Foundation-funded hub based at the University of California Humanities Research Institute for research into digital media and learning. This website has a large readership and presence in the digital literacies landscape and so, when I included my *Essential Elements* presentation into a blog post in late August 2011[84] it sent the number of views on Slideshare to almost 5,000.

In my role at JISC infoNet I am, as I prepare to submit this thesis, gearing up to support a new JISC-funded Digital Literacies programme across 12 Further and Higher Education institutions. My *Essential Elements* presentation and sharing of my thesis online has been picked up as a useful starting point by projects in the burgeoning community of practice:[85]

[82] http://www.slideshare.net/dajbelshaw/the-essential-elements-of-digital-literacies
[83] http://dmlcentral.net
[84] http://dmlcentral.net/blog/doug-belshaw/what-do-google-open-source-software-and-digital-literacies-have-common
[85] http://dlinhe.ning.com

As I prepared the *Essential Elements* presentation for a particular conference, I am now working on a series of resources, in addition to my JISC work, to help educational institutions (from Primary schools through to Higher Education institutions) think through the issues involved in implementing initiatives around digital literacies.

As I mentioned in my preface, this is a *lived* thesis. Whilst I have forgotten the details of many of the interactions that have shaped my thinking and writing, I am glad that I have captured at least part of it through blog posts and presentations. If I have any emerging reputation or status within the arena of digital and new literacies it is due, to a great extent, to those who have provoked my thinking and entered into debate with me. It is also in part due to my willingness to dismiss 'intellectual property' and to share my ideas and work openly and widely. I am a great believer in sharing works-in-progress and 'failures', times when a

plans did not quite work out as intended. It is my hope that this thesis should serve as an encouragement and example to those who are interested in sharing their work more openly.

Bibliography

37 Signals (2010) 'Equality and remote teams' http://37signals.com/svn/posts/2360-equality-and-remote-teams, accessed 19 May 2011

Abbott, A. (1997) 'Seven Types of Ambiguity' *Theory and Society* 26(2/3) pp.357-391

Adams, D. & Hamm, M. (2001) *Literacy in a multimedia age* Norwood, MA: Christopher-Gordon

Almås, A.G. & Krumsvik, R. (2007) 'Digitally literate teachers in leading edge schools in Norway' *Journal of In-service Education,* 33(4) pp.479-497

Allan, G. (2003) 'A Critique of Using Grounded Theory as a Research Method' *Electronic Journal of Business Research Methods,* 2(1) pp.1-10

American Association of School Librarians (AASL) (no date) 'Standards for the 21st Century Learner' http://www.ala.org/ala/mgrps/divs/aasl/guidelinesandstandards/learningstandards/standards.cfm, accessed 26 April 2011

Anderson, L.W., Krathwohl, D., Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J. & Wittrock, M.C. (2001) *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives,* New York: Longman

Assister, A. (1984) 'Althusser and structuralism' *British Journal of Sociology* 35(2) pp.272-296

Australian Communications and Media Authority (ACMA) (2009) 'Digital media literacy in Australia: Key indicators and research sources' http://www.acma.gov.au/WEB/STANDARD/1001/pc=PC_312358, accessed 21 April 2011

Association of College & Research Libraries (ACRL) 'Information Literacy Competency Standards for Higher Education' http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm, accessed 24 April 2011

Australian Government Department of Broadband, Communications and the Digital Economy (DBCDE) 'Australia's Digital Economy: Future Directions' http://www.dbcde.gov.au/digital_economy/future_directions_of_the_digital_economy/australias_digital_economy_future_directions/final_report/australias_digital_economy, accessed 21 April 2011

Audunson, R. & Nordlie, R. (2003) 'Information Literacy: the case or non-case in Norway? *Library Review* 52(7) pp.319-325

Avgerinou, M. & Ericson, J. (1997) 'A review of the concept of Visual Literacy' *British Journal of Educational Technology* 28(4) pp.280-291

Aviram, A. & Eshet-Alkalai, Y. (2006) 'Towards a Theory of Digital Literacy: Three Scenarios for the Next Steps' http://www.eurodl.org/materials/contrib/2006/Aharon_Aviram.htm, accessed 8 May 2011

Ayer, A.J. (1973) *The Central Questions of Philosophy* London: Weidenfeld & Nicolson

Barry, A.M. (1997) *Visual Intelligence* Albany: State University of New York Press

Barthes, R. (1977) *The Death of the Author* http://www.deathoftheauthor.com, accessed 29 May 2011

Bauman, Z. (2005) 'Education in Liquid Modernity' *Review of Education, Pedagogy & Cultural Studies* 27(4) pp.303-317

Bawden, D. (2008) 'Origins and Concepts of Digital Literacy' in C. Lankshear, & M. Knobel, *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang Publishing

Bazeli, M.J. & Heintz, J.L. (1997) *Technology Across the Curriculum: activities and ideas* Englewood: Libraries Unlimited

Beavis, C. (1998) 'Computer games, culture and curriculum' in I. Snyder, (1998) *Page to screen: taking literacy into the electronic era*, London: Routledge

Beavis, C. (2002) 'Reading, Writing and Role-playing Computer Games' (in I. Snyder, *Silicon Literacies: communication, innovation and education in the electronic age* London: Routledge

Benjamin, H.R.W. (1939) *The Saber Tooth Curriculum: including other lectures in the history of paleolithic education* New York: McGraw-Hill

Bennett, S., Maton, K. & Kervin, L. (2008) 'The 'digital natives' debate: A critical review of the evidence' *British Journal of Educational Technology* 39(5) pp.775–786

