Theories of Digital Media Field Statement

David Rheams
Advisor: Dr. Mark Sample
December 1, 2013

Introduction

This document is designed to sketch the major theories and critical issues surrounding digital media as a field of study within the larger field of Cultural Studies. Digital media theory examines the interplay between media, culture, and technology within their historical, economic, social, and political frameworks. This field has been described as a "history of newness"[1] and is often taught under the heading New Media. Though *new media* and *digital media* are used almost interchangeably in the current literature, it is my intention to focus on the digital aspects of media to give a concentrated analysis on those parts of media that are digitally produced and distributed. Whereas a new media field requires an in-depth historical analysis of mass communication technology from the past 500 years covering the printing press, photography, film and other technologies, I have sought to narrow the focus to the past three decades surrounding the emergence of personal computers and networked communication platforms. Therefore, this document treats digital media as a subset of new media, simply the latest of many new media. David Silver places the start of a digital media field in 1995 when anthologies and readers covering communications technology and new media begin to be published on the academic market. He points to the early work of Manuel Castells, William Gibson, Donna Haraway, Kate Hayles, Lisa Nakamura, Howard Rheingold, Sherry Turkle and others in shaping early discussions on digital media.[2] Though technology is irrevocably connected to media, critical digital media is not solely defined by technology, but as Martin Lister et al. explain in the introduction to their *New Media: A Critical Introduction,* "the emergence of 'new media' as some kind of epoch-making phenomena, was, and still is, seen as part of a much larger landscape of social, technological and cultural change; in short, as part of a new technoculture."[3] Otherwise

the genesis for this field might be technological breakthrough such as the Gutenberg press, or the Daguerreotype, or even Babbage's Analytical Engine as an entry point into this field.

The literature surveyed within this document focuses on cultures within the western, developed nations of the US, Canada, Europe and Australia. The theories on media and communication discussed within the study of digital media are often not applicable in the context of developing nations or nations with various levels of access (e.g. North Korea, China, or Sub-Saharan Africa). That is not to say digital media has not had an effect on these areas, but the effects differ depending on the location. Some discrepancy occurs within developed countries as well, as they contain various cultures, races, socio-economic statuses - a phenomenon I discuss throughout this document.

This field statement begins with an overview of Castells' network theory, and the ways scholars have described sources of power in relation to networked communications. Castells and others have been instrumental in shaping network theory and the ways people communicate on an increasingly global scale and the effect this has on social structure and the economy. I couple their conception of the network society with scholars who document what they believe is a transition in the power structures of society, from the disciplinary structure Michel Foucault describes to a control society espoused by Giles Deleuze and Felix Guattari. The section that follows, "Access to Public Spheres" highlights the shifting public sphere models alongside divisions in access to networked media. Beginning with Jürgen Habermas, I work through the changes encountered as the idea of a single public "sphere" splinters into multiple spheres with varying layers of public access. The third section, "Identity and Roles in Digital Media," explores how identity and subcultures are shaped through digital communities. Lisa Nakamora documents theories on how personal identity, race, and gender change within a digital context.

Henry Jenkins looks at fan subcultures and media convergence, while Sherry Turkle examines

connections between online and offline communities. The fourth section, "Data and Code"

examines the physical spaces of digital media primarily in the form of the database and the code

used in the construction of media. Lev Manovich's *Language of New Media* provides a starting

point to understand how a database shapes a society through its language. Additionally, this

section will explore the ways people interact with digital data both visually and conceptually in

the digital humanities, as well as outline theories developed in critical software studies. These

theories treat computer language as a text to be analyzed using both traditional discourse analysis

and software analysis. This section will rely on Nick Montfort, Matthew Fuller, and others who

document the increasing importance of software as the building blocks for digital objects and the

"ways of thinking and doing that leak out of the domain of [computer] logic and into everyday

life."[4] Taken together, these sections provide an overview of the ways theorists from a variety of

academic disciplines have questioned the relationship between digital media and culture.

Definitions of Digital Media

The primary object of this field is digital media, however, the definition of digital

encompasses both the type of media produced along with the technology used to create and

distribute the media. Microsoft's help desk, Technet, defines digital media as:

> Digital media refers to audio, video, and photo content that has been encoded (digitally
> compressed). Encoding content involves converting audio and video input into a digital
> media file such as a Windows Media file. After digital media is encoded, it can be easily
> manipulated, distributed, and rendered (played) by computers, and is easily transmitted
> over computer networks.[5]

Coupling Microsoft's common definition of digital with Lev Manovich's understanding of new

media,[6] which he describes as a synthesis of communication and computation technologies gives

rise to one important description the Microsoft definition alludes to, but does not specifically state: interactivity. The inaugural issue of *New Media and Society* positions the object in this way: "The technologies that have emerged in recent years, principally but not exclusively digital technologies, are new. They do new things. They give us new power. They create consequence for us as human beings. They bend minds. They transform institutions. They liberate. They oppress."[7] Each of these definitions address the addition of a many-to-many production and distribution model for media, allowing the average person to create and share media while simultaneously allowing for a plethora of new communication channels which can be occupied by any number of social actors.

Media Theory & Cultural Studies

The field of Cultural Studies has a long relationship with media theory, and theorists in both the Birmingham and Frankfurt schools have been active participants in the relationship between society and media. Based in no small part on the work of Theodor Adorno, Max Horkheimer, Leo Lowenthal, Herbert Marcuse, and others the Frankfurt School emerged from a tradition of western Marxism to critically examine social theory, mass culture, and mass media. These scholars were interested in understanding how mass audiences were created and controlled as mass communication methods were branching out from printed text to radio and television. Adorno and Horkheimer's *Dialectic of Enlightenment,*[8] and especially the section on the culture industry, is a foundational text for mass media studies as it theorized how media and aesthetics were standardized for mass audiences. They employed a Weberian model of sociology combined with psychoanalytic mode for collective consciousness, or what Leo Löwenthal referred to as "psychoanalysis in reverse,"[9] to determine psychoanalytic modes for collective consciousness.

