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Media and Information Literacy

An Integrated Approach for the 21st Century

Marcus Leaning

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Chandos Information Professional Series

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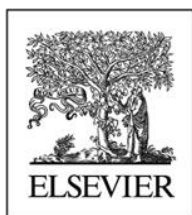
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Dedication

This book is dedicated to the memory of Patricia Leaning and Maureen O'Dwyer.

Acknowledgements

PART I
How We Arrived At Where We Are

OUTLINE

Integrating Media and Information Literacy

Abstract

This chapter introduces the topic of media and information literacy and the approach developed in the book. Two key tenets of the book are introduced. First is the commitment to the sociologically inspired cosmopolitanism of a number of social theorists and philosophers. Second is the recognition that integrating media and information literacy is a response to significant changes in the contemporary and future media ecology and in particular the rise of networked information and the steep rise in Internet connections. The remainder of the chapter concerns a summary of the various chapters in the rest of the book.

Keywords

Media literacy; information literacy; cosmopolitanism; Media Studies 2.0

CONTENTS

1.1 Introduction

This book is intended for media and information educators as a proposal for the future direction of their subject areas. It is aimed at those researching and studying media and information education (particularly at higher undergraduate and post graduate levels), those involved in planning media and information education and of course media and information educators themselves. It is intended to trigger debate and thought and offer a particular position on the future orientation of the field. Accordingly, it is not a text book for students learning media or information literacy, a 'how to' book for teachers or a compendium of techniques and activities for classroom practice; it is sadly lacking in all these areas and many excellent texts exist already.

Instead this text presents a rationale for a change in media and information education; for media education to recognise and respond to the changing environment and technologies and for information education to incorporate a greater degree of criticality. Of course much media education is highly flexible and adaptive; it explicitly covers new technology and has a history of engaging with new technologies as they arise. Similarly, information literacy education has evolved and incorporates a critical dimension. Both are vibrant, dynamic and evolving fields with substantial and critically reflective constituencies of researchers, teachers and practitioners. Through a range of academic flora including journals, websites, magazines, periodicals and conferences these communities debate and advance their fields and it is to this audience that this text is targeted.

Perhaps one cause for the vibrancy of the research culture is that the fields are constantly in 'shift'; new facets are revealed and new angles that require attention are uncovered. Education and in particular media and information education is undergoing what Hargreaves, Lieberman and Fuller (2010) term a 'great turn'; a period of rapid transition and change in educational practices. The emergence of digital technologies, the economic downturn with its resultant impact upon employment (and the reactions from governments to these changes) and large political changes which, at

the time of writing, have yet to fully play out have meant that curricula are changed and teaching practices adjusted. During such times the requirements upon teachers to incorporate additional areas and aspects into teaching are great.

However, educators must always be mindful of non-strategic 'mission creep'; the seemingly continuous yet unstructured expansion of what is supposed to be taught in restricted time tables in environments of finite resources. Accordingly, this text is not a description of a set of additional things that those either in media education or information education should do; we cannot simply keep expanding what we do in limited spaces within curricula.

Instead it is argued here that rather than making small adaptations and continually adding new components to both fields, there is a strong case for a reconsideration of the disciplines; to combine them, reorient them and set a 'strategic direction' for where media and information literacy education should go in the next few years. This assertion takes place in the light of arguments made by a number of previous authors (Cheung, Wilson, Grizzle, Tuazon, & Akyempong, 2011; Moeller, Joseph, Lau, & Carbo, 2011) and in statements from various organisations (UNESCO, 2014).

1.2 Approach and Perspective

In Chapter Two, A History of Media Education and Literacy and Chapter Three, The History of Information Literacy, it will be noted that there are numerous different flavours of media and information literacy education. As Buckingham notes programmes of media and information literacy are developed for a variety of different reasons and often as a response to a perception of threat (2003). Indeed, it is possible to see a programme of media education as a barometer of the fears and preoccupations of a society at a given time (Leaning, 2009b). In addition to this 'cultural materialist' reading of education – that we can read political imperatives in actions and texts – we should note that the underlying rationale for media literacy straddles disciplinary boundaries and political and historical divides (Penman & Turnbull, 2007). Media literacy is initiated, planned and delivered for a variety of reasons by a large array of agencies and

organisations with vastly different political, religious and ethical agenda (as we will see in chapter: the history of information literacy, the same is not quite true for information literacy education). The manner of delivery is also diverse with a vast range of approaches and techniques used; indeed, there is a veritable cottage industry in texts, guides, teaching resources and lesson plans for media and information education teachers.

It may be useful therefore to identify some of the basic tenets and assertions and the political standpoint that informs this text. It is possible to group these into two broad areas. The first area is a commitment to the sociological approach founded in the theories of reflexive modernity, reflexivity and cosmopolitanism of Giddens (1990, 1991, 2007), Beck (Beck, 1992, 2005, 2006; Beck & Beck-Gernsheim, 2002; Beck & Grande, 2007; Beck & Ritter, 1997) and Bauman (2005, 2008, 2012), the critical cosmopolitan sociology of Delanty (2006, 2009), the cosmopolitan philosophy of Appiah (2010) and the manifestation of this in the 'utopian realist' educational theories of Halpin (2002). Giddens, Beck and Bauman were leading figures in a (broadly European) sociological approach to understanding the experience of living within late modern societies. They sought to establish a sociological framework for understanding the complexity of the contemporary world while drawing upon and advancing the work of key European sociological thinkers. Of the three key traditions in classical European sociological theory – the Functionalist theories of Durkheim, the critical class theories of Marx and the interpretivist theories of Weber who saw multiple dimensions to social stratification, it is the latter which is advanced the most in the work of Giddens and others. The approach developed by Giddens, Beck and Bauman is decidedly anti-post-modern – at least in the sense that the post-modern is a sensibility of a specific epoch following the period of modernity rather than a flavour or 'dark-side' of modernist culture (Waugh, 1992). Instead, Giddens argues that late modernity is best understood as a period of intense reflexivity in which the core foundations of identity come under intense scrutiny (1990, 1991, 2007). Furthermore, this process of scrutiny has facilitated an individualised and reflexive approach to self-identity – we come to regard ourselves as projects to 'work

upon' or improve. Late modernity becomes a period of fluidity, an age in which the self is individualised to a far greater degree than previously (Bauman, 2008, 2012) and it is in that space of choice that decisions about the future of society can be addressed and where we can deploy the cosmopolitan imagination (Delanty, 2006). For Beck (2006), the overarching problems to be addressed in this opportunity are those opposing the 'cosmopolitan vision' – a non-Marxist, equality orientated, progressive vision for society in the 21st century. Cosmopolitanism is a philosophy or ideology that centres upon the assertion that humanity constitutes a single community. Its origins lie in the work of the Cynic School of Greek philosophy and in particular the assertion of Diogenes that he was a 'citizen of the world' rather than of a specific place – Diogenese claimed affinity with all humanity rather than just those a particular city state. A cosmopolitan was a citizen of the universe or cosmos. It was elaborated and developed through the Roman Stoics and certain Christian writings of St Paul.[1] In later times, it informed a number of key Enlightenment texts.[2]

A number of authors argue that cosmopolitanism contains two strands. On the one hand is an obligation to others above and beyond our obligations to our families and friends. This obligation should be extended beyond our families, beyond our close group of friends and beyond our nation to all humanity. The second strand is the assertion that we should recognise that difference exists between people, afford such differences equal value and respect and seek to learn from the differences in human lives (though of course there may be clashes (Appiah, 2010) between the universal concern and recognition of difference). Opposed to the cosmopolitan vision are the twin forces of the 'national outlook' on the one side (the assertion of a homogenised territorial perspective (Beck, 2005, 2006; Beck & Grande, 2007)) and 'fundamentalism' on the other (which Beck regards as anti-modern and an unfortunate consequence of liberational post-colonialism which when subverted by the refutation of grand narratives within postmodernism results in a contra-essentialist fundamentalism (2010)). Delanty (2006, 2009) argues that critical cosmopolitanism centres upon a rejection of eurocentrism – that we need to adopt a post-universalistic

understanding and that critical cosmopolitanism with its inherent recognition of difference offers this. Thus, in the form I use here cosmopolitanism is a social scientifically orientated re-visioning of the idea of a political entity founded upon a recognition and tolerance of difference as a starting point for social action. Halpin (2002) seeks to identify a direction for progressive education from cosmopolitanism and the work of Giddens and Beck and articulates what he terms a 'utopian realist' approach for this. He identifies utopian approaches as those, which incorporate a 'vocabulary of hope' (Halpin, 2002). Accordingly, utopias help us to 'relativise the present and progressively to anticipate a better future' (2002). A utopia is a device through which we can think about our actions and which we can use to plan future action. However, the utopian imagination or 'daydream' is moderated by the restraints and practicalities of reality. Accordingly, utopian realism is that which 'identifies the forces and resources within the present social order that are capable of transforming it for the better' (Halpin, 2002). Utopian realism provides a broad, sociologically informed perspective through which to think and develop the future of educational activity and for our purposes media and information education in particular. Accordingly, progressive, critical Cosmopolitanism serves as an underlying, though sometimes unvoiced, critical stance within this book and there is a general sympathy to the sociology of Bauman, Beck, Giddens, Delanty and others and the progressive approach to education advocated by Halpin.

The second underpinning assertion is that integrating media and information literacy is an appropriate and necessary response to changes in the way media technology function and the way in which they are used. Simply put, we need to update media and information literacy to deal with the current and future form and usage of technology. The idea of revising educational practice in the light of changing technologies and patterns of use is, of course, not new and media studies has recently seen significant controversy in what it should study and the methods by which it should study it. In 2010, the noted British media educator David Buckingham wrote a book chapter in which he posed the question 'Do we really need Media

Education 2.0?' (2010). The question was a response to a number of articles, blog posts and email debate triggered by two other British academics, William Merrin and David Gauntlett who had separately proposed that the discipline of media studies needed updating. These arguments were most fully articulated by William Merrin in his book Media Studies 2.0 (2014). The central argument of Merrin and Gauntlett's case was media studies had evolved to deal with the extant, analogue, one-to-many media technology of the broadcast era. Digital media and in particular the Internet posed a range of questions that extant media analysis tools simply could not deal with. Buckingham addressed this assertion and challenged it on a number of levels. Buckingham mounts a strong critique of the project of Media Studies 2.0 and is particularly scathing of many of Gauntlett's claims. Core to Buckinham's challenge is the (somewhat unfair) charge that Media Studies 2.0 is an uncritical approach that 'celebrates' digital technology and is guilty of missing the heterogeneity of use of media. Interestingly, while Buckingham challenges the substance of Media Studies 2.0 agenda – that as a subject the focus of attention should shift and that the analytic tools used be revised – he does leave open the question of whether the teaching of media studies, the act of media education needs to be reconsidered albeit with the inclusion of a critical agenda drawn from the existing media education practices: 'Do we really need Media Education 2.0? Perhaps we do but we certainly still need Media Education 1.0 as well' (2010).

The need for this change is evident if we consider the speed, manner in which digital media are spreading and penetrating all regions of the globe. The adoption speed (the time from introduction (less than 10% penetration), to maturity (10%–40% penetration) and then to saturation (40%–75% penetration)) for media technologies has, at least in the United States, accelerated significantly with digital technologies (DeGusta, 2012). Moreover, the adoption rates for mass media technology have followed a pattern whereby once the developed world is saturated, the spread of a technology is tied closely with the development of infrastructure; indeed the adoption of telephone technology has long been considered a measure of development (Jipp, 1963). However, the spread of mobile

communications in the developing world does not follow this pattern (DeGusta, 2012).

According to the United Nations International Telecommunications Union by the end of 2016, the total number of individual end-user connections to the Internet topped 3 billion, a little over 46% of the world's population. Fully two thirds of these connections are from the developing world (though there are still over 4 billion people not connected to the Internet and 90% of them live in the developing world). A significant proportion of those who are connected access the Internet through mobile broadband subscriptions and this stood at about 2.3 billion subscriptions; equating to roughly 32 for every 100 inhabitants of the world. Unsurprisingly, the developed world has a far-higher rate of penetration of Internet-connected devices at 84 in every 100 inhabitants than developing countries with 21, although both figures are significant increases on the scores of 2011 and are four times that of 2009. By region, Europe and North America have the highest degree of penetration of both fixed and mobile access; Africa has the lowest at 25.1% (Sanou, 2016). In terms of total numbers accessing, the Internet the Asia Pacific region dominates with over 1 billion users, Europe has a little over half a billion and north America on 273 million (Anon, 2012).

Within these headline figures, there is a lot of complexity. The World Internet Report provides more in-depth data but is limited to six countries: Cyprus (separate results for Greek Cypriots and Turkish Cypriots), Poland, South Africa, Sweden, Taiwan and the United States. This data indicates that within national populations there are differences in Internet access by gender, age, educational level and income. It comes as no surprise that Internet access is highest among those who are young, educated, wealthy and male (Cole, Suman, Schramm, Zhou, & Reyes-Sepulveda, 2013).

These impressive figures are a consequence of significant national and international governmental, commercial and third-sector effort that has been expended in extending access to the Internet in low-participation regions and in widening access to 'hard to reach' groups in developed societies. Such activity and indeed the general interest in Internet penetration rates is predicated upon the belief

that Internet access is an important component if not key component in economic development and civil society – that a digital divide exists between those without access to the Internet and those with it. This divide will further cement extant inequalities as the Internet's potential to mitigate economic and social inequality is restricted.

However, the digital divide should not be seen simply in terms of access to an Internet connection. Much of the use of Internet technology involves degrees of participation in forms of communicative practice beyond consumption. Internet communication has long been understood to be a communicative and productive activity in addition to its enhanced media consumption affordances (Leaning, 2009a). The dimensions of engagement and activity with the productive aspects of digital media across national, gender, ethnic and class divides is an important and lively area of study and pose fresh problems to media educators. While media educators have historically been concerned with ensuring students can critically engage with content to what extent should the educator be concerned with developing skills in production and dissemination in the student? These two issues: that the ability to engage with social media and participatory culture is tied to political and economic power and that actual engagement in participatory culture may itself immerse the user in problematic power relations present media and information educators with very challenging problems.

1.3 Structure of the Book

To engage with the two noted themes the book is divided into three parts. The remainder of this part is concerned with understanding the separate histories of media and information education. Chapter Two, A History of Media Education and Literacy, is concerned with the history of media education and media literacy. Literacy is a problematic and contested term and the chapter commences with a discussion of how literacy is broadly understood in terms of media and information education. It is noted that literacy is often used to refer to a level of competence, yet there are a range of ways or dimensions in which this conceptualised. This concern is manifest in

any attempt to write the history of an educational practice as education is so often an inherently political endeavour or response. The chapter develops this approach and identifies three broad historical approaches in media education: a protectionist innoculatory approach founded upon the idea that through media education students can be taught defence techniques against a problematic media; a demystifying approach where by the students are taught to decode the media and in doing so learn the techniques used by the media to deceive and subjugate the audience; and finally a creative productive approach where by students engage in the production of texts and thereby learn the techniques used in communicating meaning and acquire skills appropriate to a work place. The chapter concludes with recognition that all three approaches are still very current and continue to inform contemporary media literacy programmes.

Chapter Three, The History of Information Literacy, turns to the idea of information literacy and charts its history. While the history of media education has a strongly political flavour, information literacy has, with a few notable exceptions, seemingly been a-political in its development. Though both media and information literacy are strongly linked to developments in academia, they owe allegiance to distinctly different fields of practice. Media literacy has been influenced by changes in academic flavour in the humanities and social sciences and in particular the development of critical theory and the response to (and participation in) significant counterculture, civil rights and equality movements of the 60s, 70s, 80s and 90s. As such media literacy has a strongly political, progressive undertone. Information literacy emerges from a range of disciplines including library and bibliographic studies, information science and computing. Such subjects draw upon a very different epistemology and this approach is reflected in the history of information literacy and the debates that define the field. Accordingly, the chapter commences with the assertion that the field needs to question this a-political nature as many of the topics considered by the subject are political. The chapter then moves to consider the origin of the field and map its evolution along with some parallel fields such as digital literacy.

Part II concerns computer technology, the contemporary world, and the way in which we are integrated into the world through computer technology. It commences in Chapter Four, The Increasing Closeness of Computers–A History of the Delivery of Computing Power, with a discussion of the transformation in computers and their gradual integration into our personal 'space'. This transition notes the movement from mainframe computers to desktop computers in offices, their movement from offices to homes, then from homes to hands with the advent of tablet and smartphones and computing's latest instantiation of shifting from hands to wrists eyes, and other wearable media. It is noted how the increasing intrusion into our personal space, the increased closeness of computers, pose new problems for information and media literacy. As computers become closer to us, they seem to circumvent the critical acumen we would deploy when faced with media texts.

Chapter Five, The Nature of Digital Media Content, looks to the nature of digital media content. While the interpretation of digital media content takes many forms in academia, the focus here will examine participatory culture, transmedia practices and converged culture. Participatory culture considers the way in which aspects of contemporary culture involve significant amounts of wilful, direct and often creative engagement. In such cultures, the audience plays and active part in creating and contributing to texts. This process is particularly evident in certain social media and creative new media platforms, which host user content. Trans-media relates to the ways in which media texts are often present across multiple media channels. It involves the 'bleeding' of content between platforms, of the creation of cross-platform and cross-text story or fictional worlds. Thus fictional worlds operate across games (including different genres and platforms), films, television, apps, audio and other media forms. Converged culture relates to the ways in which certain practices and affordances of social media now allow users to engage with digital media content across the web and apps and engage from host platforms. Thus, users can engage with media content and indicate preference for it, redistribute it themselves and engage with the content through a profile they have established on a social media platform. However while this shift to new patterns of consumption

is important it perhaps masks (and is facilitated) by a greater and possibly more meaningful shift. Because of the nature of networked data, consumption of media in a computational environment leaves a 'data footprint'. This results in enormous amounts of data being created and collected through our consumption of media texts in an interactive networked environment. The consumption of media content in interactive space leaves data trails and through the application of inferential data analysis used in 'big data' a far greater 'instantiation' of individuals in data is now possible by corporate and state agencies.

Chapter Six, Digital Divides: Access, Skills and Participation, addresses the issue of access to digital media and its relation to participation in civic and economic life. This commences with a discussion of the digital divide. The chapter commences by noting how the digital divide is both between countries where there are differing rates of Internet access and within countries where there are sections of society who do not have access. The chapter then considers three forms or orders of digital divides. The first order refers to the issue of access and the chapter considers the difference between having physical access to a computer and the Internet and the material assets to pay for the connection and additional expenses. The chapter then moves on to a discussion of the second order digital divide; the skills necessary to be able to use an Internet enabled computer. Access alone is not enough; people require the skills to be able to use digital media. It is also noted that the discussion of such skills is often akin to digital literacy and it is argued that as with certain forms of information literacy training criticality is often not prioritised. The third order of digital divides relates to the ways in which digital media and in particular skills are used and to end they are put. It is noted that research indicates that although there may be greater access and indeed skills within historically marginalised groups than there has been previously, there was a still a division in terms of the specific activities and tasks performed in their use of social media.

In the final part of the book, I turn to considering media and information literacy in the 21st century. Here the differing strands introduced in the preceding chapters are drawn together through a

summary of the main issues raised. I then turn to the proposed agenda for media and information literacy. Three specific proposals are made for the future direction of the field and an integrated approach: first that the physical form and interface of devices for the engagement with digital media be understood in terms of consequences of their use in terms of the structuring of our experiences as well as the affordances they impart; second, that the commercial and legal realities of the productive and participative nature of contemporary digital media be developed; third, that an understanding that the use of much digital media involves making available information about ourselves and that such information can be extremely impactful upon us and is used to inform decisions made about us.

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[1]St. Paul's assertion that 'there is neither Jew nor Greek, there is neither bond nor free, there is neither male nor female: for all are one in Christ Jesus' in Galatians 3:28 of the King James version of the Bible has been widely interpreted as a foundation of cosmopolitanism.

[2]Christoph Martin Wieland, one of the key figures in the German Enlightenment, asserted: 'The cosmopolitans carry the designation *citizens of the world* in the most authentic and eminent sense. They regard *all peoples* of the earth as just so many *branches* of a *single family*, and the *universe* a *state*, in which they [the cosmopolitans] are *citizens*, together with innumerable other rational beings, in order to promote the perfection of the *whole*' (quoted in Kleingold (1999)).

A History of Media Education and Literacy

Abstract

This chapter examines the history of media education and literacy. Following a discussion of literacy, it is argued that media education has occurred in three main phases. The first phase involved attempts to protect or inoculate the user or audience from the negative aspects of the media. The second phase concerns the assertion that media are inherently ideological and the role of media education was to equip the audience with skills with which they could demystify the media and thus be aware of the ideological messages latent within it. The third phase draws upon constructivist philosophy and asserts that education best occurs when students are engaged in the acts of production. As such media education should involve students in productive acts. Through engaging in such acts, students will become aware of issues of representation and also gain valuable skills that can assist them in the work place. It is noted that media education is an inherently political activity and that some of the changes in media education can be understood sociologically through understanding them as evidential of a shift from middle to late modernity.

Keywords

Media education; media literacy; literacy; protectionist; inoculation; demystification; participation; creative approach

CONTENTS

2.1 Introduction

This chapter is concerned with the history of media education and media literacy, or more precisely the history of the *idea* of media education and media literacy. The relationship of media education and media literacy is an interesting one. Literacy is a relative (McGarry, 1993) and often contested concept (Christ & Potter, 1998). Indeed as Graff (1991) argues until the emergence of mass education systems in early modernity, to be literate reflected not so much a competency with texts but the degree of material wealth that would afford an education, time to read and finances to purchase books. (Interestingly Hawkins (2000) reasserts a variant of this in his assertion that levels of literacy are an indication of – and closely related to financial wealth – rather than being an indicator of cognitive inequality).

In contemporary times the prescriptive and formal definition of literacy found in dictionaries refers primarily to the state of textual understanding (Kress & van Leeuwen, 2001), to be literate is to be able to read and write. However in common parlance (the reportive use of the word), literacy is understood to indicate some degree of mastery, of skilled competence or ability. McGarry (1991) notes that there is a duality in the understanding of literacy. On the one hand, literacy refers to skilled competence; it is the possession of a specific set of skills in a field. Alternatively, literacy refers to a level of understanding beyond simple basic competence. Dale (1946) opines that literacy should involve 'critical reading, critical listening and critical observing'. Similarly Gilster (1997) notes 'literacy goes beyond… being able to read; it has always meant the ability to meet

with meaning, and to understand. It is the fundamental act cognition'. Indeed it may be best to consider literacy, as Clifford (1984) does, as a continuum with skills at one end and higher order cognitive skills and reasoning at the other. Regardless, literacy in a field is a desired state, something we seek to achieve; thus, we find the states of financial literacy, digital literacy, computer literacy and cultural literacy as desirable. Indeed, Snavely and Cooper (1997) identified 34 separate literacies from the titles books. Moreover, the different literacies are often defined and articulated in different ways. To achieve these states the student will have undergone a form of education in the field. Thus, we can argue that to be media literate the student will have undergone some form of educational activity that leads to the state of media literacy, a form of media education (Potter, 2010).