Berger, P.L. & Luckmann, **T.** (2002) 'The Social Construction of Reality' in C. Calhoun, et al. (eds.), *Contemporary Sociological Theory* **C. Calhoun, J. Gerteis, J. Moody, S. Pfaff & I. Virk (eds.)** (2002) *Contemporary Sociological Theory* Oxford: Blackwell

Bernstein, R.J. (ed.) *On Experience, Nature and Freedom* New York: Liberal Arts Press

Biesta, G.J.J. & Burbules, N.C. (2003) *Pragmatism and Educational Research* Lanham, MD: Rowman and Littlefield

Biggs, J. (no date) 'Solo Taxonomy' http://www.johnbiggs.com.au/solo_taxonomy.html, accessed 23 June 2011

Biggs, J. (1995) 'Assessing for learning: some dimensions underlying new approaches to educational assessment' *The Alberta Journal of Educational Research*, 41(1) pp.1-17

Biggs, J.B. & Collis, K.F. (1982) *Evaluating the quality of learning - the SOLO taxonomy* New York: Academic Press

Bigum, C. & Green, B. (1993) 'Technologizing literacy: or, interrupting the dream of reason' in A. Luke & P. Gilbert (eds.) *Literacy in Contexts: Australian Perspectives and Issues*

Birkets, S. (2006) *The Gutenberg elegies: the fate of reading in an electronic age* London: Macmillan

Blake, N. & Masschelein, J. (1993) 'Critical Theory and Critical Pedagogy' N. Blake, P. Smeyers, R. Smith & P. Standish (eds.) (2003) *The Blackwell Guide to the Philosophy of Education* Oxford: Blackwell

Blake, N., Smeyers, P., Smith, R. & Standish, P. (eds.) (2003) *The Blackwell Guide to the Philosophy of Education* Oxford: Blackwell

Bohman, J. (2010) 'Critical Theory' in E.N. Zalta, (ed.) *The Stanford Encyclopedia of Philosophy* http://plato.stanford.edu/entries/critical-theory, accessed 12 August 2011

Bracey, G.W. (2008) 'The Leaning (Toppling?) Tower of PISA: Facts and Doubts about International Comparisons in Education' http://www.dissentmagazine.org/online.php?id=128, accessed 17 April 2011

Bruce, C.S. (1997) *Seven Faces of Information Literacy* Adelaide: Auslib Press

Buckingham, D. & Willett, R. (2006) *Digital Generations: Children, Young People, and New Media* Mahwah, NJ: Lawrence Erlbaum Associates

Buckingham, D. (2007) *Beyond Technology: Children's Learning in the Age of Digital Culture* Cambridge: Malden

Buckingham, D. (2006) 'Defining Digital Literacy: what do young people need to know about digital media?' in C. Lankshear, & M. Knobel (2008) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Bundy, A. (ed.) (2004) *Australian and New Zealand Information Literacy Framework: principles, standards and practice* Adelaide: Australian and New Zealand Institute for Information Literacy

Calhoun, C., Gerteis, J., Moody, J., Pfaff, S. & Virk, I. (eds.) (2002) *Contemporary Sociological Theory* Oxford: Blackwell

California Emerging Technology Fund [CETF] (2008) *California ICT Digital Literacy Framework* http://www.ictliteracy.info/rf.pdf/California%20%20ICTPolicy%20Framework.pdf, accessed 26 April 2011

Carneiro, R. (2002) 'The New Frontiers of Education' in UNESCO, *Learning Throughout Life: challenges for the twenty-first century* Paris: UNESCO

Carroll, L. (1865:1997) *Alice's Adventures in Wonderland,* Kindle version, accessed 15 August 2011 from Amazon.co.uk

Cassidy, M.F. & Knowlton, J.Q. (1983) 'Visual literacy: a failed metaphor?' *Educational Communication and Technology Journal* 31(2) pp.67-89

Center for Intellectual Property in the Digital Environment (2005) *Colleges, Code, And Copyright: The Impact of Digital Networks and Technological Controls on Copyright and the Dissemination of Information in Higher Education* Chicago: Association of College & Research Libraries

Conlon, T. & Simpson, M. (2003) 'Silicon Valley versus Silicon Glen: the impact of computers upon teaching and learning: a comparative study' *British Journal of Educational Technology* 34(2) pp.137-150

Considine, D.M. (1986) 'Visual literacy and children's books: an integrated approach' *School Library Journal* September pp.38-42

Cook, J. & Smith, M. (2004) 'Beyond formal learning: Informal community eLearning,' *Computers & Education* 43(1-2) pp.35–47

Cope, B. & Kalantzis, M. (2000) *Multiliteracies: Literacy Learning and the Design of Social Futures* New York: Routledge

Coutinho, C.P. 'Cooperative Learning in Higher Education using Weblogs: a study with undergraduate students of Education in Portugal' *World Multi-Conference on Systemics, Cybernetic and Informatics* 11(1) pp. 60-64

Csikszentmihalyi, M. (1990:2008) *Flow: the psychology of optimal experience* New York: Harper Perennial

Cunningham, P. & Cunningham, M. (2006) *Exploiting the Knowledge Economy: Issues, Applications and Case Studies* Amsterdam: IOS Press

Daily Mail (2011) 'Online backlash: Facebook and Twitter 'make us less human and isolate us from the real world' http://www.dailymail.co.uk/sciencetech/article-1349778/Facebook-Twitter-make-human-isolate-real-world.html, accessed 19 May 2011