Adorno and Horkheimer connected mass psychology to totalitarian formations on the unconscious.[10] These writers felt that an all out rejection of media aimed at a mass audience was a form of resistance, yet these writers - and especially Adorno have been accused of elitism for this rejection.

The Birmingham school, or as it is formally known, the Centre for Contemporary Cultural Studies (CCCS), was an institute founded by Raymond Williams, Stuart Hall, and Richard Hoggart who turned their attention from "literature to everyday life" in the 1960s and 1970s.[11] Borrowing many of the methods from literary criticism, the CCCS scholars began to question the ways audiences received and interpreted media. These theorists questioned one-way transmission theories that described audiences as passive, preferring to posit audiences "as active agents filtering, interpreting, using and appropriating information in their own ways to suit their own purposes."[12] Ien Ang's audience reception research on the *Dallas* television show[13] along with Stuart Hall's encoding / decoding[14] theory, are two primary examples of audience participation studies. The result of these, and other studies like them, was that audiences were no longer assumed to be passive viewers, but active participants in decoding the media they consumed. The emancipatory possibilities expanded with the emergence of digital communication and the shift to a many-to-many communications model.

Section 1: Networks and A Networked Society

The writers in this section offer various perspectives on how an individual's relationship to networked media has both altered the way scholars define an audience or a computer user. Along with evolving definitions, the scholars in this section discuss the societal changes surrounding technological advances. Nicholas Negroponte, Castells, and Alexander Galloway

each uncover ways digital networks have changed power structures for networked societies.

Castells states that power is "the structural capacity of a social actor to impose its will over other

social actor(s)."[15] However, each of these writers locates "structural capacity" within various

facets of technology. Negroponte places the source of power within the physical computers and

set-top boxes used to receive information, whereas Castells locates the sources of power within

the digitization of social networks, while Galloway refines Castells approach and situates the

sources of power in the code which controls access to the network. Considerations of power and

digital media must encompass other social transformation as well, such as the change from a

fully formed "mass" media into a multitude of masses who access media in different ways and

for different purposes.[16]

1.1 The Technology of Media and Networks

Nicholas Negroponte began to explore the changing media landscape early in his career

at MIT,[17] concentrating on the physical components of media technology and telephony. In 1996,

just as the internet was becoming more accessible to the general public in the United States,

Negroponte published *Being Digital*, a text which set out to document the effects of

technological transition from analog to digital media and offer qualified predictions on the way

media would evolve over the next twenty years. Widely acclaimed in both academic and popular

circles, *Being Digital* considers "what happens when media is no longer 'mass,'" questioning the

way people communicate once media becomes tailored to an individual's interest and is capable

of being recalled at the user's discretion.[18] Negroponte cites on-demand television and an

increasing amount of television channels as examples of how experiencing media will be

different for each individual; rather than media being *pushed* to an audience, the audience will

pull media towards themselves.[19] To show the transition to an individualized media experience, Negroponte concentrates on the physical technology, the "black boxes," computers, cables, modems and other devices that determine the physical components of media transfer. The process of media's switch from analog to digital, which he summarized as a transition from "atoms to bits," allows Negroponte to argue that people experience digitally delivered media in a distinctive way, because digital media is placeless and timeless.[20] Negroponte states that, "Being digital will change the nature of mass media from a process of pushing bits at people to one of allowing people (or their computers) to pull them," and this process will change audience behavior and, more importantly, the type of information audiences receive. He predicted that a truly national audience would disappear completely, and users will experience media (in particular journalistic media) tailored algorithmically to the single individual.[21] In short, Negroponte places power with the individual user.

While Negroponte's *Being Digital* concentrates on the media receiving technology, Castells investigates the pathways that allow for media and communication transmission, one of the primary characteristics of digital media.[22] Published in the latter half of the 1990s, the *Information Age: Economy, Society and Culture*, is a three-volume[23] set where Castells links cultural transformation to the switch from an industrial society to an information society. Castells' work has been compared to both Marx's *Capital* and Weber's *Economy and Society* in its scope.[24] Taken together, these texts are a work of political economy and sociology that document how the seemingly instantaneous exchange of information, capital, and communication via digital networks has shaped a globalized culture. Castells summarizes his intent in an updated prologue to the first book:

> The discovery of a new social structure in the making, which I conceptualized as the
> network society because it is made of networks in all the key dimensions of social

organization and social practice. Moreover, while networks are an old form of organization in the human experience, digital networking technologies, characteristic of the Information Age, powered social and organization networks in ways that allowed their endless expansion and reconfiguration, overcoming the traditional limitations of networking forms of organization to manage complexity beyond a certain size of the network.[25]

Castells uses a dialectical method by describing an individual's relationship to the network, or in Castells language "the Net and the Self, to see the effects and contradictions between these two entities. He begins *The Information Age* by working this dialectic through a comparison of communication technologies to other technological inventions, and concludes that the "informational mode of development" is significantly different from previous modes of development. The information mode is more flexible, paving the way for a globalized economy and interconnected society that experiences time and place.[26] The differentiator in the new processes of production is that each of the processes is accelerated via networked communication. In short, because communication can seemingly travel instantaneously, all social processes have sped up. The acceleration of innovation is one of the key conditions that ushered in a globalized economy. The innovation allowed by technological acceleration has also changed the location and sources of power within networked societies.

1.2 Locating Power within a Network Society

Castells situates the source of power as those able to control the flow of information within a networked society, and this source of power has changed the logic by which power operates. A networked society has allowed "organizational logic" to become placeless.[27] In the *Informational City* Castells' explains, "the more organizations depend, ultimately, upon [information] flows and networks, the less they are influenced by the social context associated

with the places of their location. From this follows a growing independence of the organizational logic from the societal logic."[28] The separation between organizational and societal logic is a pivotal point for Castells. The ability for those in power to stay in power has much to do with the format and distribution of media, and while he acknowledges "it is not entirely true that the medium is the message, empirically speaking, but it certainly has substantial influence in the form and the effect of the message."[29] Yet, the source of power can be used as a form of resistance as well. He argues that the ability to produce media and distribute information are essential requirements to build "counter-power." Castells recognizes both the potential and the drawbacks of the "emergence of mass self-communication," a concept he defines as the ability for a community to communicate directly with itself through digital networks such as social media and blogs, rather than relying on traditionally mediated forms of communication.[30] Castells model of power and resistance is ultimately based his positioning of digital networks as the foundational structure of society.