Determining a specific definition beyond this proves difficult though there have been a number of attempts. For example in 1992, the National Leadership Conference on Media Literacy proposed that media literacy be defined as 'the ability to access, analyse, evaluate and communicate messages in a variety of forms' (Aufderheide, 1993). Similarly, the Office of Communication in the United Kingdom determines that media literacy refers to 'the ability to access, understand and create communications in a variety of contexts' (OFCOM, 2004). The US-based National Association for Media Literacy Education defines media literacy as:

> *a series of communication competencies, including the ability to access, analyze, evaluate, and communicate information in a variety of forms, including print and non-print messages. Media literacy empowers people to be both critical thinkers and creative producers of an increasingly wide range of messages using image, language, and sound. It is the skilful application of literacy skills to media and technology messages.*

> *NAMLE (2015).*

These definitions and others identify a range of specific skills that a media literate person would possess (and bare a strong resemblance to the skills and information literate person possess as

will be seen in the following chapter). In some instances, these are general skills pertinent to all media while other definitions relate to specific means forms (Singer & Singer, 2011). In addition to the skills based definitions a strong strand of research in media literacy related to developing criticality in students and argue that media literacy was about developing critical perspectives and approaches to the media. For example Silverblatt and Eliceiri (1997) propose media literacy is 'a critical-thinking skill that enables audiences to decipher the information that they receive through the channels of mass communications and empowers them to develop independent judgments about media content' while Sholle and Denski contend media literacy 'must be conceived as a political, social and cultural practice' (1994). In a comprehensive study, Potter (2010) identifies over 20 different definitions and forms of use of the term and contends that there is no definitive fixed meaning or consensus on its precise meaning. Consequently, it is recognised (or admitted) that the approach adopted here of identifying media literacy as a consequence of a course of media education does perhaps stretch the extant interpretation in a different direction.

2.2 The History of Media Education

The history of such an educational field can be written in different many ways it may focus upon the change in the topics and texts studied, the techniques used in teaching or the impact upon particular groups of students. The intention here is to identify several key perspectives that have shaped, and continue to shape media education and to offer a history in which media education is understood to be a changing form of both educational activity and social practice or text. As an educational activity, it functions to equip students with skills and knowledge in a particular field. As a social practice, it reflects changes in wider intellectual and social life, culture and the political imperatives of the time. Social practices emerge from a wider social world and as such entail the values, concerns and preoccupations of that social milieu. However, social practices do not just reflect the social world; they contribute to it – reconstructing and reproducing social life. As Giddens (1990, 1991,

2007) notes social practices are the means by which we are simultaneously constrained and facilitated in our actions. Social practices make material to us larger social structures and provide us with the tools with which we can understand and contribute to daily life. They provide the fabric of the social world and thus serve to reproduce it; they afford us the tools with which we understand and interpret the world and thus assist in the reproduction of the social world. Educational activities not only simultaneously mirror the social world and its preoccupations but also serve to reproduce it. Accordingly, the history of media education is a history not just of how we have sought to educate the next generation about the media but also of the perception of the media and how it should be conceptualised.

A number of commentators have identified distinct periods and related theoretical perspectives or models for the operation, role and function of media education (Masterman and Mariet, 1994, Masterman, 1997, Buckingham, 1998, 2005, Penman and Turnbull, 2007, Leaning, 2009). These models often overlap and relate heavily to wider changes in academic focus and wider cultural patterns. This approach offers distinct advantages for the understanding of media education – it fits with a broadly 'Kuhnian' interpretation of the history of a body of knowledge – that rather than a pleasing trajectory of steps of incremental progress, the history of a field occurs in stops, starts and often does not appear to be moving in a particular direction at all but rather involves one 'paradigm' emerging, maturating and then being gradually eclipsed by another; though there will often be pockets of resistance and challenge. However, we must be mindful that how things appear from our historically privileged position is possibly (if not probably) quite different from how they were experienced by the participants. Identifying a perspective and its boundaries is often only possible when that approach is contrasted with an alternative. Accordingly, we may be grouping together into a 'broad brush' perspective what the participants may have considered quite as distinct and possibly incompatible approaches.

This chapter will examine three perspectives on media education: the protectionist or inoculation model; the demystification model;

and the participatory or collaborative model. It is important to note that although these perspectives are addressed here and appeared in historical order it would be erroneous to argue that each has entirely superseded the preceding perspective. All three perspectives are still found in media education programmes to some degree.

2.3 The Protectionist or Inoculation Model

Of the three perspectives identified here, the protectionist or inoculation model is perhaps the one that incorporates the widest diversity of positions. This is primarily because it has a relatively ancient historical genesis and that it was not until the later third or even quarter of the 20th century that an alternative perspective began to gain any ground. Until this point, differing positions emerged and articulated quite distinct opinions on the nature and problems of the media. In some instances, these positions came from almost diametrically different parts of the political spectrum yet they argued in essence for the same approach or orientation to the media.

At core the protectionist/inoculatory approach is founded upon two assertions: First, that media or technology can have a negative impact upon those who consume it. This might be directly upon the individual, it might be through the actions that the individual performs following the consumption of the media or it might be a wider social issue related to the impact of multiple people consuming the same media and thereby sharing a common opinion, which is regarded as negative. Second, there are various educational techniques and approaches we can use to reduce the negative impact upon individuals, if these techniques are deployed then the audience can be protected or inoculated against the media. The role of media education in this model then is to provide these techniques and the media literate person is someone who through the inoculation process is immune to the negative aspects of the media.

Instances of the first assertion do not prove difficult to find and they seem to have been applied to most new communicative practice and form extant in historical record right through to contemporary

times. For example in Plato's *Phaedrus* (Jowett, 1892) Plato describes a conversation between Socrates and his student Phaedrus (we only know of Socrates' teaching through the writings of others; if Socrates did write, nothing of his work survives). Socrates describes a meeting between Theath the Egyptian god and inventor of writing and Thamus, another Egyptian god. They discuss the 'gift' of writing and Thamus critiques writing proposing, 'this discovery of yours will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves'. Hass (1995) notes that in this (oft-cited) example, Plato is concerned with the psychological impact of writing – writing will have a negative impact upon the memory of the individual.

The invention of the printing press raised numerous fears; one of which concerned the impact it would bring to the ancient practice of hand copying and illustration of texts in medieval Europe. This concern prompted Trithemius of Sponheim to comment, 'Printing is no genuine friend of Holy Scripture' (Clark, 2004). Being able to print would damage the training of monks and could result in imperfect copies being made. As well as the quality of the copying and the impact upon the writer, the invention of the printing press and the proliferation of books resulting from it triggered Conrad Gessner, a 16th century scholar, to express a concern over the 'confusing and harmful abundance of books' (Blair, 2003). He was so concerned he called for the intervention of kings and princes to remedy the situation. Similarly, Baillet was so alarmed at the amount of books being published in the 17th century, he feared civilisation would collapse (Blair, 2003). (This is a theme which has received attention in contemporary times. See Carr (2013)). In 1680, the philosopher and mathematician Leibniz also expressed a concern over the printing press in that it would contribute to the rejection of arts and sciences (Klancher, 2013).

While these instances of reservation to new technologies and practices provide interesting staging points, the genesis of media education can be linked to the articulation of fears of mass publication in the early to middle Modernity of 19th century Western Europe and the United States. Modernity had a dramatic

impact upon nearly all aspects of lived experience in the 19th century. The enormous changes to work patterns, forms of governance and bureaucracy, educational systems and forms of communication resulted in the transformation of values, social mores and conventions – indeed Giddens notes that modernity is identified by its detraditionalising orientation (1990) and this is particularly evident in the recognition of the change in social values (Heaphy, 2007). Social life in Modernity is consciously different from traditional life. Indeed the very awareness of this, the attitude of being 'reflexive about consciousness' of the difference is a key characteristic of modernity (Giddens, 1991). Writing during these changes Marx notes modernity brings about the 'uninterrupted disturbance of all social conditions… all fixed fast-frozen relations are swept away… All that is solid melts into air' (Marx (1868) quoted in Murdoch (1997)).

While Marx saw the advent of Modernity as offering opportunities others lamented the decline of traditional cultural forms as arising in their place was what they determined to be an artificial, less-authentic popular culture that damaged existing patterns and relations of power. This 'mass-society' perspective encompassed a wide range of thinkers who while concerned with very different aspects of the impact of modernity shared a common negative and pessimistic view. Central to this view is the concept that elite culture is of a higher calibre and standard than the culture of the majority. Mass society commentators considered that in pre-modern times the culture of the majority was more authentic; a culture that was 'of the people' or a 'folk-culture'. However as Modernity progresses, the existing older folk culture is increasingly broken up and dissolved and in its place a new popular culture disseminated by the new forms and technologies of media.

This new and popular culture was conveyed by (amongst other media forms such as theatre), the popular press and as such a range of media forms became subject to criticism and blamed for perceived rises in crime (Travis, 1908). In particular, critics were explicitly concerned with the impact media would have upon the untutored minds of children and the working classes (Murdoch, 1997).

This is illustrated by the reaction to the emergence and impact upon children and young adults of cheaply produced and what was deemed to be inappropriate literature during the mid to late 19th century. Known as 'penny dreadfuls' in the United Kingdom and 'dime novels' in the United States, such texts contained salacious but exciting stories. However, they were considered to have a negative impact upon the young (often male) mind (Salmon, 1888). Discussing a range of causes of juvenile delinquency Travis (1908) determines 'Bad literature has its effects in this realm… It is not unknown to find counterfeiting and even murder springing from bad reading… a child of ten who held up another and robbed him of three dollars. The robber had read dime novels from the age of seven'.

By the 1920s, newspaper circulation had grown and a range of other media forms had emerged; the phonograph, cinema and then radio as well as a number of other short lived or locality specific media (e.g. *Telefon Hírmondó* translated electrophone or 'Telephone Herald' was a Hunagrian service by which subscribers in Budapest could hear the news read to them over the telephone. It ran from 1893 but gradually lost market share to radio in the 1920s and its wire-based systems were eventually destroyed completely during World War II (Marvin, 1988)) and the critique of the effects of media became more established.

Accounts of the history of American communications research indicate that there while was considerable concern over the degree of impact of 'media effects,' it was a vibrant field with multiple perspectives and foci (Pooley, 2008). The topic attracted the interests' of sociologists and philosophers (Czitrom, 1983) and later an interdisciplinary approach (Merrin, 2014) within the academy. In the United Kingdom and other Western European countries the chief concern cantered upon the notion that an 'alien' (read American) form of popular culture presented an easier and less intellectually demanding alternative to the native 'high culture' of classical European education. Accordingly, momentum gathered for educational activities that would assist in the amelioration of the negative impacts. The role of such media education was to teach the audience to judge and be able to discern good from bad (Masterman,

1997). F.R. Leavis and Denys Thompson's *Culture and Environment: The Training of Critical Awareness* (1933) offered a defence of high literary traditions against the problematic culture brought about the mass media. Buckingham (1998) contends the text offered the first systematic proposals for teaching about the media. The approach was popular on the paternalistic Right – drawing upon the literary theories of Leavis and traditions of Elliot and Pound and actualised in government report such as the British Department of Education 'Spens Report' (1938).

In addition to this conservative approach, a further example of the protectionist and defensive stance is found within the contemporaneous and avowedly Marxist commentary of the Frankfurt School. Here mass culture is conceptualised as an integral part of the 'culture industry' – a component of the system of class subjugation in that it prevented the formation of class consciousness (Bennett, 1982). Perhaps most clearly articulated in a chapter entitled 'The Culture Industry: Enlightenment as Mass Deception,' in Adorno and Horkheimer's *Dialectic of Enlightenment* (1972) first published in 1944 this position offered a development and advance on the economistic dominant in Marxism at that time.

Despite being politically opposite these positions share a number of goals and advocates would see a similar purpose for media education – the aim of media education is to protect the audience from the damaging impact of the pernicious mass-media, to provide the audience with what Masterman (1997) terms 'education *against* the media' (italics in original).

Cheung (2009) notes an additional and more recent variation to the protection approach is detectable in the work of a number of anti-globalisation and anti-consumerist commentators such as Klein (1999, 2010). Articulated as opposition to capitalism and the power of advertising this perspective seeks to challenge the dissemination of corporate messages into all aspects of life (Worth and Kuhling, 2004). The approach seeks to integrate a protectionist aspect through its determination that certain 'spaces' – primarily those associated with public politics and those in education – should be free of advertising and that advertising be semiotically challenged through Situationist-esque actions of subvertising and 'ad-busting'. While

having historical roots in the anti-hegemonic approaches of the Marxist Cultural Studies Birmingham School and Sitautionism (Worth and Kuhling, 2004) the approach has a large popular international following and is aligned with numerous anti-systemic movements globally.

Much academic analysis indicates that contemporary media education programmes have moved away from the protectionist position (Buckingham, 2005, Penman and Turnbull, 2007, Frau-Meigs and Torrent, 2009). However, it is still a strongly felt position in popular discourse and interestingly informs parental commentary on what media literacy *should* be doing (Buckingham, 1993, Mendoza, 2009) not to mention being a strongly articulated position in popular discourse and political rhetoric on the media (Lin, 2009). It remains an attractive position and popular interpretation of the media and is articulated with considerable frequency with the emergence of new technologies and their negative impacts. The impact of internet technologies has been extensively examined and numerous negative consequences for its use have been detected (see for example the challenge to expertise posed by amateur production (Keen, 2008), the impact upon employment in traditional and new industries (Keen, 2015) or the effect upon our skills (Carr, 2013)). Indeed Nicolas Carr's contention that computer automation makes us forgetful and results in a lack of skills seems strangely similar to the warning of Socrates some 2500 years previously.

2.4 The Demystification Model

A second approach to media education began to emerge during the 1960s becoming dominant in the 1980s in much of Western Europe and North America. This approach drew upon developments in the academic fields of social theory, literary theory, semiotics and linguistics related to what became known as the 'cultural' or 'linguistic' turn – the gradual refocusing of attention upon the role of culture in explanations of human life. Culture and language came to be seen not as a consequence of human action but as a key determinate of it. This shift resulted in greater recognition of the social world in structural and eventual post-structural forms of

analysis in the latter half of the 20th century. When linked with Marxist, feminist and post-colonial critical approaches and the general counter-cultural atmosphere of many university arts and humanities departments in the late 1960s and early 1970s in Western Europe, Australasia and North America an alternative reading of the media emerged. This interpretation conceptualised media content as essentially ideological – media content plays a significant role in the legitimisation and maintenance of extant power relations. The role of media education (and other aligned academic fields) was to reveal the ideological premises behind the media, to 'demystify' the media to its audience (Penman and Turnbull, 2007). In doing so, the audience would become cognoscente of the power of the media and achieve a level of 'conscious awareness'.

According to Masterman (1997), the development of this approach lies in key advances in theories of semiotics and ideology made in the early 1970s. The dominance of the 'closed' Althussarian model of analysis was challenged following the translation in 1971 of Antonio Gramsci's *Prison Notebooks* (Gramsci, Hoare & Nowell-Smith, 1971). While Gramsci offered no explicit theory of ideology his approach was subsequently developed first by Hall and others (Centre for Contemporary Cultural Studies, 2007) and later Laclau, Moufee and Zizek in the field of discourse analysis (Torfing, 1999) into a critique that sees ideology not as disseminated top down through state apparatus but as present in all cultural life and explicitly so in the media. The contribution of semiotics to media education was also substantial. Masterman (1997) contends that Barthes' *Mythologies* (Barthes and Lavers, 1972) offered two advances to media education. First, from Barthes we learn that the media can only ever re-present the world – they can never directly present it. The media always mediate and are far from transparent lens with which we can view the world. This resulted in an approach to examining the nature of representation and the manner in which particular ideas, people and events are constructed in the media. Second, Barthes' work challenges the distinction between high and popular culture, a model that, as noted above, informs the protectionist model. In this regard, Barthes was part of a broadly left-wing class-based model of understanding that sought to challenge the value laden conservative

model of cultural appreciation (Williams, 1958). This approach broadened the scope of analysis beyond the Arnoldian definition of culture as the 'best of what has been thought and said' to a wider understanding popular as cultural studies that was emerging in the 1970s. The application of the critical tools developed within literary and cultural studies once applied to media resulted in the development of an approach to media education that was subsequently recognised as a form of what Kellner terms 'critical literacy' (2000). This 'critical dimension' within media education has been recognised as of considerable importance (Livingstone, Van Couvering & Thumim, 2005). It allows teaching to be seen as an activity that empowers students in the face of ideological forces and endowed teaching with a political function and continues to receive much support from teachers of media education. It is still popular in many areas of media education, is closely tied to cultural studies and similar humanities orientated subjects and is strongly present in older, more established university departments.

However, the approach also resulted in media education becoming a 'bette-noir' for neo-conservative pundits and policy makers who rose to the political ascendancy in the 1980s and 1990s in many countries.

Conservative critiques of media education programmes often draw upon earlier Leavisite ideals of culture and are consequently are dismissive of the attention paid to popular culture. Additionally such critiques are also wary of the left wing critical 'bias' in media education programmes. The inherent 'critical' aspects of media studies that challenge existing readings of texts and practices and seek to identify alternate ideological narratives are not popular with more traditional interpretations. A further critique is that the demystification approach does not equip students with the skills necessary to produce media content. Industry-friendly pundits criticised media education courses for not teaching the actual media production skills necessary to work in industry.

2.5 The Creative Participation Model

A third approach to media education gradually began to gain strength from the early 1990s. This approach became known as the creative or participatory model and it also incorporated developments following the linguistic turn and in particular the emergence of constructivist and constructionist ideas.

Constructivism is considered by many to be one of the key psychological and social theories of the latter half of the 20th century and has impacted upon many academic and intellectual disciplines where it has generated considerable excitement (Hacking, 1999). Constructivism's roots can be seen in developments in philosophy, psychology, sociology, history and other disciplines following the 'linguistic turn'-the recognition that of the interdependence of language and culture in philosophy.

Noddings (1973, 1990) argues that constructivism is simultaneously a cognitive position and a methodological perspective. As a theory of cognition, constructivists draw upon the Kantian idea that all knowledge of the world is constructed in the human mind. The manner of this construction is determined by internal structures of the human mind – these structures can be understood to be either innate features of the brain, such as language processing capabilities (Chomsky, 1968, Chomsky, 1971) or they may result from developmental processes (Piaget, 1953, Piaget, 1971, Piaget, 1972). As a consequence of seeing the mind and developmental processes in these terms Noddings (1990) argues that methodologically and indeed educationally we must engage with the underlying activities of construction – we must not limit our analysis and teaching practice to the superficially observable but must look to the constructions that underpin behaviour. Learning and teaching must be re-structured around facilitating learning or construction in the students rather than communicating knowledge directly. As Naylor and Keogh contend, 'The central principles of this approach are that learners can only make sense of new situations in terms of their existing understanding. Learning involves an active process in which learners construct meaning by linking new ideas with their existing knowledge' (1999). In constructivist education, attention is shifted from the imparting of knowledge to the structuring of educational activities that will

facilitate students learning and constructing knowledge – a shift from 'knowledge as a product to knowing as a process' (Jones and Brader-Araje, 2002).

As with any gradual change of ideas, it is impossible to identify a specific date or occasion on which constructivism became the dominant pedagogic approach in education theory or research. Constructivism offered a range of alternative methods and teaching practices the deconstruction of texts used in the demystification model. Typical methods used within a creative/participatory framework include project work, collaborative media text production in using various media, group work, practice by doing, structured discussion, getting students to teach each other, discovery and research work and a variety of other methods (Fernback, 2014).

In addition to this shift in general pedagogic approaches, three other developments had a significant impact upon the current shape of media education. First, the emergence then the widespread diffusion of digital technology and the impact upon the way in which media content is encountered. There has been a gradual transformation of the manner in which media content is consumed, resulting in increased opportunities for audiences to creatively engage with, refashion and recirculate media content. This will be more fully explored in Chapter Four, The Increasing Closeness of Computers–A History of the Delivery of Computing Power.

Second is the related change in the way audiences and media consumption are conceptualised. Buckingham (1998) notes how advances in psychology and cultural studies result in the idea of a passive audience being strongly challenged. The idea that a single homogeneous audience will receive a media text in a singular manner has been heavily criticised. In its place researchers talk of audiences who are active in the engagement with media texts. Research from within this framework indicate that audience members actively select and reject media content; particular forms and genre are sought and media consumption is a far more conscious and performative process than earlier models of media consumption allow for.

The resultant approach to media education is one in which participation and active engagement in the production of media

texts play a significant role. Within this perspective, collaboration between students is often a key part in the productive process. Indeed, there has been a conscious attempt to move beyond the notion of a single author of a text and towards recognition that media content production is an inherently collaborative endeavour (Jenkins, 2009).

Third is an issue identified by Gauntlett (2013). Gauntlet notes a contemporary reassertion of a trend in the domestic manufacture of goods and texts. While the small-scale production of goods has long been a persistent activity it became 'buried' and devalued during the era of mass production. In recent years, the opprobrium attached to the sporting of non-commercially produced goods in popular culture has diminished and in its place, there has been a rise in the celebration of such goods. Though caution must be expressed in over-playing what may be a temporary cultural fashion the creative affordances of social media do seem facilitated by this trend. Furthermore, the articulation of an agenda of personal tastes over mass market taste (which is perhaps erroneous in its understanding of mass markets (Heath and Potter, 2010)) is perhaps indicative of the individualisation and self-focussed nature of late modernity identified by Beck (2002) and Giddens (1991).

The creative/participatory approach to media education is undoubtedly dominant at the time of writing. Its broad attention to creative and yet critical examination of media texts from a broad range of media forms allows it to inform both the critical analytic side of media studies while also being useful to the technical and industry salient areas of media training. Thus, it serves as pedagogy that meets both the critical concerns of media educators and also the skills agenda of the industry advocates who challenged the demystification approach so strongly.