Deleuze, G. (2002) 'How Do We Recognise Structuralism?' in M. Taormina, M. (ed.) (2004) *Desert Islands and Other Texts, 1953-1974* Los Angeles, CA: Semiotext(e)

Department for Culture, Media and Sport [DCMS] & Department for Business, Innovation and Skills [BIS] (2009) *Digital Britain: Final Report* London: TSO

Department for Culture, Media and Sport [DCMS] & Department for Business, Innovation and Skills [BIS] (2010) *National Plan for Digital Participation* London: TSO

Derrida, J. (1985) 'Racism's Last Word' *Critical Inquiry* 12(1) p.290-299

Derrida, J. (2008) 'Letter to a Japanese Friend' in P. Kamuf & E.G. Rottenberg (eds.) (2008) *Psyche: Inventions of the Other, Volume II* MLN -BALTIMORE- 123, no. 5, pp.1194-1197

Dey, I. (1999) *Grounding grounded theory - guidelines for qualitative inquiry* London: Academic Press

Dighe, A. & Reddi U. V. (2006) *Women's Literacy and Information and Communication Technologies: Lessons that experience has taught us* New Delhi: Commonwealth Educational Media Centre for Asia (CEMCA) & Commonwealth of Learning (COL)

Digital Education Revolution - New South Wales (no date) http://www.curriculumsupport.education.nsw.gov.au/digital_rev/english/stage5/index.htm, accessed 26 April 2011

Dondis, D.A. (1974) *A Primer of Visual Literacy* Cambridge, MT: MIT Press

Downes, S. (2009) 'Speaking in Lolcats, Take 2' http://www.downes.ca/presentation/233, accessed 19 February 2011

Doyle, C.S. (1994) *Information literacy in an information society: A Concept for the Information Age* New York: Syracuse University

ECDL (2010) 'National e-Productivity Campaign Launch: Driving Singapore's Productivity Growth' http://webcache.googleusercontent.com/search?q=cache:O5pIiwPXirUJ:www.icdl.org.sg/ne

ws_03022010.htm+http://www.icdl.org.sg/news_03022010.htm&cd=1&hl=en&ct=clnk&gl=uk&source=www.google.co.uk, accessed 17 April 2011

EC Media Literacy Portal (no date) http://ec.europa.eu/culture/media/literacy/index_en.htm, accessed 23 January 2011

Emerson, R.W. (1841) 'Essay 10: Circles' http://www.emersoncentral.com/circles.htm, accessed 7 August 2011

Empson, W. (1930:2004) *Seven Types of Ambiguity* 3rd ed. London: Pimlico

Erstad, O. (2003) 'Electracy as empowerment: Student activities in learning environments using technology' *Young* 11(1) pp.11-28

Erstad, O. (2007) 'Conceiving digital literacies in schools - Norwegian experiences' *Proceedings of the 3rd International workshop on Digital Literacy*, http://www.educanext.org/dotlrn/clubs/estart/new-lors/eStart_events/e-START_Workshop_on_Digital_Literacy,_EC-TEL,_Crete,_17_September_2007/Ola_Erstad_Conceiving_digital_literacies_in_schools_Norwegian_experiences.pdf, accessed 28 March 2011

Erstad, O. (2008) 'Trajectories of Remixing: Digital Literacies, Media Production, and Schooling' in C. Lankshear, M. Knobel, (2008c) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Erstad, O. (2010) 'Educating the Digital Generation: exploring media literacy for the 21st century' *Nordic Journal of Digital Literacy*, 2010(01) http://www.idunn.no/ts/dk/2010/01/art05, accessed 3 January 2011

Eshet-Alkalai, Y. (2004) 'Digital literacy: A conceptual framework for survival skills in the digital era' *Journal of Educational Multimedia and Hypermedia* 13(1) pp.93-106

Eshet-Alkalai, Y. & Amichai-Hamburger, Y. (2004) 'Experiments in Digital Literacy' *CyberPsychology & Behavior* 7(4) pp.421-429

European Commission (2008) *Digital Literacy European Commission Working Paper* http://ec.europa.eu/information_society/eeurope/i2010/docs/digital_literacy/digital_literacy_review.pdf, accessed 9 December 2009

European Commission (2009) *Digital Literacy Review, Topic Report 4* http://ec.europa.eu/information_society/eeurope/i2010/docs/benchmarking/dl_topic_report_4.pdf, accessed 9 December 2009

European Commission (2010) *Europe 2020* http://ec.europa.eu/commission_2010-2014/president/news/documents/pdf/20100303_1_en.pdf, accessed 28 March 2011

European Commission (no date) *Eurostat - Glossary: Digital literacy* http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:Digital_literacy , accessed 29 March 2011

Europe's Information Society Thematic Portal (2007) 'Digital Literacy: Skills for the Information Society' http://ec.europa.eu/information_society/tl/edutra/skills/index_en.htm , accessed 9 December 2009

Eyman, D. (no date) 'Digital Literac(ies), Digital Discourses, and Communities of Practice: Literacy Practices in Virtual Environments' *Cultural Practices of Literacy Study, Working Paper #12*, http://cpls.educ.ubc.ca/content/projects_eyman.html, accessed 10 December 2010

Fieldhouse, M. & Nicholas, D. (2008) 'Digital Literacy as Information Savvy: the road to information literacy' (in C. Lankshear, M. Knobel (2008c) *Digital Literacies: Concepts, Policies and Practices*)

Fish, S. (1994) *There's no such thing as free speech* Oxford: Oxford University Press

Fisher, C., Dwyer, D.C. & Yocam, K. (eds.) (1996) *Education and Technology: reflections on computing in classrooms* San Francisco: Jossey-Bass Publishers