While Castells maintained that the digital network had become the defining feature of contemporary society, Jan van Dijk and others begin to question the primacy Castells applied to digital networks. While Dijk notes the importance of networks in *The Network Society*, he shows how social networks are more complex than a digital/analog duality. He argues that social networks,[31] digital or otherwise, are vast, complex structures that must encompass both online and offline communication (or as Dijk put it, "organic communities" and "virtual communities") and he critiques Castells for holding a myopic view of digital networks. [32] Dijk uses the separation between organic communities and virtual communities in his discussion of politics and power associated with digital media, and the transition from mass media to a "network society."[33] He writes that a network's structure simultaneously "enables both centralization and

decentralization" and he offers his own forecast; eventually "the position of people in media networks will largely determine their position in society."[34] Though a network may be decentralized, the structure of a digital network is not analogous to a social structure, which remains hierarchical. Complicating Dijk, are writers who question *network* as a concept altogether. In a recent Triple C article, Robert Prey explains that the word *network* is simply a metaphor used to describe connections between individuals. He critiques the networked society theoretical model because it is structured so that "the world is made up of an inside/outside binary."[35] According to Prey, this binary is incapable of accounting for other limiting aspects of technology and is therefore only capable of providing a partial explanation for the way power is structured within digital communications systems.

1.3 Control Society and Protocol

In *Protocol: How Control Exists After Decentralization,* Alexander Galloway explores the technological mechanisms of power relations within a digitally connected society. Rather than begin with the network itself as a point of inquiry, as Castells and Dijk did, he looks to the protocol that builds the networks (e.g. TCP/IP, HTTP, HTML). Methodologically, he breaks with Castells and Dijk by viewing computer language (code) as a text or an artifact to be examined.[36] These protocols are the backbone of a network and ultimately control how a network is both accessed, and more importantly for Galloway, how the network is used. Galloway situates his concept of protocol as "a type of controlling logic that operates outside institutional governmental, and corporate power," logic that is determined by a "technocratic elite" comprised of government agencies, industry leaders and electrical engineers.[37]

Galloway is operating under the assumption that society has fully transitioned away from a disciplinary model of control described by Michel Foucault and that decentralized networks are emblematic of the change to a society of control described by Gilles Deleuze. In his short *Postscripts on Society of Control*, Deleuze articulates how the disciplinary institutions Foucault described are in a state of crisis and the transition away from a disciplinary society to a decentered system of control. Building on the Deleuzian argument, Galloway sketches the ways the Internet represents a fully decentralized system. In Galloway's model the Internet is not controlled by a strict hierarchy (as found in a Foucauldian model of disciplinary society), but rather under a rhizomatic model[38] described by Deleuze and Felix Guattari in *A Thousand Plateaus*.[39] The protocol controls access and the structure of the Internet itself. So while digital networks have the appearance of freedom, they must be accessed and created in ways that fit within previously defined rules written by controlling agencies such as the IEEE. Audiences access websites because they are made to want to view certain websites.[40] At first glance, Galloway's description has echoes of Adorno and Horkheimer's cultural industry thesis, but the difference between the two is that the Internet is an interactive media that in many ways require the user to become actively involved in the creation of the media. Galloway locates methods of resistance in these interactive properties through his description of "tactical media," which he defines as "the bottom-up struggle of the networks against the power centers," as a form of resistance to societies of control.[41] Galloway finds methods to resist a control society in interactive aspects of many-to-many communication channels. For Galloway, any action that pushes beyond established Internet protocol, such as hacking, Internet art, or writing alternative programs offers a method to resist dominant ideology.

Yet Bernard Stiegler, a French philosopher and social critic, believes that the public response to control imposed in developed western countries requires more than resistant acts, but a reconfiguration of the way the public imagines their future. In the *Decadence of Industrial Democracies,* Stiegler argues that contemporary media practices within the networked society prevent citizens from conceiving of a future outside of a capitalist system (or what Stiegler refers to as a "hyper-industrialism").[42] He is working through a philosophical approach developed in his *Technics and Time*[43] that described the Americanized culture industry at the heart of industrial democracies. Echoing the Frankfurt School, he describes the willingness of media consumers to trade leisure time for consumptive habits: "the United States culture becomes that culture industry denounced by Horkheimer and Adorno, and the development of this sector of the economy becomes a priority to the point that capitalism develops into cultural hyper-industrialism."[44] Stiegler goes on to articulate that the goal of digitized media is the "mass production of behavior" to foster new markets allowed through a globalized, networked society.[45]

1.4 Copyright and Ownership

Lawrence Lessig[46] approaches the topic of social control through both computer code and civil code. In *Code and other Laws of Cyberspace* and the updated book that followed a few years later, *Code 2.0*, Lessig argues that computer code is constructed and operated in a similar way as civil code. Where Galloway takes the idea of code and control to argue for the importance of Internet art and resistant online activities such as hacking, Lessig argues for an approach that updates existing laws, especially copyright law. In *Code 2.0* he aims to document the change "from a cyberspace of anarchy to a cyberspace of control" and outline the ways

control is exercised on the Internet.[47] One of the primary mechanisms for control is the civil code in general and copyright law in particular, both of which Lessig argues need to be updated for application to digital work distributed over the Internet. Existing copyright law, argues Lessig, prevents creativity, stifles communal production and "ultimately harms culture."[48] David Bollier documents the shaping of a public domain for information and the intellectual and legal arguments which surround copyright law in *Viral Spiral: How the Commoners Built a Digital Republic of Their Own.* Brollier's reportage shows the progression from the free software (freeware) available in the 1980s via bulletin boards and copied floppy disks, to the World Wide Web during the early 1990s, and the open platform technologies and open source technologies, which have been developed over the past fifteen years. He places each of these developments under the heading "free culture."[49] His book focuses on the ways audience members, amateur software designers, and users can counteract "oppressive copyright laws"[50] through changes to copyright law, open business models, educational open courses, and the ways institutions can openly distribute ideas and media.