2.6 Conclusion

As can be seen from the above media education is an inherently political activity. Media education has been used to advance various political agenda throughout its existence. In its endeavours, it seeks to address particular issues that have a political flavour. These might

be to protect a group of individuals perceived to be vulnerable, the desire to defend art and culture from alien influences, to empower individuals against rapacious commercialism or to facilitate individual self-growth creative potential.

However, we can also conceptualise media education from a broader sociological perspective and understand it as one of the transitionary processes that have facilitated the shift from modernity to late modernity. The transition between the different approaches used to media education may be seen as indicative not solely of an advancement or reorientation of educational practices but are also an example of changing social practices. As discussed above, such social practices are understood by sociologists such as Giddens, Beck and Baumann as the arena in which the transition from modernity to late modernity is enacted. Social practices-such as media education activities-incorporate, instantiate and facilitate the process of individualisation associated with the shift from modernity to late modernity. This processes of individualisation can be seen in the shift from the mass society approach in which hierarchical models of cultural value dominate, through the 'empowering' demystification approach in which individuals were made aware of or perhaps 'enlightened' to the power systems operating upon them through the media to the creative participatory approach in which individualised readings, interpretations and productive activities are foregrounded. The focus of media education is refined from the audience gradually down to the individual. Moreover, the individual becomes understood not simply as a recipient or a victim of the media but an agent in challenging the ideological power of the media in the demystification model and finally in the creative participation model the recipient of media education is understood as an empowered, creative and reflective individual.

In its three phases media education articulates the transformation of the individual occurring from modernity into late modernity. Media education is both part of the transformational process of the individual but also a way in which this process can be understood. As a social practice media, education facilitates the process of individualisation.

In the next chapter, I turn to the history of information education while there is considerable overlap there are significant differences in the way information media education are understood.

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The History of Information Literacy

Abstract

This chapter looks to the history of information literacy. The chapter consists of two main sections. In section 1, it is contended that information literacy is considered an 'a-political,' universally beneficial field of study. In this, it is distinct from media education, which is often considered an overtly political and often problematic subject. It is argued that this distinction occurs due to the technological origin of information literacy as opposed to media education, which originates in the arts and humanities. In the second section, the chapter looks at the history of information literacy. It is noted that there are other similar subjects, which cover similar topics to information literacy. What distinguishes information literacy is its focus upon information aside of the platform or device on which information is delivered. The chapter examines a number of definitions of information literacy and notes the inclusion of the term 'create' in later definitions.

Keywords

CONTENTS

3.1 Introduction

Computers (and the associated communications technology) have advanced at an incredible rate since the emergence of electromechanical and electronic computers in the 1930s–1940s. Gordon E. Moore's (1975) prediction [revised from a paper he had written 10 years previously (1965)] that the number of transistors on an integrated circuit (which governs the performance of the circuit) would double every 2 years continues to prove true and is thought that it will do so at least until 2020. The corresponding reduction in the cost of computing power has resulted in the rapid penetration and saturation world wide of digital communications devices noted in chapter one.

This chapter will consider some of the developments in education that respond to the advances in computing, associated communications technology and the access to information that such systems have facilitated. In the previous chapter, we considered the history of the idea of media education and media literacy and how media education has changed and developed significantly. We saw how media history is often understood to have occurred in three broad phases each witnessing the emergence of differing perspectives on the topic; a protectionist/inoculation approach in which certain media forms and texts were seen as problematic and (certain members) of the audience or population needed protecting from them; a demystification approach in which the role of education was to equip audience members with the means to decode the ideological messages in the media and a participatory phase in which the audience would learn how the media function and in doing so would become aware of the constructed nature of the media but also become skilled in its creation. Alongside this narrative, the chapter also sought to make two points; first that the history of media education can be understood sociologically though

its changing emphasis being be regarded as an exemplar of the shift from middle to high modernity through the adjustment of focus upon the self and individualisation and reflexivity; second that much of the history of media education has an inherently political aspect to it – that media education is driven largely an often overtly by an assertion of 'how things should be' – there is a political 'vision' or reason behind many media education initiative.

This chapter is concerned with further forms of education practice – that of information and digital literacy. While information literacy is a distinct practice it is often linked and integrated with other forms of literacies and digital literacy in particular (Bawden, 2001). Indeed, in addition to digital literacy academic studies of information literacy often consider it in concert with other literacy practices such as computer literacy, technological literacy and ICT literacy (Bawden, 2001; Belshaw, 2011; Martin, 2008) all of which sought to respond to the developments in computing technology. The intention here is to focus upon information literacy but to recognise that parallel to its development other forms of literacy also emerged and that at times there has been overlap between the various forms and that their histories cannot be considered separately.

This chapter will consist of two main sections: first, it will consider the underlying, but perhaps unspoken ethos of information literacy. Where the consideration of media literacy in the preceding chapter noted the inherent political slant of each of the three perspectives, information literacy differs substantially and the political intentions often remain unvoiced at best and perhaps even largely unrecognised and presented as absent. Second, the chapter will consider certain 'moments' in the history of information literacy and its evolution to its current form and this will necessitate relating information literacy to other developing literacies.

3.2 The Politics of Information Literacy

Information literacy is often presented as an unquestionable good. It is linked to enhancing the opportunities of students in contemporary times, of improving earning potential and preparing them for a working life full of change. There are many peer-reviewed journal articles that detail specific benefits of information literacy courses, interventions and practices for students ranging from elementary school age children (Batool & Webber, 2014; McTavish, 2009), university students (Johnston & Webber, 2003; Larkin & Pines, 2005), medical students (Kingsley & Kingsley, 2009) and those using public libraries (Harding, 2008). Such articles define specific practices and benefits to successful candidates on the programmes and often identify how the new skills and practices will aid the participants in their future. For example, Pinto, Cordón and Díaz (2010) contend: "any graduate who wants to compete in the new knowledge economy will need to learn how to find, analyse, represent evaluate and use information." There is also a substantial literature that identifies the benefits in broader terms. Here attention tends to focus upon the necessity of information literacy in information-saturated advanced capitalist economies (Bruce, 2004; Eisenberg, Lowe, & Spitzer, 2004; Horton, 2007). Information literacy is regarded as a tool via which societies can develop and advance- Bruce (2004) contends information literacy "is the catalyst required to transform the information society of today into the learning society of tomorrow."

Thus, information literacy is of value to both the individual – affording the possibility of personal success – and also at a wider, societal level allowing development and advancement. With very few exceptions (such as that from a green environmentalist agenda and deep-ecological perspective), societal advancement is regarded by many as an unchallenged good and accordingly any initiative that contributes to this is determined as a positive thing. In many ways because of the construction of information literacy in this way it has escaped the critical attention that media literacy has been subjected to.

As noted in the preceding chapter media education is often perceived as manifestly political – it evolved out of political concerns and its three different interpretations each articulate differing

political perspectives. In contrast, information and digital education are articulated in for the most part (though with a few exceptions) a singular, default and almost a-political line; they are regarded as an unquestionable good needed to assist in the advancement of capitalist society (Kapitzke, 2003). Indeed as Tuominen, Savolainen and Talja (2005) and Kapitzke (2003) argue information literacy is a sociotechnical practice that has largely escaped critical examination. The perspectives in media education owe significant amounts to the understanding of culture, of political power and on the position of teachers as political actors. Information literacy has historically been delivered by different members of the educational community and underpinned by a different rationale. In terms of delivery, information education has historically been located within, and popular with, library and Information Technology sections of educational institutions (Kapitzke, 2003; Martin, 2008). Such departments have not traditionally been regarded as politically charged (at least in terms of what they teach) beyond a contribution to a broader social good (Kapitzke, 2003; Whitworth, 2014). This is not to say that the educationalists involved are not politically active or that the work they perform is not politically important (indeed Whitworth (2014) argues that information literacy needs to 'reclaim' its radical origin). Rather the understanding or popular perception of the work is that it is not political in the same way that media education is.

This relates to and draws upon the popular rationale for information education, which is strongly tied to a technological if not scientific perspective – information education is linked to the sciences rather than the humanities in its originating discourse. It has strong links to technology and science and draws upon a broad cloak of technological respectability – Escobar et al. (1994) noted that science and technology have long escaped the critical interrogation that (other) fields of cultural production have been subjected to. Similarly, as we saw in chapter two, the practices of media education (along with many other forms of arts, humanities and social scientific education) have been critiqued and required to justify their existence in terms of direct instrumental value and financial investment. With a few exceptions, information literacy has not been

subjected to such forms of scrutiny though it is subject to continual refinement and 'steers' from interested parties.

3.3 Information Literacy – Fellow Travellers

While literacy has been a part of liberal education practices for over 150 years in many countries, from the middle of the 20th century a feeling of general dissatisfaction with the understanding of literacy as a concept began to appear in scholarly debate. This can be understood to have been occurred in three main 'dimensions'. First, the assertion that 'literacy' should refer primarily to textual understanding seemingly missed out the many forms of communication that were coming under increasing scrutiny from a wide range of academic disciplines. Edgar Dale (1946) proposed a new literacy to cover three 'modes'; print, audio and visual. Such a focus upon media that related directly to senses provided a prelude to the fuller exposition of the relationship of sense-to-media in McLuhan's (1964) work which itself resulted in the significant developments in the understanding of literacy. Belshaw (2011) notes that by the late 1960s numerous new forms of literacy began to emerge. For example, John Debes (1968) proposed the concept of 'visual literacy' – determining it as a set of competencies which when developed would enable a visually literate person to "discriminate and interpret those visible actions, objects, symbols, natural or man-made, that he encounters in his environment." Second, there was recognition that the increasing presence and mainstreaming of various forms of electronic communication systems and computers from the 1970s would result in a changed experience of the media for the viewer /user. The new technologies brought with them new forms of interaction and the different forms of signs that were communicated – interactive media incorporated numerous images, sounds and the different types of text. Rogers refers to this shift from a 'massified mass media' to a more individualised pattern of consumption of information through various new technologies (1986). Mirroring the concerns of the

protectionist approach to media literacy certain sectors of the general population and children and young people in particular are felt to be more at risk from exposure to such new forms of media and the communication they facilitate. The concern lies with the new affordances of interaction and engagement that such new technologies confer. While the above point related to the recognition that we engage with the world through different senses, here the concern is that the different modes of interaction with the user require new forms of competency. Accordingly there was a call for multimodal literacy (Jewitt & Kress, 2003; Kress & van Leeuwen, 2001); literacies that would facilitate skilled use of new forms of media that themselves offered engagement through different modes: visual, audio, haptic (movement based interaction such as that found in certain game consoles), virtual reality and most recently augmented reality and the numerous semiotic systems used in meaning. Additionally, the networked aspect of interactive media was considered to offer new forms of exposure to problematic and possibly salacious and illegal content. In addition to empowering the individual to safely live in such an environment, there is also a strong concern that such literacy is a vital component of active and participatory citizenship. Third, policy makers in a number of Western European, Australian and North American countries responded (and contributed to) a discourse of "falling behind" emergent nations in terms of technological competency (Belshaw, 2011; Martin, 2008). There was a fear that emergent nations would equal and then surpass historically more developed nations and that the development of skills related to computer technology was a way to prevent this.

While technology has continually improved, the speed of development, the breadth of impact, and the rapid adoption of computer technology does set it apart from other technological innovations. Moreover, this change is widely felt – an indication of the reflexivity of late modern society is that we are aware of the changes taking place and the impact of new technologies upon working practices and social life is a recognisable current in much modern thought. The resultant call for a 'technological literacy' was the integration of skills or training based approach with a more

academic and strategic understanding. The 1994 project *Technology for All Americans* published by the International Technology and Engineering Educators Association defined the technologically literate citizen as one who has an "ability to use, manage, evaluate, and understand technology" and "to be a technologically literate citizen, a person should understand what technology is, how it works, how it shapes society and in turn how society shapes it" (ITEA, 1994). Strongly present within the concept of technological literacy is a discourse of 'skills deficit' and of 'lack' in a workforce when compared the workforces of competitor countries.

Aligned closely with technological literacy a further skills based literacy, computer and/or IT literacy also gained strength during the 1980s and 1990s. Many such programs were aligned with the pragmatic skills based approach (Bawden, 2001). Such literacy programs sought (and still seek) to equip a specific group of people with a particular set of basic skills that will enable them to use computers.

Other literacies which emerged during the late 1980s, 1990s and 2000s included network literacy (McClure, 1994; Tyner, 1998), Internet literacy (Livingstone, 2008), computer literacy (Bawden, 2001; Childers, 2003; Hoffman & Blake, 2003), social media literacy (Livingstone, 2014) and the overarching digital literacy (Belshaw, 2011; Gilster, 1997). These approaches all offered subtle nuances and differences and more often than not sought to rectify some perceived failure with alternate forms of literacy.

Such approaches ran parallel to the emergence of information literacy. What links information literacy to these approaches is they all sought to engage with the impact of digital technology; that being, computers, networked computers, particular forms of media available via a networked computer and the facilitating telecommunications infrastructure. Information literacy differs from other approaches; however, in that it sought to relate the impact of such technologies to a specific form of activity – the ability to engage with and utilise information. As such information literacy continues the bibliographic instruction courses occurring in libraries from the late 19th and early 20th centuries (Gibson, 2008; Grassian & Kaplowitz, 2001) and as part of university education in the early 20th

century (Rockman, 2004). Information literacy is not about the skilled use of technology or even about adopting a range of attitudes (though these are certainly elements) rather information literacy was conceptualised from its start as a tool to deliver and skilfully use information resources. As will be argued in later chapters this skilled use of information is now more important than being able to simply use technology.

3.4 Key Moments in the History of Information Literacy

There have been numerous, extensive and detailed accounts of the history and development of information literacy. These texts have covered the international scope of information literacy activities (Bruce, Candy, & Klaus, 2000; Rader, 2002) and in specific locations such as the USA (Gibson, 2008), Europe (Virkus, 2003), Australia (Hughes, Middleton, Edwards, Bruce, & McAllister, 2005) and the United Kingdom (Andretta, Pope, & Walton, 2008; Armstrong et al., 2005); different educational settings such as schools (Batool & Webber, 2014; McTavish, 2009) and universities (Johnston & Webber, 2003), communal settings such as public libraries (Harding, 2008) and locations outside of libraries (Weiner & Jackman, 2010). Such texts offer comprehensive and detailed accounts of the emergence and development of the field. The intention here will not be to repeat such accounts but to pick out high points in the development and transition of the field from its origin in the early 1970s to its incorporation in the Media and Information Literacy Curriculum proposed by UNESCO in 2011.

The term information literacy was first coined by Paul Zurkowski in a 1974 report to the US National Commission on Libraries and Information Science on the future priorities of the organisation. Zurkowski contended that:

> *People trained in the application of information resources to their work can be called information literates. They have learned techniques and skills for utilising the wide range of information tools as well as*

primary sources in moudling information solutions to their problems… While the population of the U.S. today is nearly 100% literate, only a small portion -perhaps one-sixth, could be characterised as information literates… The work of the Commission should be viewed in terms of achieving total information literacy for the nation (1974).

However, as Whitworth (2014) notes while Zurkowski introduces the idea of information literacy he does not develop the concept to any significant degree. Instead, as Whitworth (2014) contends, Zurkowski's work is a pro-liberal, managerial position identifying and advocating a suitable environment for economic and political liberalism. Following Zurkowski's work, Burchinal (1976) is considered to have advanced the field further by shifting attention to the educational aspects of information literacy and identifying specific skills (Eisenberg et al., 2004; Pinto, Cordón & Gómez Díaz, 2010; Whitworth, 2014). The specific skills Burchinal identifies are the ability to: "efficiently and effectively locate and use information needed for problem-solving and decision-making" (1976). Whitworth (2014) notes that while concurring with the overall liberalism of Zurkowski, Burchinal shifts the focus to instruction – or more precisely education – and Burchinal identifies schools as the most opportune location for information literacy education.

External to the US, Hamelink (1976) a Dutch communication scholar offered a substantial critical development to the field. Hamelink, drawing upon the liberational and critical educational theories of Paolo Freire (Freire, 1985, 1993; Shor & Freire, 1987) conceptualised information literacy as something that the population of a society needs to develop so as to deal with the "cognitive costs" of being part of that society (Whitworth, 2014). As such Hamelink (1976) inserted into information literacy an anti-systemic potential – a critical affordance that went beyond the benefits to wider society that a skills enhanced workforce was thought to facilitate. Unfortunately, with a few notable exceptions this critical potential within information literacy was not widely expanded upon in the following years.

One of the next major developments was the publication in the United States of the *Presidential Committee on Information Literacy: Final Report* by the American Library Association (A.L.A.) (Association, 1989). This text was itself a consequence of a series of reports which established a model of lack in US schooling with regards to the development of a particular set of skills (Plotnick, 1999). The 1983 text *A Nation at Risk* (Gardner, Larsen, Baker, & Campbell) established a basic agenda that aspects of American schooling were failing (though the validity of the report was later challenged (Stedman, 1994)). In consequence of this report, numerous other texts were produced outlining various ways in which schooling could be enhanced. One particular line of enquiry was to consider the ways school libraries could enhance the skills of students in dealing with information resources (Plotnick, 1999). The A.L.A.s *Final Report* (Association, 1989) identified that libraries and librarians could and did serve as vital intermediaries for the development of information literacy in students and the general population. The Report identifies a five step process (knowing when we need information, identifying what information is needed to address a problem, finding the information and evaluating it, organising the information using the information to address the problem) in the consideration of information and sought to instil such a process in educational practices and goes on to describe an ideal 'Information Age School.' Such arguments were not particularly innovatory – as noted previously information literacy determined as the ability to find information was an extension of the bibliographic and search skills school and university librarians had been teaching for decades. Moreover, such approaches were becoming codified and understood as specific systems – for example, Eisenberg's Big6 system (Eisenberg & Berkowitz, 1990) offered a codified approach to information identification and retrieval. However, the Final Report's high-level origin within the professional librarian community resulted in it having significant impact and it led to the establishment of the National Forum on Information Literacy (NFIL) later in 1989, which advocated the mainstreaming of information literacy. Doyle (1992), conducting research for the NFIL refined information literacy to mean "the ability to access, evaluate

and use information from a variety of sources" and identified ten discrete attributes of an information literate person.

Webber and Johnston (2000) note how this understanding of information literacy is heavily influenced by information science. They identify the difference between information literacy and information science, especially in the US flavour, is the ability of an information literate to manifest such qualities. Indeed Doyle's (1992) model – and indeed most other models of information literacy – draw heavily upon the 'outcomes' approach; a way of defining a form of instruction not by what the course is about but by what qualities or attributes a person who passes the course will have demonstrated[1]. There were also significant developments external to the United States in the following years. Bruce from Griffith's University in Australia produced the 'Information Literacy Blueprint' (1994), which identified seven attributes of the information literate. It is interesting to note that these seven characteristics are not specific tasks that the information literate will be able to perform, rather the description is of the person and their particular approaches to dealing with information. A further work by Bruce (1997) offered a significant development to the field through approaching the topic not from a behaviourist perspective as had been done previously but by utilising more phenomenological methods, which focused upon how the user experienced information. Lloyd (2010) contends that Bruce's work instigated a shift in the way in which information literacy was understood and taught while Gibson (2008) asserts that there was a more general shift in information literacy activities accompanying the move away from behaviourism and towards more cognitive approaches in education; a change apparent in many academic fields during the 1980s and 1990s.

In the United Kingdom, the Society of College, National and University Libraries (SCONUL) produced "Information skills in higher education: a SCONUL position paper" (SCONUL, 1999) [revised in 2011 (Bent & Stubbings, 2011)], a text which determined information literacy as a desired goal achieved through developing the seven core skills or 'pillars.' A key refinement of the seven pillars was the inclusion of the ability to 'create.' In the SCONUL model

(which is aimed at higher education), an information literate person will be able to "contribute to the synthesis of existing information, to further develop ideas building on that synthesis, and, ultimately, create new knowledge" (SCONUL, 1999). This represents an important development in information literacy. It indicates growing recognition of the productive as well as the consumptive potential of an individual using digital media and that such an aspect must be factored into competent use. That is, given the nature of digital media, there was an imperative that creative and productive aspects be considered in skilled information usage.

In the following years, the scope of information literacy was subject to a further revision. This was driven by recognition of the growth in the number of those needing information literacy skills. The steep increase in the number of people with computers and able to access the internet meant that information literacy was a skill that would be necessary to all members of a society and not just those in the university and academic sector. This reiteration of a lifelong learning agenda articulated the desire to extend information literacy beyond the institutional remit of the library and particularly libraries within educational establishments. Thus while libraries were still vital for the delivery of information literacy courses to their extant clients, there were many people who were not being reached. The rapid expansion of communications technology was resulting in computing, searching and information retrieval technologies being available to many outside of the library sector yet there was insufficient provision of information literacy training. Thus, while there was an ever increasing penetration of digital technology and the information and media content it made available, education around such systems lagged behind. One consequence of this was the emergence of various other forms of training and literacy – for example internet literacy (Hofstetter, 2003; Livingstone, 2008; Livingstone, Bober, & Helsper, 2005) achieved some currency. In a number of countries, skills and training courses were established outside of academia to facilitate internet literacy training. This understanding was also made manifest in a number of initiatives by pan-national organisations such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and international

engagement by national organisations such as the US National Commission on Library and Information Science and the NFIL resulting in the 2003 meeting of experts in Prague. Here information literacy was defined as:

> *knowledge of one's information concerns and needs, and the ability to identify, locate, evaluate, organise and effectively create, use and communicate information to address issues or problems at hand; it is a prerequisite for participating effectively in the Information Society, and is part of the basic human right of lifelong learning.*

<div align="right">

UNSECO, 2003.

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In such a description, the rationale for information literacy incorporates empowering people to be full members of the information society and is even regarded as a basic human right. The two-phase United Nations World Summit on the Information Society in Geneva in 2003 and Tunis in 2005 along with the preparatory and follow up conferences led to a further statement, which advanced and refined the description of information literacy. The Alexander Proclamation of the High-Level Colloquium on Information Literacy and Lifelong Learning in 2005 determined that:

> *Information Literacy lies at the core of lifelong learning. It empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations.*

<div align="right">

Garner, 2006.