Foucault, M. (1976:2003) *Society Must be Defended* New York: Picador

Fraser, J. (2009) 'The Digital Literacy Debate' http://digilit.wetpaint.com, accessed 11 November 2010

Freire, P. & Macedo, D. (1987) *Literacy: reading the word & the world* London: Psychology Press

Gaarder, J. (1991) *Sophie's World: a novel about the history of philosophy* London: Phoenix

Gaston, J. (2006) 'Reaching and Teaching the Digital Natives' *Library Hi Tech News* 23(3) pp.12-13

Gee, J.P. (2004) *Situated Language and Learning: a critique of traditional schooling* New York: Routledge

Gee, J.P. (1996) *Social Linguistics and Literacies: Ideology in Discourses* 2nd ed. London: Falmer Press

Gee, J.P. (2010) *New Digital Media and Learning as an Emerging Area and 'Worked Examples' as One Way Forward* Kindle version, accessed 4 April 2011 from Amazon.co.uk

Genishi, C. & Glupczynski, T. (2006) 'Language and Literacy Research: Multiple Methods and Perspectives' in J.L. Green, et al. (eds.) (2006) *Handbook of Complementary Methods in Education Research* Washington DC: American Educational Research Association

Ghefaili, A. (2003) 'Cognitive Apprenticeship, Technology, and the Contextualization of Learning Environments' *Journal of Educational Computing, Design & Online Learning*, http://coe.ksu.edu/users/JECDOL/Vol_4/Articles/Aziz.htm, accessed 19 March 2011

Gibson, M. (2008) 'Beyond Literacy Panics: Digital Literacy and Educational Optimism' *Media International Australia*, No.128 pp.73-79

Giddens, A. (1976) ***New Rules of Sociological Method: a Positive Critique of interpretative Sociologies*** **London: Hutchinson**

Gillen, J. & Barton, D. (2009) 'Digital Literacies. A discussion document for TLRP-TEL' *Teaching and Learning Research Programme - Technology Enhanced Learning workshop on digital literacies. Lancaster University 12-13 March 2009*, http://www.tlrp.org/tel/files/2009/02/digital-literacies-gillen-barton-2009.pdf, accessed 29 December 2009

Gilster, P. (1997) *Digital Literacy* New York: Wiley

Glaser, B.G. & Strauss, A.L. (1967) *The Discovery of Grounded Theory* New York: Aldine

Goldacre, B. (2010) 'A clarification: why people have been concerned by Baroness Greenfield' http://bengoldacre.posterous.com/a-clarification-why-people-have-been-concerne, accessed 28 March 2011

Goodman, R.B. (ed.) (1995) *Pragmatism: A Contemporary Reader* New York: Routledge

Goodfellow, R. (2011) 'Literacy, literacies and the digital in higher education' *Teaching in Higher Education* 16(1) pp.131-144

Graham, G. (1999) *The Internet: a philosophical inquiry* London: Routledge

Green. J.L., Camilli, G. & Elmore, P.B. (eds.) (2006) *Handbook of Complementary Methods in Education Research* Washington D.C.: Lawrence Erlbaum Associates

Gurak, L.J. (2001) *Cyberliteracy: navigating the Internet with awareness* New Haven: Yale University Press

Hannon, P. (2000) *Reflecting on Literacy in Education* London: RoutledgeFalmer

Hartshorne, C. & Weiss, P. (eds.) (1934) *Collected Papers of Charles Sanders Peirce, Vol.5: Pragmatism and Pragmaticism* Cambridge: Harvard University Press

Hatlevik, O.E. (2009) 'How to identify and understand digital literacy among 9th grade Norwegian students: Examining the influences from school and home on students digital literacy' *Nordic Journal of Digital Literacy* 2009(03-04) http://www.idunn.no/ts/dk/2009/03-04/art01, accessed 17 September 2010

Hawisher, G.E. & Selfe, C.L. (2000) 'Conclusion: inventing postmodern identities: hybrid and transgressive literacy practices on the web' in G.E. Hawisher & C.L. Selfe *Global Literacies and the World-Wide Web* London: Routledge

Holme, R. (2004) *Literacy: an introduction* Edinburgh: Edinburgh University Press

Huffington Post (2010) 'WikiLeaks Rickroll'd (PICTURE)' http://www.huffingtonpost.com/2010/12/10/wikileaks-rickrolld-photo_n_795215.html, accessed 19 May 2011

Hunter, J. (1984) 'Make your students computer literate' *Business Education Forum* 4 pp.45-50

I³ (2003) 'Digital Global Literacy White Paper/Bylined Article' http://www.ictliteracy.info/rf.pdf/Digital%20Global%20Literacy%20White%20Paper.html, accessed 26 April 2011

ICT Literacy Panel (2002) 'Digital Transformation: A Framework for ICT Literacy', *Technical Report* http://www.ets.org/Media/Research/pdf/ICTREPORT.pdf, accessed 29 October 2009

ITU (2009) I*TU Monitor 2009: the digital state of affairs in Norwegian schools* http://www.itu.no/filestore/Rapporter_-_PDF/ITUMonitor2009_English.pdf, accessed 28 March 2011

James, W. (1907) *Pragmatism: A New Name for Some Old Ways of Thinking* http://onlinebooks.library.upenn.edu/webbin/gutbook/lookup?num=5116, accessed 8 August 2010

James, W. (1896) *The Will to Believe* http://educ.jmu.eu//~omearawm/ph101willtobelieve.html, accessed 28 June 2009