Section 2: Access to the Public Sphere(s)

Digital media must be conceptualized with an understanding of how emerging communication networks are accessed, by whom, and for what purposes. This section begins with Jürgen Habermas' concept of a public sphere and proceeds through contemporary theorists who examine public spheres within a digital context.[51] As digital media has provided greater avenues for cultural production, the question of who has access to the means of media production once again becomes important. Theories on the *digital divide* emerged to explain how disenfranchised populations (including those populations in developed nations) do not have the

same level of access to networked communications or computers as their more affluent counterparts. In short, the question of who gets to participate in the necessary dialog of a democracy becomes increasingly relevant in a networked society. Additionally, scholars inquire about the people accessing information, the methods of access, and the purpose for accessing information.

2.1 The Public Sphere

One of the key concepts discussed by new media scholars is Jürgen Habermas' theorization of the public sphere, a term that Habermas used to describe the places and methods used by the educated middle class to engage in a public, "rational-critical debate."[52] Habermas sought to explain the conditions necessary for the creation of public spaces for communication and document the way these spaces changed in *The Structural Transformation of the Public Sphere*. His work has been important to democracy studies, sociology, and communications studies and relies on a multi-disciplinary approach firmly rooted in Frankfurt School methods of critical theory.[53] His thesis is that the creation of localized public spheres in the coffee houses and salons of Europe challenged traditional feudal rule and became a source of democratic political authority in the early 1800s.

Habermas was less pessimistic than his advisors at the Frankfurt School, asserting in *The Structural Transformation* that even though these early public spheres served only the bourgeois class, they held a kernel of emancipatory principle. Whereas first generation Frankfurt School writers argued that rationalism of the Enlightenment led to the horrors of World War II, Habermas believe that rational-critical debate was a central pillar of democracy, and inevitably led to opportunities for additional social classes to have a public political voice. However,

Rodney Benson points out that though Habermas may have begun with his more idealistic proposition, he ends up with a stance similar to Adorno and Horkheimer's criticism of the culture industry.[54]

The transformation Habermas describes is the expansion of the public sphere from educated, property-holding men in the late 1700s to a more inclusive sphere by the early 1900s as more people began to have access to media through improved distribution. Media companies went from small local entities to large, commercialized, social institutions. Habermas explains:

> To the extent that they [public spheres] were commercialized and underwent economic, technological, and organizational concentration, however, they have turned during the last hundred years into complexes of societal power, so that precisely their remaining in private hands in many ways threatened the critical functions of publicist institutions.[55]

The critical functions of media institutions begins to conflict with the original purpose of a public sphere as mass audiences begin to form around new methods of media distribution. According to Habermas, once media became a business, the requirements of media institutions changed from creating a space for public political discourse to creating a "platform for advertising."[56]

Habermas's theory quickly became both a starting point and a point of departure for Western scholars after *The Structural Transformation's* publication in English in 1989. Craig Calhoun,[57] Bernhard Peters,[58] and Benson each set out to determine the structure of actual public spheres and explore the relationship between public spheres, demographic construction, and the ways that these spheres form and dissolve. Similarly, Nancy Fraser critiques Habermas' concept of a public sphere in a 1990 *Social Text* article by arguing that Habermas put forth a relatively static model of a public sphere and that actual communities were much more dynamic than Habermas described. Fraser writes that Habermas failed to describe "a new, post-bourgeois model of the public sphere," able to account for the broadening of public discourse.[59] According

to Fraser, in Habermas' model a public sphere can only produce rational-critical debate in a homogenous environment. Fraser concludes that there can be no singular public sphere, but only multiple spheres comprised of both politically strong and politically weak publics.[60] These critiques of Habermas' thesis become further compounded once media becomes digitized and distribution models become more complex.

2.2 Digital Journalism

Public sphere theory becomes more complex once media distribution adopts a digital format. Where Habermas described the institutionalization of media, new media formats allowed for an individual outside the established media industry to distribute information via websites, blogs, or email distribution lists. These changes were seen to hold emancipatory properties and were credited with re-establishing the benefits of a functional public sphere, capable of allowing citizens to hold politically powerful discussions. Journalist Tom Brokaw believed bloggers represented the "democratization of news,"[61] and in the early 2000s there were myriad reports of blogs grabbing national attention and becoming a source for established journalists. Philip Meyer believed the technological disruption caused by networked media is comparable to the Gutenberg press, stating that digital technology is as "disruptive to today's newspapers as Gutenberg's invention of movable type was to the town criers, the journalists of the fifteenth century."[62] Meyer goes on to argue that the digitization of media broadened the public sphere, allowing access for anyone with an Internet connection to have an equal part in political conversation. Likewise, Russell Newman opens his 2010 collection *Theories of Media Evolution* with the assertion that:

> The ongoing digital revolution in present-day media technology represents an important new beginning in public life and is likely to have a fundamental influence on how

individual, social groups, and society define themselves, how individuals come to know the world around them, and whether further generations succeed in sustaining an energetic public sphere and open market place of ideas."[63]

These changes were often expressed as *digital democracy*, *citizen journalism*, or *participant journalism,* terms that illustrated that a non-media professional was capable of producing journalism outside of the established media corporations or state agencies. Public citizens became "an active participant in the creation and dissemination of news and information."[64]