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Such a definition simplifies the task of information literacy is to four key aspects: to seek, evaluate, use and create information for the users' needs. As such it concatenates the multi-stage complexity of the activity in previous definitions. In particularly some of the initial stages such as recognising a need for information are now sublimated into seeking for information. Moreover, the reduction in number of steps also raises the comparative importance of the aspect

of creation. The text further grounds information literacy within a wider framework of social equality and asserts the importance of such skills in a 'digital world.' Information literacy is considered as an activity that 'empowers' people – it affords people the opportunity to avail themselves of information they could not get if they lacked a grounding in information literacy education. These definitions with the incorporation of the ideas of equality, rights and justice further enforce information literacy's determination as an unequivocal good. However, there is a slight refocusing in these descriptions. While information literacy is still a positive factor, the benefits to the individual's personal good are highlighted rather than the primary national level, economic benefit identified by Whitworth (2014) in Zurkowski's (1974) initial determination. Information literacy is now cast on the side of progressive politics as a benefit to the individual. While economic activity is still a valuable result, the foregrounded benefit is primarily one of equality and social justice. However, information literacy still lacks the larger, anti-conservative or progressive critical stance that informs media literacy (Kellner, 2000; Kellner & Share, 2005; Sholle & Denski, 1994; Silverblatt & Eliceiri, 1997). Within media education, criticality is developed through the application of comparative analysis and evaluation, which draws upon critical theories within the arts and humanities. Information literacy does place a specific emphasis upon evaluation; however, the nature of the evaluation is variated by the level of study. At a higher-level, evaluation incorporates a degree of criticality and indeed resembles some of the analytic aspects of media education. However, at the lower levels the evaluation tends to be more concerned with the validity of the information for the purpose at hand rather than considering it in terms of meta-critical perspectives and ideological analysis. It is concerned with considering the degree of internal validity, whether the information identified serves the purpose of the quest for information. Aspects of criticality are reserved for higher-level training.

During the mid-to-late 2000s and early 2010s, this alignment with media literacy and education was also occurring in terms of the content, practices and foci as well; a number of authors noted that the conceptual convergence of media and information literacy (MIL)

was gaining momentum (Livingstone, Van Couvering, & Thumin, 2008). Livingstone (2008) sees this as a positive development and argues "a convergence of media (or audiovisual) and information literacies is needed to map out a constructive route to understanding what… people know, and need to know, regarding that deceptively simple notion of 'using the internet.'" An example of this convergence is the text unveiled by UNESCO in 2011, the "Media and Information Literacy Curriculum for Teachers" (Wilson, Grizzle, Tuazon, Akyempong, & Cheung, 2011). Translated into 10 languages the MIL curriculum provided an educational framework, which would facilitate the development of skills in both information and media literacy. It was intended to be used in teacher education programmes to prepare teachers to be able to incorporate MIL into the school curricula. The project is forthright in its link between MIL and democracy and its advocacy of certain democratic principles such as the peer-communication of information between citizens. Though admirable in terms of its scope, political direction and engagement both with research and teachers the project retains the structure of a media literacy programme with information literacy added almost seemingly as an afterthought. In terms of the crude number of topics covered, the curriculum is primarily slanted heavily towards the development of media literacy and information literacy is directly addressed in only one of nine compulsory and two optional modules, though the skills information literacy develops would be needed in the other modules, they are primarily covered in a single module. Though the curriculum is very thorough in its treatment of aspects of media, education it could not be considered a radical approach to the integration of MIL.

3.5 Conclusion

Information literacy has been redefined numerous times since its inception and though there have been several attempts to achieve common meaning as yet there is still no universally agreed definition. Additionally key aspects of the field such as the remit and scope of the field, the students both in terms of who they are, what they know and what they need and even the places and locations in

which information literacy training is offered and who delivers it have also been reconsidered. Alongside these advances, the field has also shifted in the nature of its political impact from one in which it was conceptualised as a benefit to society as a whole to one in which the individual student is now the prime benefactor.

Such changes have been driven by two phenomena. First the proliferation of computer technology and its penetration into aspects of daily life; where once information literacy and the high-level bibliographic skills taught to students in universities were only needed by a relatively select few – those who had to deal with skilled handling of information on a daily basis, computer technology is now far more pervasive. As will be explored in the following chapter in the past thirty years our experience of computing technology has changed dramatically. Whereas in the years when information literacy was first proposed, we may have had little or no direct contact with computers, we then found ourselves positioning ourselves next to computers, be it in the office or later the home. Now we regularly carry more computational power on our person than was used to land astronauts on the moon. Such computational power affords access to information in a manner that has never occurred previously. Moreover, as will be explored in chapter four the manner in which technology is delivered to us means that being critically cognoscente of how information is produced, used and circulated is important. Second, there was a shift towards a lifelong learning and inclusivity agenda in many forms of education; education is increasingly being seen not solely as an activity for the young that is completed upon their finishing school or university. Instead, there is a recognition that education can be a benefit (both to society as well as the individual) and is indeed a necessity throughout a person's life. Furthermore, such an approach to education extends opportunity and life chances to previously disadvantaged groups. This approach has particular impact when coupled with activities such as information literacy education, which is itself an education enabling skillset; as well as being a valuable skill in its own right information literacy facilitates the acquisition of other skills and educational subjects.

In its present form information literacy certainly affords students the ability to enhance their information handling skills and yet it I argue that it could go further. In later chapters I will propose that information literacy should, and needs to, transform itself to a more critical perspective – the evaluatory component of information literacy needs to substantially advanced so as to develop a more critical stance to information and the manner in which information is presented to us through the multiple forms of media and computational devices. As well as being deepened, I will also argue that information literacy needs to be broadened – media education needs to incorporate aspects of information literacy far more than it currently does. Use of the media in contemporary times incorporate far more of the skills of the information literate than at any time previously. Placing information literacy skills into a separate and distinct part of the curriculum or regarding them as an aspect of study skills and somehow of less significance than other more traditional aspects of learning seems a missed opportunity.

In the following chapter, we will turn to considering how computing technology has become more prolific – how computing devices are now far more pervasive and integrated into our lives. As such the information handling affordances of computing technology have become increasingly familiar to us. In such situations, the need for the skilled handing of information as made possible by information literacy education is of greater importance than ever.

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[1]Such forms of instruction are thought to be more student centred than those models that define themselves by the content of the course. This approach to education has its origins in the behavioural objectives movement in the US in the late 1960s and early 1970s, an issue also identified by Lloyd (2010).

PART II
The Contemporary Experience

OUTLINE

The Increasing Closeness of Computers–A History of the Delivery of Computing Power

Abstract

This chapter considers the history of the way in which computing power and technology is made available to users. This history is articulated through an assertion that computing power is increasingly delivered through computing platforms that bring the technology 'closer' to the user. As such technology is delivered in a way in which the distance between the user and the computer are explicitly challenged and removed. The chapter first discusses the idea of the increasing closeness of computing power. The history of computing power delivery is then considered through examining: mainframe computers; micro and personal computers; the IBM PC, the IBM compatibles and Apple; luggable computers, portable computers and the laptop; pocket computers, phones and the tablet; wearable computing and augmented reality devices.

Keywords

Computer platforms; history of computer platforms; mainframes; tablets; augmented reality; intimacy of technology

CONTENTS

4.1 Introduction

Though electronic computers have only existed since the 1940s, their history has proven to be a rich seam for academic inquiry and there have been numerous studies published. These texts have looked at the topic from a number of different perspectives and include work on: the general history of computing (Ceruzzi, 2003; Aspray, Campbell-Kelly, Ensmenger, & Yost, 2013), the history of early computers (Rojas & Hashagen, 2002), interface design (Myers, 1998; Rader, 2002), multi-media technology (Wise & Steemers, 2000), technical (Abbate, 2000; Campbell-Kelly & Garcia-Swartz, 2013) and social (Turner, 2006) histories of the Internet and other numerous others. There are also histories of particular industry sectors (Aslan & Reigeluth, 2011), corporations (Pugh, 1995) and software 'genres' (Power, 2004). In addition to histories of computing, there have also been studies of how computing has spread, how it has become adopted and diffused. In such studies, different models of technology diffusion are examined and applied to computer technology (Borghans & Weel, 2008), its use in different sectors (Straub, 2009) and the history of computing movements (Elliot & Kraemer, 2008).

4.2 The Closeness of Computing Technology

In this chapter, attention will focus upon a theme that cuts across these histories and accounts. It will be argued that within the history, diffusion and adoption of computer platforms – the systems in which computer technology is delivered to us for our usage – it is possible to discern a trajectory in how computing technology is made available to us. While many previous authors have argued that computing technology reformats media consumption from one of massification to individualisation (Rogers, 1986), here I argue that it a further transformation occurs as computing technology becomes ubiquitous. I contend that the manner in which we experience computer technology has changed with the form of platform in which computers are used and their power delivered to us. In the shift in our experience of computers from mainframes computers through desktops laptops, laptops, mobile and tablet computers through to augmented reality and wearable technologies, there is a change in the level of intimacy or 'closeness' of computer power to us. Computers have moved from being technologies that few experienced (though their effects were felt), through being present in the business world (Rogers notes in 1986 that the majority of workers use computers in their daily work though Borghans and Weel (2008) indicate that such a point was not reached until the mid 1990s), then entering the everyday life-word[1] to what we may consider to be our personal, individual world. Computers have become 'closer' to us and now intersect with our deepest and most personal forms of interaction with others and the world. Indeed, the only place where computing technology has yet to penetrate is the personal thoughts of individuals (though there are early indications that basic forms of perception occurring in the human brain can be understood by computers when 'wired' to the brain (Miller, Schalk, Hermes, Ojemann, & Rao, 2016)). We may argue then that there is a trajectory in the history and diffusion of computing in which computers are increasingly more intimate or close to us. This closeness refers to how computing technology is closer to us both

physically – the shift of technology to our bodies and clothing and personal space – and socially – technology is integrated into and central to our manner of interaction with the social world. We can understand this trajectory partly in terms of how computer technology and the Internet is facilitating and contributing to what sociologists refer to as the individualisation of contemporary society. According to Beck (2002), Giddens (1991) and Bauman (2008, 2012) individualisation is a core aspect of late-modern societies. Such accounts differentiate between modern societies is which were typified by the 'massification' and homogenisation of social practices and late-modern societies in which there was a shift towards the individual and individualised experience of social life. The gradual shift in the access to computing power follows this trajectory with individualised access and personalised interface experience being a desired goal.[2] Such a trend is important and of interest to the issue of media and information literacy for as our experience of computers as devices delivering media and information to us change, so educational practices should be adjusted. The nature of the change argued here is significant for media and information educational practices in three ways: first as computer power is delivered to us in an increasingly close manner and becomes more integrated into our lives they arguably become less of an object of conspicuous, conscious use and more of one of automaticity – a technology we increasingly give less attention to but one we rely upon to deliver to us the power of computing. The use of computing technologies becomes less-and-less noticeable and our 'awareness' of their mediating practices is reduced. As computers come 'closer' to us, they become more transparent to our critical acumen. We can best understand this though a model of the mind and consciousness proposed by Giddens (though the model Giddens offers is supported by much contemporary neuroscience). Giddens contends we may distinguish a difference between what he terms 'discursive consciousness' – that aspect of mind and action which we are able to verbalise and recall a conscious decision making process and 'practical consciousness' that aspect of our mind and action to which we do not have conscious recollection (Giddens, 2007). Practical consciousness is that aspect of our behaviour or action which has

become so mundane that we need not attend to it continually with our concentration. It affords us psychological 'space' so that actions we need to perform with regularity do not become overwhelming; we can focus upon more difficult and tricky aspects of our world. With repetition, actions that would initially require discursive and continuous attention can become regularised and performed by our practical consciousness. Thus, for example, when we first learn to perform a skill such as driving each and every action is performed at the level of discursive consciousness; we purposely perform each action, often incorrectly at first. As we become more familiar with driving the attention we must place on the actions diminishes until the actions become automatic; we change direction, shift gear and perform manoeuvres seemingly as 'second nature'. Should we make an error the action instantly flits back to our discursive level of thought and we attend to it but for the most part, once we have mastered an activity we can focus our attention on other aspects of driving such as other road users and the road conditions. Similarly, with computing, the closer to us computers become, the more integrated into our daily and moment-to-moment actions, the more the actions we can perform with them become aspects of our practical consciousness rather than aspects we need to consciously perform. This relates not only to the nature of our familiarity with an interface, the use of an interface with a computer becomes a consideration of our practical consciousness as we use it more, but also to the way in which the computer becomes integrated into the action we sought to do with the computer. Thus, searching for information becomes psychologically synonymous with using a search engine, most often Google (at the time of writing). For most of the history of computing, this has involved positioning ourselves next to a computer and making use of that computer. However, as will be explored below computers are on a trajectory in which they are becoming closer and closer to us. As computers become more integrated into our personal space the conscious effort required to use the computer becomes less-and-less. The location of computers, their ubiquity, pervasiveness and closeness to us means that their use shifts to one of practical consciousness rather than discursive consciousness. Indeed, Schmalstieg and Hollerer (2016) contend that

augmented reality take the form of 'calm computing' operating behind the scenes with the user not noticing the computer at all. Second, we are similarly 'blinded' to aspects of the use of technology that fall outside of our direct focus of attention. Psychologists refer to this as 'inattentional blindness' (Bressan & Pizzighello, 2008). When we are concentrating upon a specific action, we may miss what we would otherwise notice if we were not so focussed. Thus, when we focus all our attention upon a specific action we may miss other occurrences. As the complexity of the use of computer power is reduced through more intuitive interfaces and the increased proximity, our attention is moved away from the use of the computer itself and towards the task which we seek to use the computer for. That is to say, the easier it is to use a computer the less mental effort we have to put into using the computer and the more we can put into the very action we sought to perform in the first place such as communicating with our friends. Third, as computers become increasingly linked into our personal lives, we use them to produce, consume and distribute media content more and more; the device increasingly becomes our means of consuming and engaging with music, television films, and other media texts which in previous times would have been separate devices or media channels. As will be discussed in Chapter Five, The Nature of Digital Media Content, media texts are transmedia and with brands arching across media platforms and formerly different media 'modes' or channels converge. The closeness and immediacy of such texts through pervasive computing devices further subordinates our recognition of the degree of mediation of the interaction.

This is significant for, as Cranny-Francis (2013) argues, 'technologies of touch,' such as touch-screen tablets and wearable technologies-both facilitate greater forms of interaction but also incorporate us into networks and systems and potentially forms of governance and control over which we have little or no control. However, where Cranny-Francis (2013) sees touch technologies as negatively impactful primarily in terms of our instantiation with networked data systems and particularly those contributory to political projects we may not concur with, it is asserted here that such pervasive technologies also directly impact our interaction with

the 'local' world of our interactions with the world and others. That is, the impact of such technologies is not just one of affording our presence in database systems but that the transition in computer interface design to one in which computers are deeply integrated in our personal interactions with the world and others means our experience of the world and engagement with it are extensively technologically mediated and that such mediation often escapes our conscious deliberation and critical engagement (Rader, 2002). Having our interactions with the world mediated and that such mediation operates at a level which we do not consciously attend to due to the sheer integratedness of such action are of relevance to those concerned with the requirement to critically engage with media and technology. As computers become easier to use, we are less psychologically attentive to the manner and ways in which they impact, interpret and mediate our actions.

Accordingly, this chapter will briefly explore the history of computer platforms. A number of authors have proposed that computing has occurred in four overlapping but distinct phases; the mainframe era, the personal computing era, the Internet era and the current age of ubiquitous computing (Elliot & Kraemer, 2008). While this model is partially useful, it also neglects the continuation of previous models – i.e., the preceding systems do not disappear with the advent of a new system. In some instances, new forms of computing do partially dislodge old ones but for the most part the new models extend computing's power into our lives. Mainframes are still extant and impact upon our lives and personal computers are still very evident in the workplace. Instead, the model adopted here is to consider the changes in the way in which we encounter computing power. It commences with the use of mainframe computers in corporations, moving on to considering the advent of desktop computing and computing in the home, the advent of mobile computing initially with laptop computers then the advent of tablet computers and their overlap with smart phone mobile telephone technologies. Most recently, there has been the emergence of wearable, augmented reality computing including the use of watches, glasses and other devices. The intention of this approach to computer history is to recognise the dramatic change in the way in

which computers impact upon our engagement with the world and to note that computers and technology increasingly mediate our personal presence in the world. It is important to note also that alongside the changes in nature of platforms, the number of computers and penetration rates of the differing platforms supersede any previous technology. At maturation, each new generation of platform has penetrated further and had more users that preceding the platforms.

4.3 Mainframes

Mainframe computers are powerful computers that can handle vast quantities of data and offer highly stable transaction processing (a transaction is a discrete computer operation that must be completed in its entirety and cannot be sub divided into separate tasks). They find their greatest usage in corporate and governmental systems to facilitate the processing of large data flows. Originating in the late 1950s, 1960s and 1970s, they represent the first widespread use of computers for commercial purposes marking the shift in the function of a computer as a scientific tool for mathematical calculation to an instrument for business data processing (Aspray et al., 2013). Typically access to the computing power of a mainframe is conducted through a 'dumb-terminal' – an interface system in which no computing is done locally or an emulated dumb-terminal (a virtual dumb-terminal running on another computer) and offers character-based interaction (graphical interfaces with mainframes are possible though they operate on a different platform and only draw the data from the mainframe (Gardner, Larsen, Baker, & Campbell, 1983)). Use of a mainframe and access to the data-processing capabilities has historically been and is still a specialist occupation. This was and is primarily due to the complexity of means of interaction; initially this resulted from the general scarcity of computing skills needed though in more recent times it occurs due to the arcane nature of the manner of interaction contrasted with the graphical interfaces of contemporary computing. Mainframe computing delivers high-level data-processing power for specific business purposes. Such data handling has significant impact upon

our lived experience; as Cranny-Francis (2013) (Rogers, 1986) and Zwick and Denegri Knott (1994) note we are instantiated into database systems often beyond our control or self-interest. Our personal data is held in database systems and decisions are made about us. At times, these decisions can have a very significant impact upon us – credit ratings determine loan decisions and interest rate offers. However, in contemporary times unless we directly work with large data sets our direct personal experience of engagement or interface with mainframes is minimal. Mainframes exist in the background of our lives; they play a huge part in our day-to-day lives yet are very distant from our regular use of computer technology. Indeed, in many instances we may be completely unaware that the information we record on other computer systems such as social media accounts is retained and acted upon within mainframe systems. Our life chances are enhanced or reduced by records kept and calculations made on mainframes yet our direct interaction with them is minimal in anything but enduring the consequences of their use.

4.4 Micro and Personal Computers

From the late 1970s and early 1980s, an alternate form of computing began to emerge. This new approach utilised much smaller and far less powerful computers but located these computers with the user. These micro-computers drew upon advances in power and significant reductions in costs of microprocessors. While the contemporary market in personal computers is broadly split between the PC architecture running Microsoft Windows and Apple Macs, the early market was a mix of three personal computers: the Commodore PET, the Apple II and the TRS-80 (TRS was Texas Instruments selling through Radio Shack). Such computers were regarded as the second generation of micro-computers; the first generation were primarily aimed at the hobbyist market, were often sold in kit form and utilised lights and switches for display and entering instructions (Webber & Johnston, 2000). This second generation of micro-computers – the first personal computers as they were used by an individual – were all launched in 1977 and while

initially were intended for the hobbyist market received a significant boost with the launch of various business programmes (such as VisiCalc in 1979 (Power, 2004)) which opened up a micro-computer business market. Typically, these micro-computers were sold as a completed unit (as opposed to a kit form computer of first generation micro-computers) and consisted of a base unit containing the microprocessor CPU (Central Processing Unit), memory, input and output ports, a monitor / display and a keyboard joined together in a variety of combinations. They offered computing power at a local, individual level with only a single operative using the computers at one time. The domestic market for computers emerged in the early 1980s with a variety of computers designed specifically for use the home. These products differed from the computers designed for business and the first generation hobbyist machines in that they were 'user-friendly, complete, everyday appliances … and were aimed at a general public largely unfamiliar with… computers' (Lean, 2012). Commodore, Apple and TRS all offered home computers; Commodore developed the Vic 20 in 1980 and the Commodore 64 in 1982, Apple developed the Apple II into a range of computers and launched the Apple Macintosh in 1984, TRS developed the TRS 80 in a number of iterations. In addition, a number of other companies entered the home computer market. In the United Kingdom, Sinclair Research launched the ZX80 in 1980, the ZX81 in 1981, the ZX Spectrum in 1982 and the Sinclair QL in 1984. The United Kingdom also saw a number of other computer manufactures enter the market: Acorn produced the BBC Micro (winning the tender to produce the computer that accompanied the BBC TV series *The Computer Programme*), Dragon Data produced the Dragon 32 in 1982 and the Dragon 64 in 1983, Acorn produced the Electron in 1983 (this was a less powerful version of the BBC Micro). In Norway, Tiki Data produced the Tiki computer (primarily for educational use) in 1984. Outside of Western Europe and North America, a number of systems were also in extensive use. Microsoft Japan launched a standard architecture for licensing development and production, the MSX, which was deployed in a number of countries including Japan where it was developed by nearly all the major technology brands (including but amongst others Canon,

Fujitsu, Hitachi, JVC, Mitsubishi, Sanyo, Sony, Toshiba and Yamaha (Bruce, 1994)). The platform was also developed by Lucky Goldstar in Korea, Spectravideo in Hong Kong (which also launched MSX'x only manifestation in the United States), Gradiente in Brazil and Philips in a number of European countries. The various trade restrictions put in place during the early 1980s to limit the transfer of technology and technological knowledge from the United States and Western European societies to those within the Soviet Bloc limited the impact and penetration of the various computers from the west in the Soviet Bloc (SCONUL, 1999). The technology embargo also had the effect of creating an alternate vision or trajectory of a Soviet Information Society (Doyle, 1992). As a consequence of the embargo alternative micro-computers were developed in the Soviet bloc but never achieved the same levels of market penetration as in the United States or the United Kingdom.

Regardless of the permutation of their implementation home computers tended to conform to a certain template; they consisted of a keyboard possibly combined with a base unit with information being displayed either via a dedicated screen or through a television screen. Programmes were loaded into the computer through a removable data storage devices, which were either specifically designed systems such as cartridges or audio recording tapes, played through a tape recorder and linked via audio cabling to the computer. As such, the computers tended to be located in either shared domestic spaces, or (if the household had multiple screens) in home offices and even childrens'/teenager's bedrooms (Association, 1989). Their engagement involved the user being knowledgeable of certain basic instructions to operate the computer so as to load the desired software and this required the user to spend dedicated time on their becoming skilled and aware of the intricacies of the computers' use. While such skills were significantly less than that required for preceding computers or mainframe use it did still present an obstacle. Indeed, it was this lack of understanding of their use that the BBC Micro and the associated television series sought to remedy.