James, W. (1902) *The Varieties of Religious Experience* http://etext.virginia.edu/toc/modeng/public/JamVari.html, accessed 26 June 2011

James, W. (1995) *Pragmatism* London: Dover

JISC (2008) ‘‘Google Generation’ is a myth, says new research’ http://www.jisc.ac.uk/news/stories/2008/01/googlegen.aspx, accessed 15 May 2011

JISC (2009a) *Learning Literacies in a Digital Age* http://www.jisc.ac.uk/publications/briefingpapers/2009/learningliteraciesbp.aspx, accessed 11 November 2010

JISC (2009b) *Digital literacies Pilot materials* http://cloudworks.ac.uk/cloud/view/4293, accessed 15 May 2011

JISC (2009c) *Responding to Learners Pack* http://www.jisc.ac.uk/publications/programmerelated/2009/respondingtolearners.aspx, accessed 15 May 2011

JISC (2009d) *Learning Literacies Development Framework* http://jiscdesignstudio.pbworks.com/w/file/40474958/Literacies%20development%20framework.doc, accessed 2 May 2011

Johnson, G.M. (2008) 'Functional Internet Literacy: required cognitive skills with implications for instruction' in C. Lankshear, M. Knobel (2008c) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Johnson, S. (2010) *Where Good Ideas Come From: The Natural History of Innovation* London: Allen Lane

Johnson-Eilola, J. (1998) 'Living on the surface: learning in the age of global communication networks' in I. Snyder (ed.), *Page to Screen: taking literacy into the electronic era* London: Routledge

Junkbusters (no date) Is a push for media literacy an excuse to avoid marketing regulation? http://junkbusters.com.au/the-latest/is-a-push-for-media-literacy-an-excuse-to-avoid-marketing-regulation, accessed 26 April 2011

Kamuf, P. & Rottenberg, E.G. (eds.) (2008) *Psyche: Inventions of the Other, Volume II* http://www.sup.org/pages.cgi?isbn=0804757674&item=Chapter_1_pages&page=1, accessed 29 May 2011

Kirk, G.S., Raven, J.E. & Schofield, M. (1957;1999) *The Presocratic Philosophers: A Critical History with a Selection of Texts* Cambridge: Cambridge University Press

Kok, W. (2004) 'Facing the Challenge: the Lisbon Strategy for Growth and Employment' http://ec.europa.eu/research/evaluations/pdf/archive/fp6-evidence-base/evaluation_studies_and_reports/evaluation_studies_and_reports_2004/the_lisbon_strategy_for_growth_and_employment__report_from_the_high_level_group.pdf, accessed 28 March 2011

Korten, J.U. & Svoen, B. (2006) 'Unge medieprodusenter og kreativ mediekompetanse' *Nordic Journal of Digital Literacy* 2006(04) pp.306-328

Kovalchick, A. & Dawson, K. (2004) *Educational Technology: An Encyclopedia* Santa Barbara: ABC-CLIO

Kress, G. (2003) *Literacy in the New Media Age* London: Routledge

Kroes, N. (2010) 'Working together for digital literacy' http://www.eldr.eu/blog/2010/06/17/working-together-for-digital-literacy, accessed 29 March 2011

Kuhn, T.S. (1962) *The Structure of Scientific Revolutions* Chicago: University of Chicago Press

Kunnskapsdepartementet (no date) *Program for digital kompetanse - Sammendrag* http://www.regjeringen.no/en/dep/kd/ryddemappe/kd/norsk/tema/utdanning/ikt/pfdk-sammendrag.html?id=414820, accessed 28 March 2011

Langlois, C. (1997) *Universities and New Information Technologies: issues and strategies* IAU/UNESCO Information Centre on Higher Education, http://www.unesco.org/iau/tfit_paper.html, accessed 18 March 2008

Lankshear, C. (1999) 'Literacy Studies in Education: Disciplined Developments in a Post-Disciplinary Age' in M. Peters (ed.) *After the disciplines* Westport, CT: Greenwood

Publishing Co. http://www.geocities.com/c.lankshare/literacystudies.html, accessed 3 September 2008

Lankshear, C. (2007). 'The stuff of new literacies' Paper presented to the Mary Lou Fulton Symposium, Arizona State University, 24 April 2007. http://www.geocities.com/c.lankshear/stuff.pdf, accessed 19 December 2009

Lankshear, C. & Knobel, M. (2006) *New Literacies: Everyday Practices and Classroom Learning* Maidenhead: Open University Press

Lankshear, C. & Knobel, M. (2008a) 'Introduction' in C. Lankshear, M. Knobel (2008c) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Lankshear, C. & Knobel, M. (2008b) 'Digital Literacy and Participation in Online Social Networking Spaces' in C. Lankshear, M. Knobel (2008c) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Lankshear, C. & Knobel, M. (2008c) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Layder, D. (1993) *New strategies in social research: an introduction and guide* Cambridge: Polity Press

Lemke, J.L. (2002) 'Becoming the Village: Education Across Lives' in G. Wells & G. Claxton (eds.) *Learning for Life in the 21st Century* Oxford: Blackwell

Lessig, L. (2005) *Remix: making art and commerce thrive in the hybrid economy* http://www.lessig.org, accessed 14 April 2010

Lévinas, E. (2003) *Humanism of the Other* Chicago: University of Illinois Press

Lowe, R. (1993) *Successful Instructional Diagrams* London: Kogan Page

Luke, A. & Gilbert, P. (eds.) (1993) *Literacy in Contexts: Australian Perspectives and Issues* St Leonards, NSW: Allen & Unwin