However, Klaus Jensen and Matthew Hindman argue that digital media will not necessarily be emancipatory and the Frankfurt School argument that public media is a path for advertising still holds true. Jensen, working through Yochai Benkler's *The Wealth of Networks,* reminds his readers that "in historical perspective, it seems far from clear that digital media and networked communication are destined to fragment," or separating the public sphere away from its bourgeois roots.[65] Jensen does not agree with Benkler that new networked forms of production and politics will necessarily "transform markets and freedom."[66] Hindman documents the shifting landscape of media once public discourse begins to play an increasingly significant role in an effort to debunk what he perceived as utopian myths surrounding digital democracy. He notes that the U.S. Supreme court decision in Reno v ACLU believed that "any person with a phone line can become a town crier with a voice that resonates farther than it could form any soapbox."[67] While Hindman notes the potential for democratization exists, his question diverges from Castells and Benkler to arrive at a much less optimistic answer. According to Hindman, network communication technologies do not empower the "ordinary citizen at the expense of elites," rather it has simply forced those in power to use communications technology in a alternative way.[68] Media critic Robert McChesney has arrived at a similar conclusion, arguing that even with user created content, any real control of the media falls far outside the capacity for

"normal, everyday people" to change. He places "hypercommercialism" and simply "inadequate journalism" at fault and in doing so, closely echoes the Habermasian idea that increasing access to a public sphere will also commercialize the sphere.[69] Perhaps one of the most ardent critiques of the emancipatory properties of the Internet comes from Evgeny Morozov's *The Net Delusion: The Dark Side of Internet Freedom.* Morozov finds the claims of democratization through Internet communication to be based on "cyber-utopian" principles that fail to account for the role of the state within communications, "let alone a brutal authoritarian state with no tolerance for the rule of law or dissenting opinions."[70] His critique is based on methods employed by authoritarian political leaders in China and Iran in order to entrench existing power structures and threaten dissentients and revolutionaries.

2.3 Digital Divides

In the mid 1990s there was a push for scholars, governments, and private industry to understand levels of access to the Internet to gain insight on who was being excluded from networked communications. A recent New York Times article sums up the current state of the digital divide: "If you were white, middle-class and urban, the Internet was opening untold doors of information and opportunity. If you were poor, rural or a member of a minority group, you were fast being left behind."[71] Those left behind are not able to easily seek employment, participate in information shared online, thus becoming less informed citizens and in danger of growing out of touch with their networked peers. There are three primary categories of digital divides: technological access, cultural access, and computer/media literacy.[72] Yet questions over who can access the Internet persist, despite overwhelming Internet usage in the Untied States. Access is no longer solely defined as owning or having the ability use a networked computer.

The divide now concerns broadband speed rather than technological access, rural communities and ethnic minorities are often relegated to either dialup or wireless access, preventing them from accessing the Internet in the same way as more affluent customers who are able to afford broadband.

Often a lack of knowledge prevents people from accessing the Internet, and more often than not, this gap falls along racial lines. Linda Jackson et al found in 2008 that Internet usage was a predictor of future academic success, and that African American males make up the "least intense users."[73] Jenkins notes a similar phenomenon, but rephrases the digital divide argument to determine there is a "participation gap."[74] Sometimes referred to as digital inclusion communications and policy, writers are discovering that even when an individual has physical access to networked communication they elect not to use them. This issue has been studied on both elderly[75] and impoverished populations alongside racial and gender discrepancies.[76]

2.4 Critical Information Studies

Additionally, scholars have examined the type of information that should legally or ethically exist in the public domain and how information should be regulated in relation to the economy, cultural production, and public communication. Siva Vaidhyanathan connects each of these topics under the heading "Critical Information Studies," which he defines as a "multi- and interdisciplinary" field with roots in Cultural Studies, Critical Theory, and Information Theory.[77] He begins the article "Critical Information Studies: A Bibliographic Manifesto," which as the title suggests, lays the bibliographic groundwork for the emerging field, with an anecdote about the Diebold Election Systems scandal. In 2003, students at the Swarthmore College in Pennsylvania found and distributed sensitive documents from the electronic voting machine

company Diebold Election Systems that brought into question the validity of the voting machines. The company sent cease-and-desist letters to the university and the Internet provider, but Diabold was met with an overwhelming negative response from the public. According to Vaidhyanathan, Diabold learned that "you can't send cease-and-desist letters fast enough to stop a widely distributed online protest movement."[78] This historical example brings into question a number of political, technological, and legal arguments for scholars engaged in understanding the cultural relationship with information. In the case of Diabold, the courts upheld the student's rights to distribute the company's internal documents. However, other cases are not so easily decided.

Scholars working in this field are subject to self-criticism as they look for ways to distribute their own work. Vaidhyanathan highlights those scholars who argue for change to existing copyright law, such as Lessig, "face questions like 'why do you copyright your own work?' and 'why don't you just give everything away for free?'"[79] Vaidhyanathan is arguing that information should be freely distributed and access to information made available to wide audiences both technically through online distribution and stylistically by producing research that is readable outside of the research's academic community. He holds Mark Lemley's paper "Property, Intellectual Property, and Free Riding"[80] up as exemplary of a critical information studies project both for its content and wide-distribution (the article was mentioned in a Slashdot post and received by thousands of Slashdot's readers). The work of the Electronic Frontier Foundation, Public Knowledge, and Creative Commons are also given credit for engaging in the type of research and writing Vaidhyanathan believes can move scholarship in the direction of open access and open content.

Another example of a critical information studies project, though occurring a few years

after Vaidhyanathan's article, comes from the research and dialog surrounding Wikileaks, a

website that gained international prominence when they published thousands of United States

classified documents covering the conflicts in Iraq, the Afghan wars, as well as a trove of

diplomatic cables. Wikileaks designed a website to allow whistleblowers to submit documents

anonymously and then, once vetted, they publish the information on the website. In a few high

profile cases, Wikileaks distributed information to directly to major news outlets without

releasing the information on their website prior to distribution, functioning much more like a

traditional media company, rather than a website designed to engage directly with the public.