4.5 The IBM PC, IBM Compatibles and Apple

In 1981 International Business Machines Corporation (IBM), the world's largest mainframe manufacture launched its entry into the personal computer market. The IBM Personal Computer (PC) was an attempt to enter what was recognised as a rapidly growing market sector. The IBM PC was designed for use in the home and office and was produced with two distinguishing features that would have significant impact on the future of personal and business computing: first that it was produced using a large number of off-the-shelf components purchased from other vendors but assembled and branded by IBM – indeed the only components that IBM produced were the keyboard and the housing of the base unit (Eisenberg & Berkowitz, 1990) and only the logo and BIOS (Basic Input Output System – the programme used by the microprocessor to start the computer when it is turned on) were under copyright protection (Lloyd, 2010). The use of off-the-shelf parts meant that there was an inherent expandability and the PC included expansion slots so that additional functionality could be added. Second, that it was packaged with an operating system, the Disk Operating System (DOS) produced by a Microsoft. Microsoft furnished the IBM PC with a range of software including the BASIC programming language, a number of applications as well as the operating system (Ceruzzi, 2003; Virkus, 2003; Aspray et al., 2013). The use of off-the-shelf parts and the limited scope of IBM's legal redress for copies, together with the use of the third party software resulted in numerous other companies being able to produce IBM PC compatible 'clones' – computers that drew upon the basic IBM infrastructure and used Ms DOS. IBM developed a range of PCs over the next few years commencing with the PC 5150 in 1981, the XT in 1983, the Portable and AT in 1984 and XT 286 in 1986; however, its establishment of a template for other computer manufacturers resulted in other technology companies and start-ups producing comparable computers at a lower cost. In a number of instances, the companies producing PC compatibles prove highly successful and

many contemporary computer manufactures emerged during this period. By the late 1980s the PC had became the dominant system out-selling other systems and by the early to mid-1990s the PC compatible computer was the most widespread dominating the office and home user markets. This was strongly helped by developments in Microsoft's operating systems and in particular by the graphical interface of the various incarnations of the Windows system.[3] Though IBM continued to innovate and produce PCs and was a major manufacturer throughout the 1990s and early 2000 it left the market in 2005, selling its PC division to Lenovo (Hughes, Middleton, Edwards, Bruce, & McAllister, 2005). Contemporaneous to the emergence of the PC loaded with Windows as the dominant computer for use in business and home use, Apple computers also secured a smaller but significant share of the business and home computer market. Following the Apple II, Apple developed the Apple Macintosh in 1984, which was directly marketed as a more creative option to the IBM PC (Apple also launched the LISA in 1983 and while this was the first computer with a purpose built graphical user interface it performed poorly against the Macintosh and was subsequently discontinued). Against the PC, the Macintosh did not do well in the business or home markets where its high cost prove prohibitive. However, its stronger graphical interface served it well in desktop publishing and it became strong if not dominant within the design, publishing and creative sectors, a market position it retains. Indeed the Macintosh was initially marketed as being different from the standard PC being launched with the now famous Ridley Scott '1984' advert in which the Macintosh is alluded to (through the metaphor of a women throwing a hammer at a large screen which is mesmerising a large group of grey clad workers) as a major market innovation. More recent Apple Mac adverts have also sought to play upon the counter cultural symbolism of the Mac and the brand has established a strong cult market position for itself (Belk & Tumbat, 2005). Apple developed the Macintosh with improved versions over the coming years including the Plus, the 512, the SE, the Power Macintosh (with numerous editions), the Imac (with 6 distinct forms from the original, then the G3 through to the current at time of writing Imac Core i7), Mac Pro, Mac mini and

others. In addition to the Macintosh Apple also developed tower systems and rack mounted servers. While the interface was different to that of the PC, the Macintosh and the tower systems operated in a broadly similar way to PCs in that they were stationary computers that required the user to be positioned next to them to make use of them.

4.6 Luggable Computers, Portable Computers and the Laptop

Interestingly, portable computers have been extant almost as long as desk bound personal computers and their emergence within the popular imagination at least runs current with the idea of the home computer. Alan Kay's (1972) description of his Dyna book set out a template for the idea of a portable computer but the idea of a computer that could be carried around was present in many forms of popular culture. Indeed, the idea of a portable, briefcase-style device drew upon many cultural ideas evident in Western culture during the 1960s–70s (Atkinson, 2005). The first attempts at portable computers were simply portable dumb terminals for mainframe systems (see above for a description of a dumb terminal). Texas Instruments' Portable Data Terminal allowed the user to connect its sonic coupler to a telephone handset and then dial into a mainframe computer. The device had no memory of its own and used a printer as opposed to a screen to display information. In 1977, Texas Instruments launched a version with some inbuilt memory allowing two pages of information to be drafted before being phoned through though the device still lacked a screen. A variant of micro-computers were also made 'portable' (or as they weighed so much were referred to as 'luggable') – the Osbourne 1, launched in 1981, was arguably the first portable device to go into production as it could be packed up and moved. It contained all the components of a micro-computer such as a screen, built in memory and a floppy drive. It was also bundled with significant software titles worth a similar amount to the actual cost of the computer ($1795) (Laing, 2004); however, it did not contain a battery and had to be plugged in to

work. Though it sold well it was soon superseded a combination of rivals with more power and better design and a marketing error[4] almost certainly contributed to Osbourne going bankrupt in 1983. The Compac Portable (launched in 1982) was the first PC-architecture portable and greatly helped to increase the impact of the PC and Ms DOS though as with the Osborne 1 it also did not contain a battery. Possibly the first portable computer with the now familiar clamshell design was the GRiD Compass produced by GRiD Systems Corporation in 1982 (Manley & Holley, 2012). However, its high price and specialist operating system resulted in it having very particular customers such as the US Government and NASA (Atkinson, 2005) (though it did make an appearance in the 1986 film *Aliens* where it is depicted controlling automated guns). Devices such as the Epson HX-20 (often considered to be the first laptop as it could actually be used while positioned on a person's lap) used a flat design in which a screen and a keyboard were both positioned on the top of the unit. Possibly the first computer marketed as a laptop (with a battery) was the Gavilan mobile computer (Comb, 1984), though the Sharp PC-5000 had similar specifications and was contemporaneous. These computers afforded new levels of flexibility to the user and while the user base was primarily business users they did impact upon how computers began to be seen and imagined (Atkinson, 2005) if not experienced by most people. Various PC clone laptops emerged during the 1980s though it was not until 1989 that Apple launched its first portable Macintosh. From this point Apple developed a range of portable laptop designs, which occupied a similar market position to their non-portable designs in the design and creative sectors. The laptop computer market then broadly followed the desktop market split being dominated by the PC architecture with Apple occupying a smaller niche position. Laptop computers afforded users computing power away from a fixed place and the ability to use the computer in a location of the user's choice. As such they constitute a significant step in the shift to ubiquitous computing and the insertion of computing into the non-work environment. With the advent of the portable laptop computer the insertion of the computer and its affordances of access to the Internet into 'everyday life' (Bakardjieva

& Smith, 2001; Bakardjieva, 2005; Haddon, 2006) is accelerated. Indeed the laptop afforded the establishment or multiple forms of connectivity and computer usage within domestic and work settings and the movement towards individualised use of computing technology, which serves as a precursor to the highly personal use of contemporary computing technology (Kennedy & Wellman, 2007).

4.7 Pocket Computers, Phones and the Tablet

Also popular in the early 1980s were a number of smaller computers that offered computing power but with a different design focus. These devices developed from programmable calculators (which had emerged in the 1970s) and incorporated a keyboard with a screen. They also drew upon the concepts proposed in Alan Kay's Dynabook paper (Kay, 1972). Pocket computers did not seek to replicate the full-scale computing power of PCs rather they tended to offer specific functionality. Examples included systems such as the Sharp PC-1251 launched in 1982 and the Psion Organiser 1 launched in 1984. It included a number of preinstalled programmes such as a database and a calculator. As computing power increased the power of pocket computers improved though many were sold as personal digital assistants. GRiD Systems launched the GRiDPAD in 1989 which is regarded as the first portable tablet computer (Finn & Ciszewski, 2010). The use of such devices gradually shifted over time to that of a personal digital assistant as opposed to being a fully portable computers (Atkinson, 2008). The Apple Newton, launched in 1993, incorporated handwriting recognition software in its interface though this did not prove successful and the product was withdrawn from the market in 1998. While the Newton's touch sensitive screen and handwriting system eventually resulted in its demise these features prove important stepping stones for later developments. Palm Inc. launched the PalmPilot which used both a stylus and touch in its interface in 1996.[5] Microsoft launched the Pocket PC 2000 in 2000 – this used the Windows CE 3.0 operating system, which allowed for touch control. Despite a number of

products being developed and a lesser number being released in the following years, few seemed to find any sizable market and the tablet did not become a major method of delivering computing power to individuals (Atkinson, 2008) – the primary means of interacting with computing technology remained with the desktop and the laptop.

Alongside these developments, mobile phone technology emerged into the consumer markets from the early 1990s. Mobile phone technology had been slowly developing since the immediate post–World War II period but it took nearly 30 years before the first cellular system was commercially launched in 1978 in Bahrain with 250 subscribers (Farley, 2005). This was closely followed by systems in Japan and others countries. These early systems (later termed 1st Generation (1G)) were analogue based (making them susceptible to interference) and could not provide any data communication. The handsets tended to be expensive and did not achieve extensive market penetration. The 2nd generation (2G) of mobile phones utilising digital networks (determined by the Global System for Mobile Communications (GSM) protocols) emerged during the early 1990s and along with smaller more transportable handsets resulted in a popular uptake of mobile phones (Cozzens & Thakur, 2014). Phones connected to 2nd generation networks afforded voice and texting capability. As data-transfer systems advanced (first with the deployment of General Packet Radio Service (GPRS) (referred to as 2.5 generation) and then Enhanced Data rates for GSM (EDGE) (referred to as 2.75 generation)), picture messaging and then multimedia messaging became possible. 3rd generation (3G) networks and phones emerged in 2001–2 in Japan and South Korea. These networks could facilitate data transfer and made possible multi-media services for mobile phones such as browsing web pages and downloading files. The growing need for greater data bandwidth resulted in the emergence of 4th generation networks (4G). Offered initially in South Korea by KT Corporation in 2007, these services have gradually spread worldwide in the intervening years. A key aspect of such networks is that voice, web data and other forms of information can be sent to phones connected to the Internet (Cozzens & Thakur, 2014). The key difference between 3rd

and 4th generation networks is one of enhanced data transfer though the increased data rates mean that 4th generation phones are able to afford the user far more connectivity and services such as voice over IP services, video streaming and gaming.

The development of handset technology to take advantage of (and correspondingly to drive consumer demand for) greater data speeds resulted in the fast development of mobile phone devices. By the middle of the 1990s, phones were acquiring greater functionality than just voice calls and their operating systems were bundled with additional software applications such as calculators and diary planners. Erricson's R380 was the first phone marketed as a smart phone (Linge & Sutton, 2015) and over the next few years, most other mobile phone manufacturers launched smart phones with increasing computational power. The launch of the iPhone at the Macworld conference in January 2007 brought about a significant change to the market place. Though the phone was itself considered an average 2G phone it offered a number of innovations: its extensive use of touch screen, its web experience replicated computer usage and the incorporation of the third party vending of applications through the app store (Linge & Sutton, 2015). The iPhone was upgraded to 3G in 2009 and went on with a series of other upgrades as different releases of the IoS operating system. The impact of the iPhone has been significant. As part of a portfolio of products that have made Apple the world's most valuable brand (Anon, 2016a, 2016b) the iPhone established design conventions for smart phones that have become dominant in the market. Despite the iPhone and other smart phones' computing potential, they have for the most part been marketed as communication rather than computing devices (Finn & Ciszewski, 2010).

Apple re-entered the tablet computer market with the launch of the iPad in 2010. The iPad drew together existing market practices such as the iTunes store and the App store, the IoS operating system used on the iPhone and the preceding developments in tablet computing and touch screens. The iPad was distinct from Personal Digital Assistants (PDAs) and afforded the user highly portable computing power (Finn & Ciszewski, 2010) and brought to popular awareness a new platform of personal computing to reside alongside

the desktop and the laptop (Gruman, 2011). Competition from other computer manufacturers soon followed with tablets being released by Samsung in late 2010 and soon after by numerous other manufacturers. The Samsung Galaxy Tab used the Android operating system which (in later iterations) has gone on to being the operating system of the vast majority of non-Apple tablets (the alternative being the Windows tablet which though integrating well with other Windows based computers used on the majority of desk top and laptops, have only a small position in the tablet market). At the time of writing in 2016, Android tablets dominate the market with Android tablets now with 69% of market share, Apple on 24% and Microsoft on 7% (Anon, 2016a, 2016b).

Though tablets afford the user considerable computing power, it can be argued that this computing power is targeted more at acts of consumption and engagement than production. There is evidence that the majority of activity on tablets relates to the searching for and consumption rather than the production of digital content (Moscaritolo, 2012). That is, tablet computers work very well in terms of interpersonal communication such as email and messaging services, playing games, social networking, searching for information, listening to music reading, watching television and video, online shopping, reading and provide good environments for engagement with social media (Müller, Gove, & Webb, 2012; Anon, 2014). However, if lengthy textual input, heavy creative media production such as editing, or drawing is intended the desk top and laptop with professional software are by far superior. This is a result of tablets lacking the computational power of laptops and the interface being designed more for ease of use than precision and prolonged text entry usage. Tablets with their intuitive interfaces facilitate media consumption and engagement in a portable manner and have extended the presence of computing further into the home and personal spaces of the user. The portability of both tablets and mobile phones (collectively referred to as mobile devices) results in users incorporating their use into other activities, such as watching television (Holz, Bentley, Church, & Patel, 2015; Müller, Gove, Webb, & Cheang, 2015). Furthermore, the space of use or physical context of use of tablets includes spaces such as the couch, the bed, the table,

kitchen, car, gym and other personal and social spaces (Müller et al., 2012).

This penetration of mobile devices both into other activities and into personal spaces is illustrative of how computing technology is becoming not only more individualistic but closer to us. However, as Müller et al. (2015) note tablets are still not carried on the person in the way mobile phones are. The next generation of computing devices seem, at least in some instances to challenge this.

4.8 Wearable Computing and Augmented Reality Devices

Though wearable computers have existed since at least 1961 (Thorp, 1998) (these consisted of covert computers used to enhance gambling odds in casinos), they have only recently attracted significant public interest. Wearable computers refer to computing technologies that have been modelled to fit either directly onto the body or to be fashioned into clothing and other systems that they can be carried. Such devices use technologies that allow information to be provided to the user in a way that requires less conscious and physical effort than non-wearable devices and /or record information (this includes imaging, location data and haptic data physical movement data) for real-time use or for downloading later. In terms of the physical devices, developments in this field have followed a number of main pathways. The first are forms of technology that can be worn as a wrist watch. The simple wrist watch does of course serve as a piece of wearable technology, the earliest recorded being a gift from Robert Dudley 1st Earl of Leicester to Elizabeth 1st in 1571. The production of digital watches in 1972 (though affordable watches were not available until 1975 when Texas Instruments produced one for $20) presaged the development of additional function on watches. From the outset, the digital nature of watches made adding extra functions such as the calculator watch in 1975, game watches in 1981, radio watches in 1981–82 and the TV watch in also in 1982 possible. The integration and incorporation of computing technology commenced with the Seiko RC-1000 wrist terminal in 1984, though

the first computer watch was the Seiko RC-20 in 1985. In 1994, Timex released the Datalink, which incorporated the Microsoft Schedule+ software and wireless link to a PC. Samsung launched the SPH-WP10 a 'watch-phone' in 1999. From the early 2000s, the computing power of watches increased with the inclusion of PDAs (Fossil's Wrist PDA in 2003), Fossil's watch using Microsoft's Smart Personal Objects Technology in 2004 and greater computing facilities such as Bluetooth in Sony Erricson LiveView affording a watch the capability to display phone data. A number of watches were released from 2009 with significant computing capability though they served as extensions to smart phones and tablets and remained linked to them. By 2014, the technology had advanced enough to facilitate the launch of the first true smart watch – the Omate TrueSmart a device with sufficient computing power and functionality to be comparable with a smart phone. This allowed it allow it to run apps, connect to data networks and make calls and provide GPS capability. Whether connected via a smart phone or directly themselves smart watches allow for the collection, display and usage of data, the transmission of information and integration into other communicative practices such as social networking. As such smart watches afforded the user as much computing power as a smart phone but with more convenience and less obtrusive integration into personal life.

A second main strand of wearable technology systems are those that allow for visual and audio mobile augmented reality. Mobile augmented reality refers to the insertion of computer-mediated information into the user's field or view or other form of sensory intake via a device that is not physically tethered to a fixed point computer. Augmented reality differs from virtual reality systems which seek to immerse the user into a computer generated sensory environment. In virtual reality the intention is to present a virtual world with as much verisimilitude as possible – an unmediated experience of the real world. To facilitate this, the systems seek to modify as much sensory input as possible so vision, sound and movement are incorporated. Augmented reality systems may use technologies but the intention is to provide additional information to the user to supplement their experience or understanding of the world (Schmalstieg & Hollerer, 2016). Mobile augmented reality

systems tend to be devices that can be worn in a similar fashion to glasses but have computing and Internet access facility and allow the user to access and engage with data in real time. Referred to as personal imaging systems (Mann, 1997, 1998) or 'smart glasses' such technologies initially served as display units for separate computers but have now developed to incorporate the computer into the unit. The first recorded device was a developed in 1968 (Arth et al., 2015), though due to the lack of computing power the augmented images were simple wire frames on a transparent screen located in front of the eye. There were also other devices that could offer supplementary information to a user – e.g., taped museum tours provide information in addition to the written texts provided at displays in museums. Computerised augmented reality devices were gradually developed through the 1970s, 1980s and 1990s with the first fully mobile augmented reality system, the Touring Machine developed in 1997 (Feiner, MacIntyre, Höllerer, & Webster, 1997). This device consisted of a transparent headpiece and backpack containing a computer. Forms of augmentation were incorporated into computer devices that contained cameras allowing additional information to be displayed to the user through the use of the camera and screen. In many instances, these were software applications that could be loaded onto phones or tablets to offer augmented experiences. The use of specialised glasses was revived in 2013 with the launch of Google Glass (though this was discontinued a year later). Google glass incorporated indigenous processing capability and additional sensors such as accelerometers and tilt sensors (though they still needed to be paired with an Android phone to operate when not within range of a WiFi signal). Through the superimposition of computer-generated images the subject's view and audio through either speakers or bone conduction they allow information to be relayed. This information may be pertinent to the users' view of that moment, such as being able to translate text, display maps, or provide information relevant to a location or it may relate to online activity such as social media updates or gaming. Microsoft's HoloLens (released in 2016) allowed direct overlay of information onto real-world objects allowing the user to use the device as a guide to interacting with physical objects

or engaging with virtual objects in real space. Interaction with the device is conducted through voice commands, by touch or by gesture detected by the devices camera.

The third strand relates to technologies that may be distributed across the body which detect information and relay in real time or record it so it may be download to a computer later. We can group these into two broad categories; wearable recording devices such as personal cameras, e.g., the Go Pro system and pendant, badge or clip cameras used in the activity of 'lifelogging'[6] and motion and personal health sensors such as arm bands which record our location, heart rate and caloric use.

The advent of wearable and augmented reality systems has raised concerns about privacy, security and issues of surveillance. The use of cameras to record the behaviour of others without their permission and sensitive information certainly predates augmented reality technology and similar claims were raised with the advent of cameras on mobile devices. What distinguishes systems such as Google glass is the surreptitious use of the technology, its ease of use and its integration into social media. In the following chapter, the manner in which social media draws together information from different parts of the Internet and apps and how this information can be understood as problematic is considered. Augmented reality devices contribute to such concerns as they may permit the recording of information about users (either through information about the user themselves (e.g., health information) being made available or through a user recording information about someone else in their use of the devices (e.g., a picture taken surreptitiously being posted online and then other users being identified through being tagged it)).

4.9 Conclusion

The manner in which computing power is delivered to us has changed dramatically over the past 50 years or so. In this chapter, I have noted how the shift has been from a situation in which one we had little actual contact with computer technology though we were (are increasingly) affected by it, through the gradual arrival of

computers into the workplace and home. In these situations, the computer was often understood as exotic and the use of it was restricted to those with specific skills and expertise. From the limited use, the computer gradually increased in popularity and its use was extended to new aspects of business and home use. However, in such situations although the sheer numbers of computers had increased dramatically the means of availing oneself of its power had remained largely unchanged from when it first entered the workplace; to interact with a computer a user had to position themselves next to the computer whether this be in an office or home. The development of portable, then mobile devices shifted this arrangement. With mobile devices, the power of computing and its Internet connections can be carried with the person. Computers shifted from being something that we positioned ourselves next to, to something that was carried with us. The more recent developments in wearable computing and augmented reality devices continue this trend, computers are populating our personal spaces more and more – they are now carried with us and their presence becomes ubiquitous in our personal lives. These new practices do not replace older uses however. We find that we are still subject to the decisions made on mainframes, we still make use of computers in offices, we still carry laptops yet we also carry phones and tablets. Computer power is now delivered to us in a multiplicity of ways and not just a single channel.

As computers enter into more spaces, they are adapted to and modified for differing working practices and environments (and contribute to the changes in these working environments). The emergence of mobile and then augmented reality computing and the new forms of interface that they permit afford new working and social practices in which computing power is availed far more than ever before.

As I argued at the start of this chapter, such ubiquitous computing results in the distance between ourselves and computers becoming reduced and computers' 'closeness' to us increased. I would argue that such increased 'closeness' is significant for information and media education. The closer the technology is to us the less we tend to critically attend to it, it becomes too easy or normal to be

considered as something which we should engage with discursively and critically. Indeed as Schmalstieg and Hollerer (2016) note the intention of augmented reality is for it to slip beneath the level of conscious use, to become so unobtrusive as to not register with our critical faculties. This endeavour is worthy of note it explicitly endangers and challenges the critical concerns of media education discussed in Chapter Two, A History of Media Education and Literacy, and those of information literacy in Chapter Three, The History of Information Literacy.

While in this chapter the focus has been upon the forms of delivery of computing power to us, we need to look to the kind of the content that is delivered to us. Accordingly, the following chapter looks to the nature of contemporary digital media content made available to us through some of the computer platforms considered here.

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[1]Everyday life is the lived experience of an individual rather than a specific sphere of action such as work or home.

[2]Indeed the adoption of technology is closely linked to social practices and processes. Technologies are not adopted because they are the best technologies but because of social practices and the technology being aligned with social trends and preoccupations.