Martin, A. (2003) 'Towards e-literacy' in A. Martin & H. Rader (eds.) (2003) *Information and IT literacy: enabling learning in the 21st century* London: Facet

Martin, A. & Rader, H. (eds.) (2003) *Information and IT literacy: enabling learning in the 21st century* London: Facet

Martin, A. (2005) 'DigEuLit – a European framework for digital literacy: A progress report' *Journal of eLiteracy* 2(2) pp.130-136

Martin, A. (2008) 'Digital Literacy and the 'Digital Society'' in C. Lankshear, M. Knobel, (2008c) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Marx, K. (1845;1969) *Theses on Feurbach* http://www.marxists.org/archive/marx/works/1845/theses/theses.htm, accessed 8 August 2010

Mason, P. (2011) 'Twenty reasons why it's kicking off everywhere' http://www.bbc.co.uk/blogs/newsnight/paulmason/2011/02/twenty_reasons_why_its_kicking.html, accessed 19 May 2011

McLuhan, M. (1962) *The Gutenberg Galaxy: the making of typographic man* Toronto: University of Toronto Press

McLuhan, M. (1988) *Laws of Media* Toronto: University of Toronto Press

Mende, J. (2005) 'The Poverty of Empiricism' *Informing Science Journal* 8 pp.190-210

Merchant, G. (2009) 'Literacy in virtual worlds' *Journal of Research in Reading* 32(1) pp.38-56

Microsoft (no date) Microsoft Digital Literacy Curriculum http://www.microsoft.com/about/corporatecitizenship/citizenship/giving/programs/up/digitalliteracy/default.mspx, accessed 24 November 2010

Mifsud, L. (2006) 'What Counts as Digital Literacy: Experiences from a Seventh Grade Classroom' in J.K. Nyiri (ed.) (2006) *Mobile understanding: The epistemology of ubiquitous communication* Vienna: Passagen

Moseley, D., Baumfield, V., Elliott, J., Higgins, S., Miller, J. and Newton D. P. (2005) *Frameworks for thinking: a handbook for teaching and learning* Cambridge: Cambridge University Press

Mounce, H.O. (1997) *The Two Pragmatisms: from Peirce to Rorty* London: Routledge

Muir, A. & Oppenheim, C. (2001) *Report on developments world-wide on national information policy*. London:Library Association, http://www.la-hq.org.uk/directory/prof_issues/nip, accessed 16 August 2007

Muller, J. (2000) *Reclaiming Knowledge: social theory, curriculum and education policy* London: Routledge

neopragvideo (2007) *The Putnam/Rorty Debate* http://www.youtube.com/watch?v=l1E4uUDo9c0, accessed 15 September 2010

National Institute of Education, Singapore [NIE] (2003-6) 'Digital Curricular Literacies and Project Work' http://www.nie.sg/research-projects/digital-curricular-literacies-and-project-work, accessed 17 April 2011

National Institute of Education, Singapore [NIE] (2009-12) 'Establishing a Blueprint for Singapore Youth's Participation in New Media Ecologies' online at http://www.nie.edu.sg/research-projects/establishing-a-blueprint-singapore-youths-participation-new-media-ecologies-change, accessed 17 April 2011

New York City Education Department (no date) Standards and Curriculum http://schools.nyc.gov/Academics/LibraryServices/StandardsandCurriculum/default.htm, accessed 26 April 2011

Newman, T. (2009) 'Consequences of a digital literacy review: from terminology to action' http://www.slideshare.net/TabethaNewman/digital-literacy-literature-review-from-terminology-to-action, accessed 18 December 2010

Norwegian Ministry of Modernisation (2005) *eNorway 2009: the digital leap* http://www.regjeringen.no/en/dep/fad/Documents/Reports-and-plans/Plans/2005/eNorway-2009--the-digital-leap.html?id=476705, accessed 28 March 2011

Nyiri, J.K. (ed.) (2006) *Mobile understanding: The epistemology of ubiquitous communication* Vienna: Passagen

Obama, B. (2009) 'The White House: National Information Literacy Awareness Month, 2009' http://www.whitehouse.gov/assets/documents/2009literacy_prc_rel.pdf, accessed 26 April 2011

Obama, B. (2011) 'The White House: Remarks by the President in State of Union Address' http://www.whitehouse.gov/the-press-office/2011/01/25/remarks-president-state-union-address, accessed 26 April 2011

OECD (2001) *Learning to Change: ICT in Schools* Paris: OECD

Oliver, R. & Towers, S. (2000) 'Benchmarking ICT literacy in tertiary learning settings' in S. Sawkins, R. Sims, & M .O'Reilly (eds.) *Learning to choose: Choosing to learn. Proceedings of the 17th Annual ASCILITE Conference* Lismore, New South Wales: Southern Cross University Press

Ong, W. (1982:2002) *Orality and Literacy: the technologizing of the word* London**:** Methuen

Owen-Jackson, G. (2002) *Teaching Design and Technology in Secondary Schools* London: Routledge

Parker, K.A. (2008) 'Josiah Royce' (in E.N. Zalta *The Stanford Encyclopedia of Philosophy (Fall 2008 Edition)* http://plato.stanford.edu/archives/fall2008/entries/royce, accessed 25 September 2010

Partnership for 21st Century Skills (2004) 'Our Mission' http://www.p21.org, accessed 26 April 2011

Paxson, P. (2004) *Media Literacy: Thinking Critically about Visual Culture* Portland: J. Weston Walch

Peirce, C.S. (1867) 'On a New List of Categories' http://en.wikisource.org/wiki/On_a_New_List_of_Categories, accessed 8 August 2010