David Berry writes disregards the distribution model, as giving whistleblowers a safe haven will

lead to "a more genuinely democratic culture of communication, information exchange and

meaning production, all of which is the basis for a more equal and participatory society, polity

and economy."[81]

While Berry echoes earlier hopes expressed for citizen journalism, the Wikileaks case

caused other scholars to question the process of obtaining and distributing information for

publication, or as Micah Sifry states, "freedom of the press is no longer the exclusive province of

those that own one."[82] Once Wikileaks attempted to distribute information on its own website,

private companies they relied on to provide critical services such as hosting (Amazon) and

donation processing (Mastercard), stopped rendering services to the site. In the article

"Wikileaks and the PROTECT-IP Act: A New Public-Private Threat to the Internet Commons"

Benkler illustrates the dual nature of networked communication, even though communications

technologies have made gathering and distribution of materials easier, the same networks can be

used to swiftly stop a website from publishing politically controversial material, thus reshaping the public sphere into a model acceptable to government and corporate interests.[83]

A similar debate over access emerges when telecommunications companies attempt to regulate bandwidth based on a website's content. Lessig and Mchesney frame the debate over internet neutrality,[84] by arguing that if bandwidth over the internet is not kept equal, "We would lose the opportunity to vastly expand access and distribution of independent news and community information through broadband television. More than 60 percent of Web content is created by regular people, not corporations."[85] In response to a to increasing corporate control, politically motivated computer hackers, or "hactivists," work to redistribute information, as they did with Wikileaks, bring down sites they feel are a threat, and in general attempt to disrupt corporate or government targets.[86] The methods hactivists use and the reasons they disrupt a particular website, corporation, or government agency have in turn become an object of critical inquiry as scholars discuss and debate the type of information that should exist in the public domain and the methods used to deliver the information to the public.[87]

Section 3: Constructing Identity & Roles

This section outlines the current literature surrounding technological mediation of social relations to highlight the ways identity and communities are constructed within digital media. David Silver refers to the study of Internet culture as "cyberculture," a term that is currently used by some writers and social scientists to describe the construction of online communities and the relationship with material communities.[88] The construction of digital identity and community is theorized in three primary ways: race and gender identity, media convergence around online communities, and the confluence of media producers and media consumers. Lisa Nakamura and

others concentrate on the ways that existing race and gender roles are reaffirmed through digital media, leading to cultural practices that further entrench inequality. The second subsection examines the technological way identity is shaped by looking at how various types of media have converged around community interests. Social networking sites and Internet fan communities have shaped the way media behaves both online and offline. The last subsection deals with the confluence of media producers and media consumers, which exposes questions on who produces media content, the people for who media is produced, and the purpose of specific media production.

3.1 The Formation of Digital Identity

In *Life on the Screen* Turkle studies college student behavior online in 1995 as the students interacted with each other in multi-user dungeons (MUD). [89] She determined the anonymity of user profiles allowed users to shape their own digital identities in what Amy Bruckman referred to as an "identity workshop"[90] and Nakamura as "identity tourism,*"[91]* to describe how uses experiment with various avatars and personas. Turkle's work in *Life on the Screen* is preceded by Howard Rheingold's early work in online communities, *The Virtual Community: Homesteading on the Electronic Frontier.* Rheingold's homesteading metaphor was often seen in early digital media studies.

Peter Chow-White, Nakamura, Jenkins, and others question Turkle and Rhiengold's conclusion that online communities contain the possibility of post-racial and post-gender "virtual" communities by obscuring user's identity. In *Digitizing Race: Visual Cultures of the Internet*, Nakamura explains that her method moves beyond previous textual theory:

> Much of the research written in the nineties centered on hypertext theory, or on discursive "virtual communities" formed by shared interests that assumed subcultural

status for their users. The days in which *Wired* magazine and *Mondo 2000* set the agenda for an elite and largely male digerati have passed; Internet use has definitively crossed the line between hobby or niche practice and has taken its place as part of everyday life.[92]

Placing the Internet squarely in the realm of everyday life leads Nakamura to conclude that digital media reaffirms rather than rejects online gender and racial identities and often reflects existing racialized social inequalities. Borrowing from visual studies and employing the Foucauldian term of "discourse-objects," she pays particular attention to connection offline material into online cultural products. One example in *Digitizing Race* is her use of the *Matrix* and *Minority Report* films to explain the ways labor, gender, and race are visualized within technology; she claims these films show the ways white males are privileged in their knowledge and use of technology. Likewise, she addresses the reproduction of cultural images of the female body in avatars and the ways women will publicize bodily images online in the avatars and icons used on bulletin boards. Chow-White draws a similar conclusion in *Race After the Internet,* an essay collection he and Nakamura edited, claiming that rather than the technology working to obscure identity, "digital technology is […] pressed into the service as an identity construction aid."[93] The other essayists in *Race After the Internet* cite examples that range from the difference in demographic makeup between Facebook and Myspace by Danah Boyd to the exportation of racial identity associated with One Laptop Per Child Program by Rayvon Fouché. In his "Cyberspace and Race" article, Jenkins shares his own changing reflections on race and media studies:

> Like many white liberals, I had viewed the absence of explicit racial markers in cyberspace with some optimism - seeing the emerging 'virtual communities' as perhaps our best hope ever of achieving a truly color-blind society. But many of the forum's minority participants-both panelists and audience members-didn't experience cyberspace as a place where nobody cared about race.[94]

Many of these writers, and Nakamura in particular, have begun producing a large volume of work on race, technology and digital media. Yet Jessie Daniels reminds the readers of *New Media and Society*, "the burden of noticing race on the Internet has been left to Internet researchers who are people of color, reinforcing what Stuart Hall refers to as the 'spectacle of the Other.'" Daniels argues for an expansion of racial media theory to include W.E.B. DuBois and Joe Feagin to further conceptualize the formation of racial relations online. She calls for future work in race studies to take place on Twitter, which according to a Knight Center For Journalism study she cites, is more popular among blacks and Latinos for both cultural and economic reasons. Though as Robert Ghel points out, promoting one's identity can be a rational choice made of capitalist necessity, and is not always a subconscious act. Ghel illustrates that promoting one's identity online is one of the few mechanisms one has to "control one's social capital."[95]