[3]Windows was initially launched as a front-end to Ms DOS in 1985 though it did not achieve a popular uptake until its third iteration; Windows 3.1 launched in 1992, which sold over a million copies in its first two months. Windows went through a number of different versions with some intended to facilitate the increased networked nature of computing such as 3.11 for Workgroups and

Windows NT. Microsoft also produced versions of Windows for server and client usage and variations for commercial and domestic usage. The latest incarnation at the time of writing is Windows 10 with the promised HoloLens augmented reality due for release in 2016/17, a form of technology that will be discussed later.

[4]Osbourne announced the launch of the next generation computer before it was ready and vendors stopped buying the Osbourne 1 in anticipation of the new computer.

[5]Touch screens come in two main forms: resistive and capacitive. Resistive screens utilize two thin layers on the front of the screen with a miniscule gap between them. When pressure is applied the two layers touch a voltage is passed and the location is recognized by the device. Capacitive screens have a thin conductive screen over the glass front. When touched, the electrical charge emanating from skin is registered.

[6]Lifelogging is a practice in which individuals wear portable cameras on their person which take a photograph at fixed intervals (typically every 30 sends). The images are then downloaded onto another device. The practice is broadly similar to lifecasting – the activity of having a webcam in one's home and other locations which transmit images on the internet, the most famous example being JenniCam, a web page on which images from a camera in the home of Jennifer Ringley were broadcast from 1996 to 2003.

The Nature of Digital Media Content

Abstract

This chapter examines three aspects of digital culture. First, it considers the nature of participatory culture, the ways in which users of media contribute to and engage in media content though productive activities. Second, trans-media practices are examined. Trans-media refers to two related practices – trans-media distribution in which a brand is deployed across different media platforms and trans-media story telling in which stories are delivered across different media thus encouraging the users to explore different media so as to discover the story. Third, converged culture is discussed. Converged culture relates to the way in which through technological practices, users of various social media platforms are able to integrate experiences of external websites and apps into their social media. Such practices while affording advantages to the user also expose the user to forms of modelling in which their behaviour is monitored and their data used in ways possibly not understood and the consequences not fully appreciated.

Keywords

Digital culture; digital media content; participatory culture; transmedia; trans-media; converged culture

CONTENTS

5.1 Introduction

In this chapter, I turn to the nature of digital culture and in particular digital media content. Advocates of the idea of digital culture contend that virtually all aspects of contemporary culture are in some way impacted upon by the proliferation of computing technology and the digital manner of storing, manipulating and acting upon information therein. That is, the use of computers and associated technologies in facilitating the production of and access to cultural texts fundamentally changes our experience of those texts. For example, Manovich proposes:

> *just as the printing press in the fourteenth century and photography in the nineteenth century had a revolutionary impact on the development of modern society and culture, today we are in the middle of a new media revolution – the shift of all culture to computer-mediated forms of production, distribution, and communication.*

Manovich (2001)

The resultant culture is variously described as interface culture (Johnson, 1997), digital culture (Negroponte, 1995), cyber society (Jones, 1998), cyber culture (Escobar et al., 1994; Lévy, 2001), network culture (Terranova, 2004) new media culture (Fuery, 2008) and many others terms. At the heart of all these labels is the assertion that the widespread use of computing technology has resulted in a transformation of culture. Though this process has been occurring for a number of decades, it accelerated significantly in the late 1990s to early 2000 when, as was explored in Chapter Four, The Increasing Closeness of Computers–A History of the Delivery of Computing Power, computers became ubiquitous in developed countries. Since

these descriptions were written (the fashion for deriving new portmanteaus and phrases to describe computer culture seems to have waned slightly in the late 2000s), the process has accelerated further with the advent of mobile phones and tablets and most recently personal and wearable computer technologies. Additional to our use of such hardware and our engagement with social media and the vast amounts of information we willingly give up about ourselves, our likes and interests the gradual (or 'silent' (Bunz, 2013)) spread of algorithmic data handling by large corporations through the use of 'Big Data' has compromised or ensnared us in new systems of surveillance and control. It now seems broadly accepted that computers have impacted upon and are a part of contemporary culture and that contemporary culture has changed in its structure and formation as a result of this. Indeed as Gere (2009) asserts it is perhaps tautological to refer to digital culture at all as virtually aspects of culture are in some way digital or impacted by digital technology be it through their creation, recording, storage, transmission or consumption.

This chapter will consider the manner in which media content operates in such a digitally rich environment. Though the academic interpretation of digital culture has taken many forms originating in different disciplines, the focus here will examine how media content is integrated and linked across media technology forms and why this is of relevance to media and information literacy. There are, of course, numerous ways in which we can consider the impact upon cultural activity of digital culture: we could consider the 'hard' specifics of how the processes of digitalisation of texts affect their appearance (Venkatasawmy, 2013), visual (McClean, 2008) and audio (Toop, 2004) structure; we could survey the ways in which the process of digitisation and algorithms have affected politics and the professions (Bunz, 2013), we could look at the economic impact upon the film (Zhu, 2001), broadcast television (Doyle, 2010) and music (Ahn & Yoon, 2009) industries and markets of new modes of distribution or we might examine the impact upon the audience of such digital texts (Minh-ha, 2012).

Here the focus is placed upon the ways in which digital culture is manifest in how users engage with media content. Again, there are

many ways in which this could have been addressed; however, for the purposes of this book this chapter will focus upon three key aspects: first, it will address what is understood as the participatory nature of digital culture – how certain aspects digital media content is produced and circulated at a peer-to-peer level. This form of media production and engagement is distinct from the preceding top-down system evident in the era of mass communication. Second, it will consider the integrated nature of much contemporary digital media content – how signifiers can cross the boundaries of specific platforms and texts. Such trans-media refers to the 'bleeding' of content between platforms. These cross-boundary texts afford new patterns of engagement with brands, texts and indeed political interpretations of the world. Trans-media afford new ways in which messages and interpretations can escape the 'silos' of specific platforms and become more dominant in their interpretative power. Third, the idea of converged content will be examined. Converged content relates to how certain functions and features of particular media platforms such as social buttons and logins via social media to unconnected web pages afford users a more converged and personal experience. Such systems link together a user's experience as they move between web sites, apps and other networked fora.

However, the digital media space made possible affords also makes possible new systems of surveillance and new ways in which we can be acted upon. While participatory culture, trans-media and converged content allow deep and highly rewarding new experiences, they also allow new modes of corporate address and of the commodification of communication. They afford new ways in which our fan actions and forms of appreciation can be commodified and the value of our labour in engaging as a fan has value extracted, they create new ways in which brands can reach us across different media formats and they allow data to be gathered about us and collated from a variety of sources, for our behaviours to be modelled and even for our intentions to be (fairly accurately) predicted. This is problematic; our actions become commodified, our freedoms to engage with media and information are ordered and restricted and through the application of various data-modelling approaches, judgements and decisions are made that can seriously affect our life

chances and opportunities. As such media and information literacy have a key role to play in preparing students for the problematic nature of contemporary media practices.

5.2 Participatory Culture

Participatory culture refers to a subculture or social practice in which the participants engage in the non-professional production of media texts. Participatory culture concerns the activities of those who engage with culture through productive activity and is often regarded as the opposite of a purely consumer culture in which audiences are (in this interpretation) understood as passive recipients of cultural texts. Participatory culture is a way of understanding audiences that rigorously opposes the concept of the passive audience that is a recipient or consumer of culture. Jenkins et al. determine that 'a participatory culture is a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing one's creations, and some type of informal mentorship whereby what is known by the most experienced is passed along to novices' (Jenkins, Clinton, Purushotma, Robison, & Weigel, 2006). As such participatory cultures are those of the makers and sharers of digital cultural texts that exist alongside professionally produced media. Moreover, a participatory culture is 'one in which members believe their contributions matter, and feel some degree of social connections with one another (at least they care what other people think about what they have created)' (Jenkins et al., 2006). The term is used to refer to much contemporary cultural practices occurring within digital culture where it draws heavily upon the productive affordances of web 2.0 technology. Participatory culture can be seen in the ways in which various social media platforms not only allow for media texts to be uploaded and made available to others both in the native context of the site (e.g., YouTube, Vimeo and LiveLeak allow for the uploading and sharing of video content, Instagram allows users to share photographs while Audioboom serves to share audio files) but also by integrating with social networking sites such as Twitter or Facebook. While Carpentier (2011) notes that participation culture

has a long history it is with the emergence of digital media that it has attracted significant interest. Delwiche and Henderson (2012) argue that the development of digital participatory culture can be understood to have occurred in four broad phases. The first phase relates to the emergence of digital media from 1985 to 1993, the second phase relates to the development of the web from 1994 to 1998 which afforded users the ability to share textual and simple multimedia; the third phase considers the ease of publishing on the web from 1999 to 2004. The last phase looks to the nature of ubiquitous connectivity commencing in 2005 with the launching of YouTube which is considered a key medium of participatory culture (Burgess, Green, Jenkins, & Hartley, 2013) and other web 2.0 platforms that allow for the dissemination of non-professionally produced media content and information.

Many early accounts celebrated the emancipatory power of participatory culture and the potency of the productive aspects of digital media. It was noted that new forms of production would be able to overturn the power of dominant media (White, 2003), offer a new citizen voice (Rheingold, 2008) and new patterns of redress against corporations (Bowman & Willis, 2003). However, while most accounts and analysis of participatory culture are positive, there are five strands of criticism mounted against it. First, that the skills needed to engage in participatory culture are not a given. It requires skills and creativity to produce digital content thus access to digital technology is not enough, participants must possess the skills, willingness and creativity to engage. This is a concern that Jenkins (2006a, 2006b) and others have explicitly noted and is a topic that will be further explored in the following chapters. However, as Fuchs (2013) notes the set of skills developed by Jenkins et al. (2006) for successful engagement in the participatory culture of digital media are primarily focussed on the development of skills that would be of use in an employment situation and lack a critical dimension. Jenkins et al. (2006) presume the student already has already acquired such critical skills elsewhere. Second, a number of critics lament the rise of non-professional culture arguing that it debases professionalism in cultural production. Keen (2009) challenges the value of non-professional production and indeed the

whole ethos of web 2.0 contending that: 'It worships the creative amateur: the self-taught filmmaker, the dorm-room musician, the unpublished writer. It suggests that everyone – even the most poorly educated and inarticulate amongst us – can and should use digital media to express and realize themselves'. Such views are reminiscent of the high cultural critique targeted at many previous forms of cultural expression; however, in a number of instances the targets of such a critique later became regarded as valuable cultural artefacts themselves. Graffiti art for example, while previously decried is now commodified and can be found and bought in art galleries. Such views seemingly ignore the virtually continuous churn of popular culture and the inherent anti-conservative shift of culture as it passes from generation to generation. Third, is a point also raised by Keen that web 2.0 and participatory culture damages the possibility and economic viability of professional media production. Through much of modernity, the vast majority of media content has been produced through an economic model in which the content is created in exchange for either direct revenue or for the fee for advertising that accompanies it. Keen notes that the free production of content damages this economic model:

> *every free listing on Craigslist means one less paid listing in a local newspaper. Every visit to Wikipedia's free information hive means one less customer for a professionally researched and edited encyclopaedia such as Britannica… By stealing away our eyeballs, the blogs and wikis are decimating the publishing, music and news-gathering industries that created the original content those Web sites 'aggregate.'*

<div align="right">

Keen (2008)

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Participatory culture will result in a significant reduction in the amount of quality content produced as high quality content requires a revenue stream to support it and risks forcing out expensive professionally produced media content (Carr, 2016). However, new economic models for the production of media texts have emerged in the past few years (de la Iglesia & Gayo, 2009; Seufert, 2013) and while the issue of advertising supporting media content remains a problem and has had a significant impact, particularly for journalism

and news gathering, the assertion that it will lead to the end of high-quality media production (Keen, 2008) has yet to occur. Indeed, journalism practices often leverage aspects of participatory culture such as using footage captured by non-journalists (there is a significant market place for such footage with third party agents negotiating the circulation rights of such footage for the non-journalists (Anon, 2016)). Fourth, is the recognition of the ways in which participatory culture is subject to external corporate and state influence and how individuals are subject to peer-influence. While Jenkins (2006a, 2006b, 2012) and Jenkins et al. (2006); Jenkins, Ito, and Boyd (2015) note how participatory culture extends media texts and affords fans an opportunity to engage with their favoured texts more fully, it is recognised that such action are both promoted and policed by corporations. Corporations often welcome engagement in this manner recognising that it can 'foster consumer loyalty and generate low cost content' (Jenkins, 2004). Furthermore, corporations occasionally adopt the appearance of fans and those outside of commercial enterprises (or hire public relations companies to do this task) to promote products and brands to gain a veneer of disinterested respectability (Cammaerts, 2008; Deuze, 2006). Keen identifies a form of blogging (or 'flogging') in which fake bloggers 'claim to be independent but are actually in the pay of a sponsor' (Keen, 2008). Corporations and individuals also buy fake followers and likes for their accounts and posts in order to increase the appearance of popularity (Cresci, Di Pietro, Petrocchi, Spognardi, & Tesconi, 2014; DeCristofaro, Friedman, Jourjon, Kaafar, & Shafiq, 2014). Government agencies in many countries have sought to challenge the affordances of participatory media through censorship and other means (Bamman, O'Connor, & Smith, 2012; Cammaerts, 2008) and there are also numerous accounts of employers seeking to censor employees who blog in a non-positive manner about their employers (Ringmar, 2007; Sayers & Fachira, 2015). Within participatory media communities, there are also power relationships that can impact upon the willingness to post. The practices of bullying and 'flaming' of contributors and posters is seen as a means of silencing and dissuading them for further commentary or contribution (Gearhart & Zhang, 2014). Fifth, participatory culture as

envisaged by Jenkins and others (Burgess et al., 2013; Jenkins, 2004, 2006a, 2006b, 2012; Jenkins et al., 2006, 2015) relates primarily to a cultural interpretation of participation ignoring the political and economic aspects. Carpentier (2011) offers a historically grounded analysis of participatory culture that identifies the concept as a site of political ideological struggle. Carpentier (2011) identifies a continuum of how participation can operate from a minimalist position in which there are strong imbalances of power between those who control and those who participate and a maximal position in which there is more equality between all the actors involved in the production of media texts. Fuchs (2013) identifies the economic aspects of participation critiquing both Jenkins' account as overly cultural and not informed by critical theory and Carpentier's account for focussing on the political aspects and ignoring the economic. Fuchs (2013) proposes a Marxist critique noting that while the labour involved in participatory culture text production is collaborative, the value of the unpaid digital labour involved in participative activities and the ownership of the (valuable) results of participative labour are not subject to participation. Participatory culture is limited to the productive and creative aspects; neither the employees nor users of social media platforms get to participate in the 'economic decision-making' or the financial benefits (Fuchs, 2014). Without such a reformation of the ownership of the results of labour, participatory culture is simply a veneer; a further way of extracting surplus value while subordinating worker/fan interests.

Such aspects are directly relevant to the interest of media and information literacy educators in terms of the kinds of skills and attitudes that need to be developed. This relates to developing a critical approach in consuming information and media, awareness of moral and legal issues in the production of content and ethical issues in interpersonal communication within productive communities. These are issues that will be further explored in Chapter Seven, Towards Integration.

5.3 Transmedia

Transmedia concerns the way in which signifiers are used and deployed across different media platforms. Jenkins (2006a) cautions that there are numerous different interpretations of the term while Evans (2011) identifies two distinct, related but subtly different transmedia practices: Transmedia distribution/engagement and Transmedia storytelling.

Transmedia distribution/engagement (Evans, 2011) is a form of transmedia practice used by companies to project their products across a range of media and other consumption practices. The emphasis is upon establishing a common set of motifs and signifiers that serve to separate the franchise from other brands and systems. As such there tends to be significant amounts of replication and redundancy across the different channels. What commences as a television show has its motifs and characters projected across other television shows and franchises. This may involve changes is style or format from live action to animation or vice versa, films and film series, video games, novels, comics, web pages and physical, branded products such a toys, figurines, children's lunch boxes and other merchandise. Remaining constant across such transitions are a set of commercially valuable identifying signifiers that ties the brand together. While adaptations from one medium to another are as old as the media involved, the approach as a commercial strategy to simultaneously cross-promote a set of signs across different media is thought to have commenced with the media-mix approach used in Japanese anime (animations) in the 1960s (Steinberg, 2012). Here the sale of branded goods such as sweets and character merchandise was essential to the economic survival of the originating texts. The media-mix approach spread internationally throughout the 1970s, 1980s, 1990s and 2000s and is a staple of marketing – media texts are launched across different media with cinematic, gaming or television releases appearing with a lead product being supported by numerous merchandising and cross-media promotion. Indeed, the media-mix approach arguably now dominates media ecologies in late-capitalism with multiple appearances of brands, symbols and the associated imagery occurring across all media forms and beyond into other forms of merchandising. The media-mix approach further

continually seeks out new spaces to allow for its message to be communicated.

Transmedia storytelling relates to the creation of stories that span different media – a transmedia story is 'a particular narrative structure that expands through both different languages (verbal, iconic, etc.) and media (cinema, comics, television, video games, etc.)' (Pietschmann, Völkel, & Ohler, 2014). Each medium contributes to and reveals more of the story; transmedia storytelling is 'not just an adaptation from one media to another. The story that the comics tell is not the same as that told on television or in cinema; the different media and languages participate and contribute to the construction of the transmedia narrative world' (Scolari, 2009). Thus engagement with the story and its wider story world may involve reading comics, using apps, watching films or reading information scattered across a range of published stories including novels, comics and other texts. The intention of such an approach is to reach the audience through different media and integrate them more fully into the story – as Jenkins proposes in relation to the Matrix trilogy and associated media (such as the cartoon series that contributed significant elements of back story) 'to truly understand what we are watching, we have to do our homework' (2006a). A transmedia story is a text that is distributed across different media and it offers (or requires) a more engaged form of media consumption that necessitates participation and action. Transmedia stories are revealed:

> *across multiple media platforms, with each new text making a distinctive and valuable contribution to the whole… each medium does what it does best – so that a story might be introduced in a film, expanded through television, novels and comics; its world might be explored through or experienced through an amusement park attraction… Reading across the media sustains a depth of experience and motivates more consumption.*

Jenkins (2006a)

The various components of a transmedia story consist of a main text and sub or para texts (Gray, 2010). While the main text and a

significant proportion of the sub texts are commercially produced, transmedia storytelling often also afford audiences means of interactive engagement with the text and expansion of the text universe or story world. This occurs through the creation of fan para-texts such as supporting web sites, wikis and videos, fan practices such as 'Cos-Play' costume play (dressing as characters) and other forms of user-generated content (Geraghty, 2015). Indeed, the creative practices of fans constitute a key aspect of audience engagement with transmedia storytelling texts (Jenkins, 2006a). Though such a transmedia environment can be seen as problematic and antithetical to much media education a number of authors (Alper & Herr-Stephenson, 2013; Jenkins et al., 2006; Mihailidis & Cohen, 2013) also see opportunities within it particularly for developing aspects of critical media literacy.

5.4 Converged Content

By converged content, I refer to the way in which certain features of various social media platforms and web interfaces allow users a more converged and personal experience. In addition to the original functions of social networking platforms such as devising a profile for oneself, establishing contact with people, browsing other users contacts (Boyd & Ellison, 2007) and communicating through various means with contacts, social media channels have also served as means by which users (and indeed the social network itself) distribute information and media from other sources such as other users, professional news sources, non-professional and commercial media production organisations and individuals. Users can engage with content from a variety of such sources, shift to various external web pages, web services, apps and social networks and integrate their experience though common platforms. The integration of such different systems is facilitated through the organisation of vast amounts of data concerning users' connections and interactions with other users and the various texts. Within the data-handling systems this information is organised as a 'social graph'[1] which can be used to understand and act upon the links and the nature of associations between individuals, various texts and users' actions (such as linking

a friend's post or sharing a comment or image). The importance of graph theory to the contemporary web and Internet lies in how information is related in people's newsfeeds and ranked in various search practices. When the web first became popular in the mid-to-late 1990s, the main way of understanding the popularity of web pages was to rank them according to the number of hits or unique visitors a page received (Gerlitz & Helmond, 2013). Many pages recorded this information with a page counter – a small graphic that indicated the number of hits the page had received. Initially, web masters would need to register their web pages with the various search engines for them to be found though in time the use of spiders or bots – small programmes would trawl the web and record description of the web page through certain key words or meta-tags (Halavais, 2013). This system was challenged by the algorithm developed by Google, which ranked pages in a new and innovative manner. Rather than looking at the description of a web page, Google ranks pages by the number of links leading to that page from other sites (as well as a number of refinements to this approach). This approach was derived from academic citation methods in which papers are ranked by the number of other papers that cite them. Webmasters would seek to 'game' the algorithm by forming arrangements with other web masters to buy links or mutually link their often unconnected pages so as to increase their search engine ranking. Such practices technique became known as the 'link economy' (Walker, 2002). With the advent and then proliferation of blogs in the mid-2000s, a new form of metric emerged in the number of user subscriptions. Gerlitz and Helmond (2011) contend that this offered a new, user, non-expert centric measure of ranking. This more democratic approach (which was a considered a hallmark of much web 2.0 activity) became more established with the deployment of buttons that allowed sites to be listed on aggregation and bookmarking sites (such as Delicious, Digg and Reddit) based upon user recommendations. It permitted a quantifiable way of measuring the popularity of digital content (as opposed to qualitative comments and feedback). The use of such 'social bookmarking tools' (Messner, Linke, & Eford, 2011) or 'social buttons' (Gerlitz & Helmond, 2013) slowly spread affording users a

way of sharing information and content from various pages onto their profiles. The originating page can then collate how many shares its content has received. In some instances, depending upon the platform onto which the share is made and the specific privacy setting the user has chosen, the web master of the originating site can also learn who has shared the information. A further mode of integration used by a number of social media platforms such as Facebook, Twitter and Google is the ability to login to external sites and apps using the authentication of Facebook, Twitter or Google. Such login systems draw upon a system of open authentication and identification in which the user agrees to the home social network and the app or web page being logged into sharing some information (Kaila, 2008). The exact details of what information is shared by the social network with the external app or web site are determined by the permissions the user selects. However, the information that the social network site receives from the app in turn is also valuable and assists in determining and establishing a fuller, marketable profile of the user in the targeting of advertisements and other purposes. Thus, while affording increased ease of use and a more seamless experience of using various services, availing oneself of converged content requires that we willingly divulge information regarding our personal interests and preferences. That is, the cost to us for the use of such services is the control over the information we supply. As Gerlitz and Helmond argue Facebook (or indeed any similar technology company) uses 'a rhetoric of sociality and connectivity to create an infrastructure in which social interactivity and user affects are instantly turned into valuable consumer data and enter multiple cycles of multiplication and exchange' (2013). Social media companies derive revenue through the sale of advertising space and the closer and more pertinent the advertisement to the user, the more valuable it is. The user's provision of information concerning their likes, preferences and interests, their use of the social media platform, through their use of social buttons and through the integration of external aspects of the web and app use through login systems constitutes a valuable commodity. Though this trade-off – users get a far more fuller experience, sociality and connectivity in exchange for their data

being used – is currently acceptable to the majority of users (Jentzsch, Preibusch, and Harasser (2012) report that only two thirds of their sample indicated that they would be willing to pay for services if their data was not collected. Additionally there is a minority who choose not to engage and while still highly active on the Internet use a range of alternative services to expressly avoid the data gathering), the consequences in terms of the longer-term impact of the practice may not be understood by many and should be considered by media and information literacy educators.