Peirce, C.S. (1878) 'How To Make Our Ideas Clear' http://en.wikisource.org/wiki/How_to_Make_Our_Ideas_Clear, accessed 8 August 2010

Phillips, J. (2000) *Contested Knowledge: a guide to critical theory* London: Zed Books

Pietraß, M. (2009) 'Digital literacy as framing: Suggestions for an interactive approach based on E. Goffmans frame theory' *Nordic Journal of Digital Literacy* 2009(03-04), pp.131-141

Pinker, S. (2002) *The Blank Slate: The Modern Denial of Human Natur*e New York: Viking

Pojman, L.P. (ed.) (1999) *The Theory of Knowledge: Classical & Contemporary Readings* Belmont: Wadsworth

Potter, W.J. (2004) *Theory of Media Literacy* London: SAGE

Prensky, M. (2001) 'Digital Natives, Digital Immigrants' *On the Horizon*, 9(5), pp.1-6

Prensky, M. (2005) 'Listen to the Natives' *Educational Leadership*, 63(4), pp.8-13

Prensky, M. (2008) 'Programming is the New Literacy' *Edutopia* http://www.edutopia.org/literacy-computer-programming, accessed 26 April 2011

Press Freedom Index (2010) http://en.rsf.org/spip.php?page=classement&id_rubrique=1034, accessed 17 April 2011

Puentedura, R.R. (2010) 'SAMR, TPCK, and Educational Technology: Three Presentations' http://www.hippasus.com/rrpweblog/archives/000049.html, accessed 17 April 2011

Putnam, H. (1985) *The Many Faces of Realism* La Salle: Open Court

Quine, W.V.O. (1951) 'Two Dogmas of Empiricism' in Pojman, L.P. (ed.) (1999) *The Theory of Knowledge: Classical & Contemporary Readings* California: Wadsworth Publishing Company

Rantala, L. & Suoranta, J. (2008) 'Digital Literacy Policies in the EU - Inclusive Partnership as the Final Stage of Governmentality?' in C. Lankshear, C. & M. Knobel (2008c) *Digital Literacies: Concepts, Policies and Practices* New York: Peter Lang

Raney, K. (1999) 'Visual Literacy and the Art Curriculum' *Journal of Art and Design Education,* 18(1) pp.42-47

Reilly, B. (1996) 'New Technologies, New Literacies, New Patterns' in C. Fisher, D.C. Dwyer & K. Yocam (eds.), *Education and Technology: reflections on computing in classrooms* San Francisco: Jossey-Bass Publishers

Rheingold, H. (2009a) 'A mini-course on network and social network literacy' http://howardrheingold.posterous.com/a-min-course-on-network-and-social-network-li, accessed 15 May 2011

Rheingold, H. (2009b) 'Twitter Literacy (I refuse to make up a Twittery name for it)' http://www.sfgate.com/cgi-bin/blogs/rheingold/detail?entry_id=39948, accessed 15 May 2011

Robinson, R. (1941) 'Ambiguity' *Mind* 50(198) pp. 140-155

Robinson, Sir K. (2008) 'Changing Paradigms' *RSA Edge Lecture, 16th June 2008* http://www.thersa.org/events/video/archive/sir-ken-robinson, accessed 12 August 2011

Robrecht, L. (1995) 'Grounded theory: evolving methods' *Qualitative Health Research* 5 pp.169–177.

Rodríguez Illera, J.L., (2004) 'Digital Literacies' *Interactive Educational Multimedia* 9 pp. 48-62

Rorty, R.M., (1989) 'The Contingency of Language' in R.B. Goodman (ed.) (1995) *Pragmatism: a contemporary reader* New York: Routledge

Rorty, R.M., (1990) *Philosophy and the Mirror of Nature* Princeton: Princeton University Press

Rorty, R.M., (1992) 'Feminism and Pragmatism' in R.B. Goodman (ed.) (1995) *Pragmatism: a contemporary reader* New York: Routledge

Rosado, E. & Bélisle, C. (2006) 'Analysing Digital Literacy Frameworks. A European Framework for Digital Literacy' http://halshs.archives-ouvertes.fr/docs/00/13/77/79/PDF/Analysing-Edu-Frameworks.pdf, accessed 19 November 2007

Sanford, K. & Madill, L. (2007) 'Critical Literacy Learning through Video Games: adolescent boys' perspectives' *E-Learning,* 4(3) pp.285-297

Sawkins, S., Sims, R., O'Reilly, M. (eds.) *Learning to choose: Choosing to learn. Proceedings of the 17th Annual ASCILITE Conference*, Lismore, NSW: Southern Cross University Press

Scher, R. (1984) 'The computer backlash' *Electronic Learning* 5 pp.23-27

Shalin, D.N. (1992) 'Introduction: Habermas, Pragmatism, Interactionism' *Symbolic Interaction* 15(3), Special Feature: Habermas, Pragmatism and Critical Theory) pp.251-259

Sigafoos, J. & Green, V. (2007) *Technology and Teaching* New York: Nova Science Publishers

Siemens, G. (2004) 'Connectivism: A Learning Theory for the Digital Age' http://www.elearnspace.org/Articles/connectivism.htm, accessed 7 January 2010

Siemens, G. (2006) *Knowing Knowledge* http://www.lulu.com/product/paperback/knowing-knowledge/545031, accessed 8 January 2011

Simonson, M.R., Maurer, M., Montag-torardi, M. & Whitaker, M. (1987) 'Development of a standardised test of computer literacy and computer anxiety index' *Journal of Educational Computing Research* 3*(*2) pp.231- 247