The potential for taking advantage of social capital was not lost on writers examining gender identity and roles within a digital environment. Faith Wilding describes the ways women were unable to "counter rampant sexist stereotyping (feminist avatars, cyborgs, trans- or non-gendered figures); and [determine] feminist Internet critique" despite gaining wider audiences for feminist artwork over the Internet.[96] Wilding examines this discrepancy by digital feminism, or *cyberfeminism*,[97] into two historical waves. The first, like many other early Internet studies had strong techno-utopian expectations, focused on the connection between women and machines and was heavily influenced by Haraway's "Cyborg Manifesto." Current debates in feminism, the second wave, concentrate on postcolonial studies, as well as a "politically engaged cyberfeminism."[98] Recent works have begun to recognize that offline politics and power relationships are just as present in online communities. Yet, in her article on video games and gamer culture, Adrienne Shaw is careful to place the function of identity in the hands of the user,

rather than simply designing media to match stereotypical identities to users. She cautions "targeted marketing's overemphasis of discrete identity categories like gender, sexualities, and races might actually have a negative impact on players' relationship to the medium."[99] Simple representation does not equate to meaningful political power, rather the potential for power exists with the relationship that gamers have with each other.

3.3 Media Convergence

In *Convergence Culture: Where Old and New Media Collide* Jenkins pieces together the relationship between new media and fan communities who search for ways to interact with the media they consume. His thesis is that new media will not replace traditional media, but will change the ways people interact with media altogether. Nick Couldry points out in *Media, Society, World* that despite the changes in media over the last two decades, television is still the dominant source of media. However ancillary media (e.g. Internet forums or fan fiction) is being produced and consumed in conjunction with traditional media.[100] The participatory nature of new media separates these interactions from previous theories that positioned audiences as static media consumers, or as Jenkins puts it: "if old consumers were assumed to be passive, the new consumers are active."[101] In doing so, he reformulates and redefines digital and new media by placing audience participation as the focal point: "Convergence does not occur through media appliances, however sophisticated they become. Convergence occurs within the brains of individual consumers and through their social interactions with others."[102] These social structures are, of course, no longer geographically bound. Whereas previous communities centered on family, religion or neighborhood, new communities are focused around "intellectual enterprise and interests" which do not require physical closeness.[103] Jenkins takes an

oppositional approach to Negropante and other early writers who practiced at least some degree of technological determinism. Media is not defined via a method of delivery but the ways people interact with media, and the disagreement on this point between Negroponte and Jenkins highlights a contradiction within media studies. While technology and production are diverging into many channels and platforms, media content is converging to incorporate the platform and the media companies themselves are converging economically, creating multi-national conglomerates.

Jenkins shows how interactive media, bolstered by emerging communications technology, has allowed audiences to engage directly with media producers through various channels, a process Jenkins refers to as "dispersed media content." To outline his theory of dithe way audience members are dispersing media content among a multitude of platforms, Jenkins turns to *American Idol* to *Survivor* and *The Matrix* for case studies.[104] Media is no longer experienced in discrete channels, but rather media technology has converged to cover a single film or movie. To put the theory another way, audience members seek out information and stories through multiple platforms. The *Matrix* trilogy has numerous fan websites and discussion forums, fans published their own version of stories set in the same world as the *Matrix*, and the directors allowed an animated film to be produced between scheduled released of the full length film. In a direct refutation of Negropante's earlier work, Jenkins notes that executives cannot "just figure out which black box will reign supreme […] part of what makes the black box concept a fallacy is that it reduces media change to a technological change and strips aside the cultural levels.[105] Jenkins inserts the cultural levels by showing the ways audiences interacted with the media. In the case of American Idol and survivor, fans sought to predict the outcome before the results were released publically. Fans researched the shows online, collected insider

information that was shared on fan websites. The experience of television was no longer

relegated to watching a show, but in taking part in the show through various media. In some

cases, Jenkins notes fan fiction had a direct impact on story lines of movies, as production

executives feel forced react to and please the fans. To describe the new business model, Jenkins

uses the term "affective economics,"[106] a model that seeks to quantify the audience's desire and

"understand the emotional underpinning of consumer decision-making."[107] In many ways, this is

somewhat reflective of Hall's work on encoding and decoding, Jenkins notes that the media

industry cannot ignore the fan base, nor can the fan base be fully contained.

3.4 Audience Convergence

In the opening pages of *New Media: A Critical Introduction*, the authors question if the if

digital media has changed the way scholars understand audience behavior.[108] Writers who

document the transitioning roles of audience members have concluded that they are no longer

passive consumers; they are willing to produce media either via social media, by participating in

fan communities, or other participatory actions. Philip Napoli notes that the rise in participatory

digital media can be a threat to analog media because the "technological capacity to empower

communication across the citizenry must be protected and promoted via policy interventions, and

in which the damage to traditional media institutions that is, to some extent, the byproduct of

such wider-ranging communicative power."[109] But where Napoli conceptualizes the change in

media as a path for citizen empowerment, Mark Andrejevic frames the alteration of audiences as

a transition from passive consumers to interactive media-makers.

In his study of reality television, Andrejevic describes media where "we'll all be able to

gain some form of symbolic participation in the production of the goods and services we

consume by submitting to ever more detailed forms of self-disclosure.... anyone can perform the work of being watched."[110] Lev Manovich notes this pattern in his 2008 article, "The Practice of Everyday (Media) Life" as well, and like Andrejevic, finds that the media is transitioning away from traditional descriptions of mass media into consumer produced social products in relation to the shifting functions of power into what Andrejevic deemed a "surveillance-based interactive economy."[111] In particular, Manovich traces the use of the Internet from the publishing platform of the 1990s to the growing social media networks of the web in the 2000s and marks the changes which take place as consumers become (at least in part) amateur producers in their own right, remixing cultural products and finding innovative ways to rethink and reuse cultural products. He begins by noting "most of the objects that people use in their everyday lives are mass-produced goods; these goods are expressions of strategies of designers, producers, and marketers. People build their worlds and identities out of these readily available objects by using different tactics: bricolage, assembly, customization, and […] remix."[112] Manovich positioned cultural production emerging from a user's ability to repurpose and remix existing media into new forms.