The uses of this personal data gathered through social media are multiple; at its most benign, the data is used to (arguably) enhance the users experience by bringing information and products of a more pertinent nature to their attention. The information is used to identify the users' preferences and through the use of inferential data modelling[2] bring to their attention other news, information and products. However, the same data can also be used to plan and predict other social processes and events. For example, Google uses the distribution of web searches to predict flu outbreaks (Bollier & Firestone, 2010; Mayer-Schönberger & Cukier, 2013). Such use of big data at a large, anonymous level can be problematic in terms of the power it grants corporations and state agencies and the way in which it is used to impact upon politics. Couldry and Turow (2014) argue that with the 'deep personalisation' of data our attention is directed towards specific topics and events. We find ourselves placed into new forms of association that are, at least in part, dictated by the interests of advertisers. This challenges our opportunities to convene in situations and locations of historical commonality discuss issues of importance to us. It consequently places people into rhetorical 'echo chambers' (Bakshy, Messing, & Adamic, 2015) in which opinions tend to be reinforced[3] and which 'risks eliminating the connective media necessary for an effective democracy' (Couldry & Turow, 2014). Similarly troubling is the use of data gathered through social media to affect us as individuals. This occurs in two ways. First is the use of our personal data 'footprint' (the information, photographs and commentary we provide to and publish on social media that stays available long after we create it) to determine our suitability for jobs, acceptance onto college or university courses,

access to services and products such as health care, mortgages and credit or other products that impact upon our life chances. Second, it relates to the impact of the data modelling upon our life choices regardless of our individual circumstances. We may find that individually, modelling impacts us negatively as well as improving the range of products brought to our attention. This occurs as the data may indicate that we, as a representative of our modelled group, pose a risk. However, our personal, individual circumstances may mean we are actually less of a risk.

In many instances, users are unaware of the possible long term uses to which their data will be put and the consequences they may enjoy or suffer. While general descriptions of how data is used are described in the terms and conditions these tend to be stated in terms that though are fundamentally factual do not assert the possible downsides of agreeing to the supply of information and data.

5.5 Conclusion

The three aspects of digital culture considered in this chapter; participatory culture, transmedia and converged culture certainly necessitate coverage within the remit of media and information literacy education. Participatory culture involves recognising the ways in which uses contribute to the media eco-system through the production and sharing of texts. As such it contributes to the understanding that media audiences are creative and active. This broadly fits with the creative participation model of media education discussed in Chapter Two, A History of Media Education and Literacy. In such education, the emphasis is upon the creative production of texts so as to inform students both of the issues and decisions involved in representation and build in them skills that may serve them in employment situations. Participatory culture however is slightly different to this in that it relates to the productive potential of audiences; some media texts, particularly those distributed through certain social media channels are the result of non-professional production and such production is actually a form of engagement with media. The nature of those producing media

texts has shifted; it is no longer solely professionals producing media ideologically 'against' the best interests of the audience as traditional, critical perspectives have interpreted texts. Instead, participatory culture requires media and information education to recognise a degree of agency and wilful engagement with media texts by audiences. Moreover, we cannot reduce such participation to ideological indoctrination or naïve compliance with the production of texts that may antithetical to our long-term best interests. Even though participants may not reap the financial benefits of their labour or have a say in the long-term economic decisions they still engage willingly. They are participating not for the economic reward but for the pleasure of participation. However, the criticisms of participatory culture raised by Keen (2008, 2009), Carpentier (2011), Fuchs (2013) and others are still important; participatory culture does pose lots of new problems for media educators. Accordingly there exists a tension in media education between those who like Jenkins et al. (2006) see a necessity to develop skills to avail themselves of and engage in a participatory culture and those like Fuchs (2013) who see little beyond new means of ideological oppression in participatory culture.

Transmedia is perhaps less problematic in determining the position of how educators of media and information should approach it. Transmedia distribution/engagement are avowedly a means by which greater audience engagement with a product range or brand can be brought about. Similarly the distribution of a story components across different media in transmedia story-telling pose fresh challenges to media and information educators through the permeation of the images into a multimodal media landscape. The presence of brand signifiers across all modes of mediated communication and the incorporation of different media in story telling and (as was noted in chapter: the increasing closeness of computers–a history of the delivery of computing power) the increasingly 'close' nature of digital technology to us means that media and information education needs to continually refine the manner by which we engage with media. That is, trans-media's essence of spreading brands and story components across different media and beyond even what we have considered media, requires

that media and information education continually revise and adjust where attention is focussed. Transmedia affords a broader vista for the dissemination of media texts and messages and media education will need to be as nimble and reactive to engage. Indeed, it may be appropriate to re-orientate the focus of media and information education towards the self (Merrin's (2014) assertion of the Me-dia as the focus for the attention of Media Studies may prove useful in this regard) or even the adoption of more a phenomenologically orientated approach to media and information education – perhaps we should be turning away from texts and media themselves and towards how we as individuals encounter the media across texts.

Converged media content poses different problems. Here the issue lies with developing a more critical approach to how we think about information about ourselves and our willingness to exchange such information for access to media texts and products. As such it is a problem of alerting students to the nature of the transaction of information for access and the longer term consequences of this transaction. While such issues have been a mainstay for information and digital literacy courses, the participatory nature of contemporary media education pose a problem. The very acts of dissemination and engagement central to the creative participative approach of media education involve active engagement with social networking sites, indeed many media education courses require students to set up accounts on media sharing social media platforms to demonstrate their ability to disseminate content. This is a further tension for media education – the scope of criticality needs be expanded from a critical interpretation of texts to a broader critical understanding of engagement with digital, social media and information platforms and devices.

In the next chapter, I will turn to the issue of how widespread engagement with digital technology has been understood initially as a lack of access, then later as a lack of skills, (skills which, as noted here are continually in need of revision) and most recently as a difference in the forms of participation.

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[1]A graph is a technique derived from graph theory; a branch of discrete mathematics that permits mathematical analysis to be applied to links (edges) between objects (vertices). A social graph is this practice applied to a network of people.

[2]In its most simple form inferential data modelling allows for the prediction of a user's choices by comparing many other people's choices. Thus if when looking at the buying choices of 1000 customers a pattern emerges in which customers who bought product A also bought product B then there is a probability that other customers of product A may also be interested in buying product B. It would then be worth alerting the customers to the existence of product B.

[3]Bakshy et al. (2015) note how as well as Facebook's New algorithm determining the news a person can see, the recommendations of their peer group also play a significant part in contributing to the echo chamber effect. That is though the algorithm is significant it is the social grouping of people that play a large part in determining the limited ideological scope of the news they receive. However, this itself may be a consequence of the forms of association that social media and the Internet facilitate; communities on the internet have long been understood to be communities of similar interests rather than the accident of historical geographical based communities.

Digital Divides

Access, Skills and Participation

Abstract

This chapter considers the digital divide. It is noted that the digital divide exists between countries and within countries where different sections of society have differing opportunities and experiences of digital technology. It is argued that three orders of digital divide exist in contemporary times. The first order relates to a user's ability to access computers and the Internet. This access consists of both having physical access to an Internet-enabled computer and the material assets to pay for sustained connection to the Internet, the ongoing costs of certain subscriptions and necessary peripherals for use. The second order of divide relates to users possessing the skills necessary to make use of the Internet. In many instances, the discussion of such skills is akin to the skills involved in digital and Internet literacy. The third-level divide relates to specifics of usage and the ends to which digital media is put.

Keywords

Digital divide; first-order digital divide; second-order digital divide; third-order Digital divide; access; skills; participation

CONTENTS

6.1 Introduction

The previous chapter considered the nature of digital media content and noted three key aspects within digital culture and the way in which digital media content operates. It was noted how digital media content affords a participatory experience for users – they are able to engage and create media content and to distribute such content. Moreover, digital media content is trans-media in nature, it spans different platforms. This operates not only as a marketing strategy, but also and a method of story telling and indeed practice of media engagement. Finally, the chapter noted the converged nature of digital media content. This relates to the manner in which users are able to integrate digital content from disparate locations and sites on the Internet and apps into their social media profiles. It was noted that such practices while affording the users with a richer and fuller experience often allow for the recording and use of large amounts of data by companies and other organisations.

In this chapter, I wish to turn away from the nature of digital media content and towards the way in which lack of access and ability to use digital media can be understood as a form of social inequality. In the early years of the Internet, much attention was placed upon how the Internet and digital media would facilitate numerous benefits for individuals and society at large. The Internet was characterised as a resource that would empower individuals and over-turn various forms of social inequality. The main barriers to allowing all individuals to improve their social status were those that prevented them accessing to Internet. Such barriers became was referred to as the digital divide. As understanding of the divide has progressed conceptualising the various reasons, people are not able to avail themselves of the potency of computers and the Internet has

become more sophisticated. Initial studies and commentary regarded the divide as restriction of direct access to technology and accordingly this chapter will commence with a discussion of the idea of the physical (access to the equipment to connect) and material (ability to afford the expense of connection) digital divide and rates of access across and within a number of countries. By the early to mid-2000s, attention had shifted to what has been termed the second-order divide – the assertion that access alone is not enough and that skills must be developed and the second section of this chapter will consider these arguments. Arising out of the skills agenda is a further concern that related to the forms of engagement that people had with digital media. This relates to the growth of participatory culture noted in the preceding chapter and the emergence of the creative aspects in information literacy education considered in chapter three. The third section of this chapter will look at issues of participation through the productive aspects of digital media content – who is creating and participating and does this constitute a third form of digital divide.

6.2 First-Order Digital Divides – Access

In its simplest terms the digital divide refers to a form of social stratification that is simultaneously enacted and furthered by an individual's ability to utilise digital media to render their own self-interest. That is, our access to and use of digital media in part determines our social opportunities but is simultaneously related and determined by forms of social inequality (Ragnedda & Mu, 2013). Kofi Annan, then Secretary General of the United Nations contended that the digital divide threatens to:

> *exacerbate already-wide gaps between rich and poor, within and among countries. The stakes are high indeed. Timely access to news and information can promote trade, education, employment, health and wealth… Information and knowledge are also at the heart of efforts*

to strengthen tolerance, mutual understanding and respect for diversity. (2003).

Though the digital divide received considerable attention in the late 1990s and early 2000s in contemporary times, the issue seems to have drifted out of the public consciousness (J. A. G. M. van Dijk & van Deursen, 2014). The concern that there were advanced, capitalist countries with significant proportions of citizens who would not be able to avail themselves of the benefits of digital media no longer seems valid[1]. There are now high levels of access to the Internet in most developed countries. In 2016 in the United States and Canada 88.5% of the population has access to the Internet, in Australia 85.1% are connected, Japan is on 91.1%, in the United Kingdom the figure is 92.6%. Iceland, at 100%, is the most connected country on earth. (Anon, 2016). Across 11 developed countries, the median figure for adults connected to the Internet is 87% (Poushter, 2016). For many in the developed world, the digital divide seems an old story and no longer of relevance. Indeed, in a 2011 video IBM optimistically predicted that "In our global society, the wealth of economies are decided by the level of access to information. And in five years, the gap between information haves and have-nots will cease to exist due to the advent of mobile technology" (IBM-Research, 2011). Unfortunately, the prediction has not proven true. Though in many developed countries access is virtually universal there are still many countries where in which the situation is markedly different. In the developing world, access is significantly worse than in the developed world and there are still significant numbers of people who do not have access – in China the rate of access is 52.2%; in India it is 34.8% (Anon, 2016) and the mean access rate across the continent of Africa as a whole is 25.1% (Sanou, 2016) [this figure is also includes South Africa on 52% (Anon, 2016)]. Additionally, within countries there are further divides which often mirror other forms of social inequality. Academic studies have identified issues such as age (Cresci, Yarandi, & Morrell, 2010), educational level (J. van Dijk & Hacker, 2003), ethnicity and race (Hoffman, Novak, & Schlosser, 2001; Jackson et al., 2008) gender (Cooper, 2006; Cooper & Weaver, 2003; DiMaggio, Hargittai, Neuman, & Robinson, 2001;

Dixon et al., 2014), language (Gurstein, 2003; Mallikarjun, 2004), sub-national (Chen & Wellman, 2004) and intra-national regions (Vicente & López, 2011) and social class and financial standing (Clayton & Macdonald, 2013; Straubhaar, Spence, Tufekci, & Lentz, 2012) as being impactful upon an individual's likelihood to have access. Furthermore, the lack of access for members of such groups often results in inequality being further entrenched. Access to the Internet is both restricted by various forms of social inequality but also exacerbates and contributes to such inequality as the possible benefits of digital media are denied.

In seeking to overcome these problems, van Dijk (2005) identifies a barrier of motivation that exists prior to the necessity of access. Of those not online, a small percentage are in that position as they lack the motivation to be online – they are 'want nots' as opposed to 'have nots' and the reasons for not wishing to be online are complex. This may be because of a fear or anxiety, a lack of time, not seeing the value of access, fears over the effects of computing or simply a disinterest in computers. However, caution should be expressed with regards to the normative assumptions behind such analysis. There are perfectly rational reasons for not engaging with computers or being online and the decision not to be online should not be regarded as entirely problematic or one of 'lack'. Once the barrier of motivation is surpassed, the key barrier facing users has been understood to be one of access. A number of academics (2005; J. A. G. M. van Dijk & van Deursen, 2014; Warschauer, 2002, 2004) have noted that the issue of access to computers and the Internet forms is more complicated than the issue of having direct physical access. van Dijk (J. A. G. M. van Dijk & van Deursen, 2014) notes access is comprised of two separate aspects: physical access – which consists of the direct contact with an Internet-enabled computer – and material access – the wealth to be able to afford the expenses of being on line such as broadband subscriptions, costs of various services and apps and subscriptions to services. A number of services also require the user to have credit cards and other financial tools to avail themselves of access, barriers that prevent those of limited wealth from engaging. While many may have physical access through using a computer, through work or in cyber cafes or other locations or

even possessing one material access proves a more difficult barrier to overcome as it is linked to financial inequality. Warschauer (2004) notes the complexity of successful computer usage: "access to ICT is embedded in a complex array of factors encompassing physical, digital, human, and social resources and relationships." As such efforts that supply physical access without appropriate support such as training and development often fail. Indeed, there is a rich history of efforts to supply technological solutions to the digital divide that have failed due to a lack of planning, preparation and post deployment support.

During the 1990s and much of the early 2000s, the issue of the digital divide received attention at the highest of governmental, non-governmental, corporate and charitable levels (Klein, 2004) as well as extensive academic interest (Norris, 2001). For example in 1999, President Clinton called for a 'national crusade' to ensure the presence of computers in all homes in the United States (Thierer, 2000). Solving the problem of the digital divide became a significant area of domestic and international development activity and consumed large amounts of funding. Many of the solutions proffered involved the greater deployment of technology allowing individuals who were not connected the opportunity to become connected.

6.3 Second-Order Digital Divides – Skills

It was soon noted that access alone was not a solution to uneven use of computers and Internet technology and from the early to mid-2000s, the concept of the digital divide was increasingly questioned. The binary nature of the divide – either having or not having a connection – was challenged and alternative more sophisticated models were produced that indicated a gradation of access (Livingstone & Helsper, 2007; Selwyn, 2004; J. van Dijk & Hacker, 2003; Warschauer, 2002, 2004). The identification of lack of access as the main problem was challenged and other factors became increasingly recognised as being significant in preventing full

engagement with digital media and reaping its attendant benefits (Hargittai, 2002). The aforementioned criticism by Warschauer (2004) that access was part of a complex range of relationships and social factors was significantly expanded upon. The lack of skills in using computer and Internet technologies was identified as the most significant problem and the primacy of access over skills in projects to deal with the digital divide was challenged. A number of new models of skilled usage were proposed to account for differences in participation (Barclay & Duggan, 2008; J. A. Van Dijk, 2005). These models identified the lack in skills as being central to restricting people availing themselves of the benefits of digital media in terms of activities such as business (Arendt, 2008), political engagement (Min, 2010; Morris & Morris, 2013), economic activity (König, Lorenz Graf-Vlachy, & Mammen, 2016; Yartey, 2008) and health (Kreps, 2005; Norman & Skinner, 2006).

van Dijk (2005; 2014) offers detailed proposals defining specific skills to be developed in users to challenge the digital divide. Drawing upon various forms of literacy (many of which are discussed in chapter three) and Hamlink's (2000) Bourdieuian inspired 'information capital'[2] van Dijk determines a six part model of the necessary skills required by individuals to challenge the digital divide (2005; 2014). This model identifies two sets of skills specific to the medium: operational skills – the technical skills to engage with digital media; formal skills – the skills of using hyper media; and four content related skills: information skills (akin to older models of information literacy); communication skills (how to communicate on the Internet) skills in content creation (used for the production of digital media content) and strategic skills (how to use digital media to achieve one's goals). van Dijk's model presents a useful way of thinking about the deployment of digital technology to challenge the digital divide. However, it does not directly address the concerns of the need for greater criticality in engaging with digital media. Though there is some very brief mention of evaluating information the proposed model does not incorporate any real consideration of how texts themselves should be considered or the ways in which information that is mediated through a variety of sources and often relayed through different social media lens and

channels be considered. Moreover, though attention is paid to the creation of digital media content in the model, this is rather limited in its understanding of the nature of participatory culture (as discussed in the previous chapter) and issues such as the concerns of ownership, copyright or the value of production are not addressed.

6.4 Third-Order Digital Divides – Participation and Outcomes

Contemporaneous to a number of the initiatives to ameliorate or solve the digital divide was the emergence of web 2.0 platforms, social media and the expansion in participatory cultures facilitated by social media in the mid-2000s. The centrality of user contribution and production in such media can also considered as being a further form of divide. This relates to whether an individual's ability or propensity to engage in the participative aspects of social media would be adversely affected by 'real world' material, cultural and educational advantages and whether extant inequalities would be exacerbated or reduced by an individual's ability to participate – that is, are the 'outcomes' or 'returns on use' of participation evident in terms of reducing social inequality (van Deursen & Helsper, 2015). Termed the 'participation divide' (Hargittai & Walejko, 2008), 'participation gap' (Jenkins, 2009), 'production gap' (Schradie, 2011) or 'usage divide' (van Djik, 2012), this refers to how a propensity to engage in digital media production and social media engagement is commensurate with particular indicators of social inequality. Women, members of certain ethnic minorities and those from lower socio-economic groups tend not to engage in participatory culture as much as white men and boys from higher socio-economic groups (Hargittai & Jennrich, 2016). Furthermore, as such groups are underrepresented in those producing media the content produced tends not to represent their values. However, research studies have indicated that a straight-forward link between markers of social inequality and a propensity to engage with social media and participatory culture is confounded by the multiplicity of uses to which social media is put and the activities performed on it (Lutz &

Hoffmann, 2014). For example, Blank (2013) and Blank and Reisdorf (2012) challenge the link between social inequality and engagement arguing that content production must be considered not as a singular activity but as differentiated, users produce differing forms of content. They do however report positive correlations in the type of content produced and various indices of social and educational capital. Similarly, Micheli (2015) identifies no correlation between the employment status of youth's parents and the youth's ability to engage with social media. However, she does report a link between certain activities – information seeking – that build social capital – and parental social class. Correa (2016) notes no difference in the amount of social media use between members with different educational levels when the use is for social purposes but does note a difference between users when the task is searching for information. Villanueva-Mansilla, Nakano, and Evaristo (2015) offer a sophisticated analysis in which engagement with digital media is differentiated by social and cultural capital. People use digital media for different purposes even when the activities appear similar.

The relationship between inequality and ability to participate is complex. A user's direct ability to use social media and the amount of use of social media usage does not seem affected by the status or forms of disadvantage their users may suffer. Indeed, a number of researchers report that users from low-socio-economic groups spend a larger proportion of their time on particular activities on social media than users from high socio-economic groups (Blank, 2013; Hoffmann, Lutz, & Meckel, 2015). There are certain participatory productive activities that are performed more by people of a low-socio-economic group than those with from higher socio-economic groups. Furthermore, advocates of the benefits of participatory culture such as Jenkins (2009) argue that the very act of engaging with participatory culture and productive activities will build skills, confidence and communication skills that may assist users to enhance their financial opportunities. However, there are certain activities and aspects of Internet use – such as searching for information – and social media – such as networking and building personal brands – that are correlated with users of higher economic standing and other forms of privilege. Ironically, it is these very

aspects that can contribute to enhancing social standing and improving economic prospects.