Singapore Media Development Authority [MDA] 'Media Literacy' http://www.mda.gov.sg/Public/PublicEducation/Pages/MediaLiteracy.aspx, accessed 17 April 2011

Singapore Ministry of Education (2008a) 'MOE Launches Third Masterplan for ICT in Education' http://www.moe.gov.sg/media/press/2008/08/moe-launches-third-masterplan.php, accessed 17 April 2011

Singapore Ministry of Education (2008b) 'Opening Address by Dr Ng Eng Hen, Minister for Education and Second Minister for Defence, at the International Conference on Teaching and Learning with Technology (iCTLT) at the Suntec Convention Hall, on Tuesday, 5 August 2008' http://www.moe.gov.sg/media/speeches/2008/08/05/opening-address-by-dr-ng-eng-h-1.php, accessed 17 April 2011

Smith, R. & Curtin, P. (1998) 'Children, computers and life online: education in a cyber-world' in I. Snyder, (1998) *Page to screen: taking literacy into the electronic era*, London: Routledge

Snavely, L & Cooper, N.A. (1997) 'The Information Literacy Debate' *Journal of Academic Librarianship* 23(1) pp.9-14

Snyder, I. (ed.) (1998) *Page to screen: taking literacy into the electronic era*, London: Routledge

Snyder, I. (ed.) (2002) *Silicon Literacies: Communication, Innovation and Education in the Electronic Age* London: Routledge

Snyder, I. (2008) *The Literacy Wars: Why Teaching Children to Read and Write has Become a Battleground in Australia* Sydney: Allen & Unwin

Spitzer, K.L. Eisenberg, M.B., Lowe, C.A. & Doyle, C.S. (1998) *Information Literacy: essential skills for the information age* New York: Syracuse University

Standage, T. (1998) *The Victorian Internet* New York: Walker & Co.

Street, B. (1984) *Literacy in theory and practice* Cambridge: Cambridge University Press

Suhor, C. & Little, D. (1988) 'Visual literacy and print literacy – theoretical considerations and points of contact' *Reading Psychology* 9(4) pp.469-481

Tan, H.H. (1998) 'Singapore Slog' http://news.bbc.co.uk/1/hi/education/166258.stm, accessed 17 April 2011

Tan, L., Bopry, J. & Guo, L. (2010) 'Portraits of New Literacies in Two Singapore Classrooms' *RELC Journal* 41 pp.5-17

Taylor, T. & Ward, I. (1998) *Literacy Theory in the Age of the Internet* New York: Columbia University Press

Thomas, S., Joseph, C., Laccetti, J., Mason, B., Mills, S., Perril, S. & Pullinger, K. (2007) 'Transliteracy: Crossing divides' *First Monday*, 12(12) http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2060/1908, accessed 17 December 2009

Thomas, G. & James, D. (2006) 'Re-inventing grounded theory: some questions about theory, ground and discovery' *British Educational Research Journal* 32(6) pp.767–795

Tornero, J.M.P. (2004a) 'Promoting Digital Literacy: Final Report - Understanding Digital Literacy http://ec.europa.eu/education/archive/elearning/doc/studies/dig_lit_en.pdf, accessed 26 April 2011

Tornero, J.M.P. (2004b) 'Digital Literacy and Media Education: an Emerging Need http://www.elearningeuropa.info/directory/index.php?page=doc&doc_id=4935&doclng=6, accessed 4 August 2009

Town, J.S. (2003) 'Information Literacy: definition, measurement, impact' in A. Martin & H. Rader (eds.), *Information and IT literacy: enabling learning in the 21st century* London: Facet

Tuman, M. (1992) *Word Perfect: literacy in the computer age* Pittsburgh: University of Pittsburgh Press

Transparency International (2009) http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table, accessed 17 April 2011

Tyner, K.R. (1998) *Literacy in a Digital World: Teaching and Learning in the Age of Information* Mahwah, N.J.:L.Erlbaum Associates

UK Film Council (2004) *Inform and Empower: Media Literacy in the 21st Century* http://www.ukfilmcouncil.org.uk/media/word/b/r/Inform_and_Empower.doc, accessed 11 November 2010

UNESCO (2002) *Learning Throughout Life: challenges for the twenty-first century* Paris: UNESCO

US Department of Education (2001) No Child Left Behind [NCLB] http://www2.ed.gov/policy/elsec/leg/esea02/index.html, accessed 26 April 2011

Virkus, S. (2003) 'Information literacy in Europe: a literature review' *Information Research* 8(4) http://informationr.net/ir/8-4/paper159.html

Visocky O'Grady, J. & Visocky O'Grady, K. (2008) *The Information Design Handbook* Cincinnati, Ohio: How Books

Wells, G. & Claxton, G. (2002) *Learning for life in the 21st Century* Oxford: Blackwell

Wenger, E. (1998) *Communities of Practice: Learning, Meaning, and Identity* Cambridge: Cambridge University Press

Wiley, T.F. (1996) Literacy and Language Diversity in the United States Washington DC: Delta Publishing

Zalta, E.N. (ed.) (no date) *The Stanford Encyclopedia of Philosophy (Fall 2008 Edition)*, http://plato.stanford.edu/archives/spr2010/entries/critical-theory, accessed 22 May 2011

Żegleń, U.M. & Conant, J. (eds.) (2002) *Hilary Putnam: Pragmatism and Realism* London: Routledge

Zimmer, B. (2010) 'Crash Blossoms' *New York Times* http://www.nytimes.com/2010/01/31/magazine/31FOB-onlanguage-t.html, accessed 15 May 2011