6.5 Conclusion

The digital divide evidently still exists both internationally between countries and within countries between groups. Moreover, its multi-dimensional nature – that in some parts of the world access and the speed of access is still a significant problem, in other situations the issue is one of a skills deficit while in yet other regions both access and skills deficits have been assuaged yet the divide becomes evident in the manner in which social media is used – means that single solutions will not work. Despite significant investment and numerous attempts digital technologies have not eradicated or ameliorated social inequalities but have instead become a vehicle by which such inequalities are further entrenched and reinforced. This is the opposite of what many early advocates of digital media had predicted (Curran, 2012). The early promise of the Internet and digital technologies was for the power of digital technology to emancipate and liberate; for technology to set right social wrongs. Computer technology and access to the Internet would serve as a means of liberation and emancipation – the digital divide was between the 'haves' and the 'have nots' of computing technology. The problem was that people did not have access to computers and the solution was to provide them. Such 'cyber-utopianism' (Morozov, 2012: xiii) – seeing computers and access to the Internet as a solely positive solution – often involved calls for large scale, expensive and often socially disruptive technology deployments with little regard to historic and local practices (Warschauer, 2004). Such euphoria is still very evident in commentary (Morozov, 2013) and forms a distinct part of the discourse surrounding the impact of the Internet and digital media in general (Leaning, 2009). Attempts to alleviate the first order digital divide between countries often explicitly articulate such views of technology (Leaning, 2010). However, the existence of the problems identified in secondary and tertiary order divides challenges the cyber-utopian's view that technology on its own can facilitate benefits. That is the affordances

of computing technology can only be availed if other non-technological factors such as adequate planning and training are in place. Users must see a purpose of the technology deployment, they must conceptualise the computer technology as being of actual use and that it will improve their current situation and not damage a beneficial extant social practice (Warschauer, 2004). Once the technology is accepted then users must be skilled enough to make use of it. Even then, there exist differences in the ends to which computer technology is used. Through the activities seem remarkably similar between users from different socio-economic groups, the impact upon life-chances and opportunities can be significant. Indeed as the research on third level divides indicates, computer technology, Internet and social media use can be similar between users of different economic groups and there is little correlation between high levels of use and improved economic opportunity. Evidence indicates that the current forms of engagement that predominate in social media by those in lower socio-economic groups do not seem to improve their opportunities – users from such groups have the motivation and the opportunity, are skilled users and able to produce and engage in media productive acts yet do not engage in the activities that correlate with users of higher economic standing. This interpretation of developing a solution to the digital divide would seem to propose that the blog posts, status updates, YouTube videos, art work, commentaries, Wikipedia entries and edits, photos, manipulated images, Internet memes and many other forms of content that constitute engagement in participatory culture and which are disseminated and shared on social media need to be strategically orientated towards particular ends if they are to facilitate what is considered to be an improvement. The end result of solutions to the digital divide seem to point towards a problematic conclusion, that even when users possess access, when they are skilled they will continue to be 'lack' unless they engage with the strategic use or instrumental use of their own productive capacity to leverage opportunity for themselves. There are concerns with this proposal; first, it is reductionist. Social stratification is highly complex and to reduce a person's position in elaborate social structures to their possession, level of skill and even

taste in the use of social media misses out on a whole range of other social forces. Second, it blames the victim; interpreting those who do not engage in a particular use of social media and Internet technology as being lacking articulates a discourse of blame; it is their fault they are not successful as they do not have, cannot use or use differently complex systems of technology. Third, it devalues alternative forms of cultural activity aside of those used to enhance social standing. That users of higher social standing operate computers and social media in the manner they do does not devalue the use of the same technology by members of a lower socio-economic groups. Instead, it is important that we see a multiplicity of use of social media and technology as valuable. We should not seek to reduce the creativity and variety of use of technology simply to instrumental ends. Of course, advocates of solving the problem of the digital divide most often do not seek to reduce opportunity for cultural engagement and often engage in the activities of engaging with the problems of the digital divide primarily to promote and enhance equality. Use of computer technology, the Internet and social media is as much a symptom of social inequality as it is a cause. The digital divide is thus both an index through which we can understand social inequality between countries, regions, groups and communities and a cause of those inequalities.

The digital divide is then central to the project of media and information literacy. It has served as a key topic in the development of digital and information literacy; information literacy served as a significant advancement in highlighting the need for skills while attempts to alleviate second order divides draw and feed into information literacy activities. The recognition of third-order divides and participatory culture corresponds with the incorporation of the creative aspect within information literacy and its linking to media education. What information and media literacy can offer contemporary discussion of the digital divide is a stronger appreciation of cultural production, the recognition of difference in such production and a nuanced and more critical understanding of media consumption and production.

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[1]However, there is still a further aspect of first order digital divides related to the provision of broadband across regions. In many countries, the distribution of broadband is not universal with non-metropolitan regions often experiencing poorer provision. Thus, when universal access is identified, it typically refers to some connection to the internet and not full broadband access. Moreover, even when broadband access is marketed the actual levels of connectivity, the download and upload speeds, are also not universal and again non-metropolitan regions often experience lower speeds.

[2]French sociologist Pierre Bourdieu proposed social inequality could be understood by the possession or lack of three forms of capital – financial, cultural and social. Financial capital refers to the accumulation of wealth: cultural capital refers to an individual's possession of cultural wealth including education, understanding of appropriate social behaviour, accent, manners and general skills of interaction; social capital refers to an individual's network of relatives, friends and acquaintances who can assist the individual in enhancing their position. Hamlink (2000) asserts that possession of information skills constitutes a new form of capital distinct yet linked to the other forms.

Towards the Integration of Media and Information Literacy

Towards Integration

Abstract

This chapter draws together themes raised in the book and offers a rationale and brief proposals for the integration of media and information literacy. It commences with an overview of the arguments made in the preceding chapters. This is followed by a discussion of the rationale for integrating media and information literacy. This consists of considering the two preoccupations of the book, the adherence to sociologically orientated cosmopolitanism and the recognition that media and information literacy should be integrated as we do not experience media and information as different activities, keeping them separate is pedagogically wasteful and that they share common intents. The chapter then turns to three proposals for the future; first that attention focus upon the forms of digital media delivery and the simultaneous affordances and restrictions such systems incorporate, second that media and information literacy address the legal and commercial realities of working with digital texts; third that media and information literacy equip students with an understanding of the consequences of the provision of information through use of participative digital media.

Keywords

Cosmopolitanism; media literacy; information literacy; integration of media and information literacy

CONTENTS

7.1 Introduction

In this final chapter, I will revise the ideas considered in the previous chapters and then draw out the main issues I feel need to be developed in information and media literacy in the coming years. In doing so, I will not seek to identify specific actions or skills that need to be addressed in teaching. Rather the intention is to identify key areas that I feel information and media literacy need to attend to so as to better equip students to engage with the current and future nature of the media. This chapter will commence with a brief revision of the subjects of Chapters 2–6 so as to revisit some of the major arguments. Following this, I will turn to the two key preoccupations of the book and approach to media and information literacy proposed here. Though discussing these topics I will seek to identify what I consider to be the key drivers for the future direction of the field.

7.2 Chapter Review

The book is divided into three sections. Section 1 is constituted by Chapters 1–3. Together with Chapter 1 which introduced a number of themes, Chapters 2 and 3 were concerned with considering how the practice of media and information literacy has arrived at its current position. Chapter 2 examined the history of the idea of media education and literacy. The chapter commenced with a discussion of the nature of literacy and in particular media literacy. It was noted that literacy in a particular field is achieved by a course of education. However, the nature of what education should be and why it should occur are debatable. It was argued that in the history of media literacy education, three key orientations have emerged and that such orientations are linked to political and ideological positions. The first perspective has been referred to as a protectionist or inoculation approach and developed in response to the emergence and widespread use of media technologies. This approach was concerned with the perceived negative effects of 'mass media' upon certain sections of society. It was noted that such a fear has accompanied the emergence of new communications technologies and practices pretty much for the entirety of recorded human history but that it became more pronounced (at least from our historical position) in the early 20th century with the growth of large audiences. The protectionist approach sought to develop 'critical acumen' in the audience to protect them from the negative influences of the new media. The second approach developed out of a range of advances in social and cultural theory. This approach sought to equip the audience with an understanding of the ideological nature of media and cultural texts and facilitate their ability to decode, reveal and thus demystify the problematic nature of the media. The third approach emerged in response to further developments in social and psychological theory and involved teaching drawing upon creative practices. Through the process of creative practices, students would gain an understanding of how the media operate. Though these perspectives occurred at different times, they are all still currently present in discourse around the function of media education. They further reflect different political positions and conceptualizations of

the media and its role in society. The chapter further noted how we may understand the transition between perspectives as an example of the gradual individualization of society in its transition from middle to late modernity.

Chapter 3 considered the parallel history of information literacy education. Information literacy has much in common with a number of other literacies and in particular digital literacy. Indeed, there is significant overlap between digital literacy, information literacy and other fields such as technological literacy. However, information literacy is primarily concerned with the manner in which information is handled. The chapter charted the emergence of information literacy in the early 1970s through its gradual development in a number of key moments. These moments related to revisions of the definition of information, literacy and what skills and information literate would possess. In spite of the similarity between information and media literacy, the chapter notes a very specific difference between the two in the way in which the two fields are considered to be political. The motivations behind the various activities within media literacy are inherently political; media education was explicitly designed to mitigate the negative aspects of the media, to reveal the ideology of the media or to afford a more democratic approach to the media through recognizing the non-passivity and creativity of the audience. Moreover, the particular motivations behind both the demystification model and the constructivist creative approaches owe much to counter cultural and anti-hegemonic movements within society. Information literacy however possess no such oppositional tendency; its origins lie in facilitating goals central to the betterment of the state such as enhancing economic wellbeing and productivity. Later iterations modified this approach and located the betterment of the individual as the prime rational of the activity. However, the approach adopted still lacked any overarching adherence to a progressive endeavour and as such essentially lacks the criticality of interpretation present in media education.

Section 2 which commenced with chapter four sought to examine the contemporary experience of computing through three different 'lens'; each increasingly focusing upon a wider scale. Chapter 4

considered the history of the ways in which computing power is delivered to us; Chapter 5 looked beyond the individual examining the nature of digital content engagement within digital culture while Chapter 6 expanded this and looked to the ways in which forms of social stratification impact upon and are facilitated by computing use and access to digital media.

Chapter 4 commenced with the assertion that within the history of computing, it is possible to detect a trajectory in which computers have become more intimate or 'closer' to us. This 'closeness' relates to how the computer has shifted from a device which we may not have any direct contact with (though it has significant impact upon our lives through influencing important decision-making processes) though a device that modifies for many their experience of working life, to a device that is located in our homes, then a device we carry around with us and finally to a device that intersects directly with our experience of the world. In this model, computers become inserted into all aspects of our lives. They become a mediating technology between ourselves and others as well as affording us access to unparalleled levels of media content. Computers and their mediation and affordance of information have become ubiquitous and as such so our skills in using and critically engaging with them become more relevant than ever. From here, the chapter considered a number of distinct platforms in the delivery of computing technology to users. This commences with the mainframe which is a system that though few ever get to engage directly with them they impact upon our lives in a multiplicity of ways structuring and regulating life chances and opportunities. The micro and personal computers afforded users individualized access to computers. In some instances, this occurred in work environments though it soon spread to the home. Portable computers in the shape of the laptop shifted the location of the points of access and presaged the emergence of more fully portable and mobile devices. The chapter concludes with a brief consideration of the current systems of wearable computers, which in certain instances augment and mediate our experiences to a new heightened level.

Chapter 5 considers digital culture and looks at three aspects of how digital media content is experienced by users. The first of the

three aspects, participatory culture, relates to the way in which content on digital media is created and disseminated through both professional and non-professional, peer-to-peer channels. This ecology of media creation and distribution is quite different from the prior mass communication system in which media tended to be created and disseminated from a number of central publishing and broadcast organizations. In its early years, participatory culture was celebrated as a means of readdressing social power inequalities between those who could produce and those who constituted the audience. However, the challenging power of participatory media was soon (partially at least) co-opted through the skilled use of public relations activities by corporations. Furthermore, corporations became adept at extracting value from the labour of media producers (particularly those who produce fan media). Most relevant to our interests is the extent to which users or audiences participate, or are able to participate, is dependent upon the possession of skills and understanding – engagement in participatory culture is mediated and contributes to new forms of social stratification. Thus, the very media culture that is understood (in certain interpretations) to afford a form of liberation from the dominance of powerful media organizations serves itself to orchestrate new forms of stratification. The second aspect covered in Chapter 5 was trans-media. Trans-media refers to the way in which media signifiers cross-media platforms and media texts. The chapter noted two main forms of trans-media practice. Trans-media distribution is a marketing technique developed with the intention of drawing as much value from a single brand as possible. It concerns the way in which a single brand and its related products are sold across different media. Thus, a set of signifiers are used to link other media texts in live action drama, animation, comics, films and other media forms as well as merchandise such as figurines, toys and branded goods. Trans-media story telling is slightly different and refers to the way in which a single story is told across different media and a story world is developed which requires the user to engage with it through multiple media texts, which often cross-media platforms. Thus, a story can be articulated or revealed through a separate but related sub-story TV series, film and

animation and apps. It is distinct from trans-media distribution in the degree of repetition and redundancy as the texts tend to be story based rather than centred upon the articulation of a set of motifs. The two approaches have much in common and differ primarily in the desired result if not the actual practices. They require the user to actively seek out different story or brand elements or components across media forms and in doing so demonstrate skills and aptitude in media and information literacy. Yet at the same time, the act of seeking out and engaging with the text also involves the user becoming entailed or ensnared in sophisticated strategies of brand collaboration. The act of engagement with the practices for trans-media consumption potentially disarms the critical acumen of participants; by making the audience active trans-media circumvent critical action. It is in such circumstances that the most critical aspects of media and information literacy need to be developed and deployed. The third aspect related to the converged content afforded by digital media. This refers to the manner in which users of social media can integrate news and other media form different sources into their own social media platforms. Users are able to indicate support and share stories and information and make stories available to others in their network. A further form of incorporation occurs with the ability to login to external services using social media profiles. Use of these systems affords significant amounts of information about the user's web activities and personal likes and dislikes. This information has commercial value and is put to a number of uses in marketing and advertising. More problematically, the big data is also used to inform decision-making processes that may affect an individual's life chances.

Chapter 6 shifted attention to a wider level and considered how forms of social stratification are related to access and use of digital media. The chapter commenced with a discussion of the idea of the digital divide that the divide was something that prevented people from availing themselves of the benefits of digital media. The chapter considered three forms or orders of digital divide; the first order concerning differences in rates of access; the second order being differences in the skills necessary to use computers and the

internet and the third order being differences in the use to which computer access and social media activity is put.

7.3 Approaching Media and Information Literacy

In Chapter 1, I noted that there are two central preoccupations of this book and my approach to media and information literacy. The first is a methodological and ideological commitment to a school of social theory and the ideas of cosmopolitanism. Methodologically, this approach entails recognizing the gradual transformation in social form from middle-to-late modernity. I contend that such recognition is important in our understanding of digital technology and its impact. The changes that have occurred in media and information education, the shifts in how technology interacts with us, the new ways in which we engage with media texts and the impact upon forms of social stratification of digital technology are all part and parcel of the transition from middle-to-late modernity. To understand these changes I feel it is imperative that we adopt a sociologically orientated approach. This book could have been written by focusing upon the changes in technology that have occurred with the emergence of computing technology. Indeed, there are many accounts of the impact of computing that do just this – they focus upon an aspect of technology and look to its various impacts and effects, noting changes in different forms of social practice. For example, Bunz's (2013) excellent text on digitization looks at how the advent of the use of algorithms in data analysis has had substantial impact. Here the intention was different; I assert that we should attend to the human practices and how technology is interwoven into these. This is an approach I have sketched out more fully previously (Leaning, 2009). Ideologically, I have a commitment to the idea of cosmopolitanism and feel that it affords a critical position to inform media and information literacy practices. The reader may dispute the concerns of cosmopolitanism, disagree with its relevance and may well see other critical stances such as Marxist, post-colonialism, feminist and queer epistemologies as more

pertinent, relative or important. This text is not the place for such a debate. However, given (at the time of writing) the political situation in Europe and the United States, the re-emergence of nationalist and racist discourse, the conflicts in various parts of the middle-east, cosmopolitanism serves as important critical position. This 'cosmopolitan vision' can be understood as a non-Marxist, progressive, equality orientated stance. Cosmopolitanism is explicitly founded on the toleration of difference be they markers of ethnicity, gender, sexuality, faith or social stratification. It challenges both a nationalistic stance and a retreat into fundamentalist positions that oppose such recognition of difference. The position has a long history within liberal political theory and has also be used by a number of European sociologists and offers a broadly sociologically orientated approach to understanding and engaging with a number of contemporary political and social issues. While such a stance may seem at odds with *how* we conduct media and information literacy, it is pertinent to *why* we would seek to encourage information and media literacy. Of course, why we engage in educational practice is a very large question and there are as many answers as there are those engaged in it. However, one reason may be a desire to contribute to a social good, to perform actions that we believe will result in a world that matches and advances our beliefs and values. Implicit in such endeavours is a vision (or utopia in Halpin's (2002) words) – the desired position which will result from our actions. This may be small such as equipping a student with a set of skills so that they are able to perform a specific task they wish to perform. It may also relate to a broader yet less specified desire for a society more in keeping with how we would like it to be. The cosmopolitan vision is such a model, a target of a progressive, equality orientated society in which difference is respected.

The second preoccupation relates to recognizing that media and information literacy should be integrated. As I have argued previously (Leaning, 2013), there are a number of reasons for doing this. First, if we look at the experience of the user or consumer of information and media we typically do not experience them as separate forms of communication. Indeed, the experience of being a user of information resources and a consumer of media is so similar

that most people would not differentiate between the two so having two separate forms of education related seems peculiar. Media and information texts do not exist in discreet 'silos'; access to them is afforded through integrated platforms. Moreover, such practices have been occurring socially for years – audiences or users flit between technologies and draw upon different platforms and sources. As was explored in Chapter 5, such an approach is widely understood, facilitated by and used by industry to encourage engagement by audiences. The free-flowing nature of media content, brands and symbols disseminated through numerous channels and platforms means the division between an 'active' information user and a 'passive' audience member collapses. Consumers of media need both the information handling and manipulation skills of information literacy and the critical, interrogative approaches of media literacy to meet the progressive intents noted above. Second, having media and information literacy as separate subjects in a contemporary curricula seems very pedagogically wasteful – it uses up valuable time and student focus to achieve what could be delivered with an integrated approach. Third, in their current forms media and information literacy are broadly in alignment in terms of their interests. Both practices seek to enhance the interests of students in dealing with media and information. Moeller, Joseph, Lau, and Carbo (2011) note that information and media literacy are explicit in their support of a democratically orientated approach and argue that they should be aligned so as to afford the achievement of Article 19 of the Universal Declaration of Human Rights (Right to Freedom of Expression).

7.4 Towards Integration

In this final section, I turn to considering a number of ideas to inform media and information literacy in the 21st century. These proposals draw upon ideas discussed in the preceding chapters. The first proposal concerns the form or media through which we experience digital content and engage with information. This relates to the general direction of the experience of computing by non-specialist users (i.e. those who have been not been trained for the expert use of

computing) and the focus of contemporary media and information literacy practices. The trajectory of development of computers points towards a future experience in which the computer becomes more ubiquitous and more personal – we will find computers are used for an increasing amount of activities and they will become inserted far more into different facets of our lives and will mediate far more experiences. This occurs in two ways. First, it relates to changes in the physical nature of the computer – how the hardware platform through which computing power is made available to us changes and becomes more integrated into our personal space. Second, it concerns our increasing engagement with forms of media content delivered to us on social media platforms – this includes issues such as news relayed through social media channels, consumption of media texts across platforms and our engagement with media texts through activities, which we produce, share and consume within single social media or digital media platforms. Simultaneous to this extension of computing power into our physical space and the remediation of external texts through social media, the interfaces are becoming (and seek to be) far more transparent in their use – we will notice the computer less and less as interfaces become more integrated into our personal space. Again this relates both to the nature of the physical apparatus and to the algorithms involved in the platform of delivery and the desire of social media companies to be the prime entry point to information on the web. For media and information, literacy advocates this is significant as the critical approaches to texts advocated so strongly in media literacy and the critical approaches to information within information literacy need to be realigned and recalibrated to deal with such issues. The closer the media and more transparent the interface the more we need to remain mindful of the problematic nature of information and media. We therefore need to orient media and information literacy to deal with such new technological forms. Though there have been some attempts to do this, such as van Dijk and van Deursen's (2014) identification of the types of formal skills needed to use digital media, this has mainly been considered from a facilitating perspective; looking at ways in which we can learn to use the technology. The prioritising of skills development has primarily

been to facilitate and enhance use of digital media. A critical approach to understanding how the forms of digital media impact upon us currently lies outside of the scope of information literacy. Media literacy typically does consider such issues but rarely looks to the manner of information engagement and instead focuses upon texts. It is proposed then that an integrated media and information literacy explicitly critically attend to the formal aspects of digital media delivery. Critical attention should paid to the how the means of interaction we have with computers, their interfaces, simultaneously make available to us networked computing power yet hide the complex mechanics and consequences of such delivery.

The second proposal relates to the nature of engagement and participation, the digital divide and the beneficiaries of media and information literacy education. Given the financial value of data gleaned from engagement with digital media through various social media platforms, it is probably that more people will be encouraged to go online and use such media platforms. Such a result is a congruent with many who seek to resolve the problems of the digital divide. Thus, the interests of the social media companies, the advertising agencies and the other organisations who make profit from the data produced by social media use are in part at least aligned with those who seek to make available the benefits of being online to those currently on the wrong side of the three orders of the digital divide. Furthermore, advocates of media education of the more participatory perspective and commercial organisations that seek to encourage individuals to engage in participatory activities, which can contribute to brand awareness, and dissemination may also find common ground. However, media educators must be cautious and encourage students to be cognisant of the eventual beneficiaries of participatory activities, of issues of commercial ownership of intellectual property and related issues. Students need to be aware of their activities being repurposed for commercial activities, which do not enhance the interest of the student. Thus, it contended that in developing the skills and practices of media and information literacy a full appreciation of the nature of the legal and commercial reality of information, textual production and textual repurposing practices figure largely.

Third, and congruent to the above, is the recognition that media and information education practices need to engender in students an appreciation of the uses to which data they make available about themselves through their use of social media, search engines and indeed nearly all forms of networked activity will be used. Interestingly, the topic receives attention within various digital literacy programmes. However, while there are exceptions, this topic seems to been missed by both media and information literacy programmes; media literacy activities have developed critical skills but have not related it significantly to the students experience and activities beyond the students ability to produce media – what happens to the data they reveal while using media is often not considered. Information literacy activities tend to be directed towards the enchantment of skills in students in their own information usage but seem to ignore the possible consequences of the handling of their information by others. Accordingly, it is proposed that integrated media and information education should equip students with knowledge and understanding of the ways in which the information we provide in our use of digital media is used to inform decisions about us, how it is used to model behaviour and the possible impacts in can have upon us.

7.5 Conclusion

This text has sought to make a number of arguments and to raise interest in a number of topics related to the future direction of two separate but related academic fields. I have argued that I feel these two fields should be combined and slightly reoriented to become more cognisant of technological changes and transformations in social processes consequential of the shift from middle to late modernity so as to afford opportunities to advance a cosmopolitan 'vision' or approach to society. As such this is a text with an explicit sociological and political flavour that I hope also makes some contribution to the ongoing debates in the field.

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