Section 4: Data

This section outlines the scholarship around the ways the digital storage of media affects aesthetics and epistemology along with the methods scholars use to study ever-expanding sets of digital data. Beginning with the ways writers have defined not only new media, but also the space where new media is stored, provides some insight into emerging theories on digital texts. Once the space is defined, this section provides an overview of the way information is accessed and stored via various user interfaces, including a *natural user interface* (NUI) designed to

connect a machine in a direct way to the human body. Finally, this section describes three overlapping disciplines that study digital media: digital humanities, video game studies, and critical code studies.

4.1 The Logic of the Database

In *The Language of New Media* Manovich provides an account of the terms used to discuss digital media and the way the database is changing our understanding of text and knowledge. His writing in *The Language of New Media* emerges from previous books on digital texts such as Janet Murray's *Hamlet on the Holodeck*, Espen Aarseth's *Cybertext*, and Brenda Laurel's *Computers as Theater*. Manovich separates himself from these previous books, which mainly focused on the position of technology in relation to text, by questioning the relationship between people and media-making machines. He notes, "the computer becomes a universal media machine - a tool used not only for production but also for storage and distribution."[113] Basing his observations in critical theory, literary studies and visual theory, he sums up the term new media as the merging of "database and narrative in a new form." [114] Manovich strips media down to the core elements, the pixels, text characters, and finally the database that provides the content for digital media. Manovich uses Peter Greenaway and Dziga Vertov films as examples of experimental filmmaking to illustrate how non-narrative films could produce a database-like visual structure. Vertov, a Russian filmmaker working in the early twentieth century, is well known for his work of montage (a technique he referred as cine-eye) in the 1924 film *Kino-Eye*. Greenaway is a contemporary director whose films typically minimized narrative to reveal artistic or architectural structures. Manovich uses both examples to help the reader conceptualize the database, or what he has referred to elsewhere as the "database of logic." [115]

He argues that analog media's primary feature was the narrative structure that contained a definable, linear, narrative while new or digital media's main characteristic is the non-linear database. He further separates new media into two layers, the first cultural and the latter computational. The cultural layer provides a story and a point of view, while the computational layer sorts and matches information to place data and text into a defined structure. To further theorize new media, Manovich provides five principles of new media: *numerical representation*, new media is composed of data; *modularity*, each node of media is independent; *automation*, new media is capable of creating itself or being automated; *variability*, multiple versions of new media can exist in the same space; and finally *transcoding*, the logic of a computer (database logic) often influences the way people represent themselves online. Taken together, these five principles led Manovich to conclude that database structure has changed conceptions of narrative and that computers are a new medium of expression, not simply a new method for media delivery. While the medium of expression may be new, Jay David Bolter and Richard Grusin argue that all media is in some way recycled versions of previous media. In *Remediation* the authors argue that new forms of media achieve cultural impact because they are built on previous media (e.g. photography is a remediated form of film as television is a remediated form of vaudeville). [116] Media technology is important for the authors, but the primary factor in new media is that there are kernels of analog media construction within the new technologies.

4.2 Information, Aesthetics, and Interface

In his later work, Manovich connects databases and digital media to material culture and finds "some of the most interesting and important projects in a variety of areas of contemporary culture" in the way data are used in new media art, product design, fashion, architecture, and

cinema.[117] Similarly, the study of *information aesthetics* is a growing field in both digital media studies and computational studies. Information aesthetics "aims to amplify cognition by developing effective visual metaphors for mapping abstract data."[118] As aesthetic theory is applied to information, writers are becoming more focused on the way a user experiences, interprets, and perhaps most importantly, interacts with information.

Information is not simply a way to represent the material world; information has become a material object. Manovich traces societal change from an industrial model to an information model, arguing that software is replacing the machine as the basic building block of contemporary culture and this transition has an effect on the way we understand information and aesthetics. Anne Munster has also worked to "materialize" digital artifacts in her 2006 book *Materializing New Media* where she argues "we need to radically question the birth of digital culture as one that has been shaped largely via a binary logic." [119] Munster refers to binary logic as "outdated" Cartesian logic that privileges the intellect over the body; she suggests that the body has a role in digital media interaction.[120] She pushes back on a communications-based model of digital media, arguing that the concept of digital media should produce something entirely new, not simply replicate older forms of media with a different distribution model. David Rieder provides an application of Munster's theory in his recent *Present Tense* article, "From GUI to NUI: Microsoft's *Kinect* and the Politics of the (Body as) Interface." Rieder discusses how a natural user interface (NUI) such as Microsoft's *Kinect*[121] is capable of producing an altogether new type of digital media, based on the aesthetics of information in relation to the human body. The Kinect camera works by placing data points on the human form. He provides the following example:

> You could redeploy skeletal data from a user as points (or folds) comprising a novel, topological surface. Once we deterritorialize the origin of those points, we can

experiment, developing new types of bodily gesture and movement contributing to a new canon of digital delivery. And once a user's movements and position are redefined radically, the environmental feedback from the projected movements has the potential to transform how that user experiences herself, which can lead to new, counter-hegemonic experiences of self.[122]

Data is therefore transferred to an alternative aesthetic form, such as music, texts or graphic art via the body being identified as a collection of data points. Rieder illustrates that alternative forms are not simply innovate ways to create art, but have the potential to redefine socio-political issues of identity, access, and gender and race equality.[123]

4.3 Digital Humanities, Software Studies, and Video Game Studies

Recent trends in humanities scholarship have migrated towards using databases and other software tools to examine existing texts through the production of new archives. Loosely clumped under the heading *Digital Humanities*, this area of research compiles cultural data for analysis and brings traditional humanities research methods to bear on digital archives. While computational analysis has been with the humanities since the 1940s,[124] within the past two decades the field has been viewed as an emerging field of academic research within the humanities.[125] Franco Moretti's *Graphs, Maps, Trees: Abstract Model of Literary History* is a contemporary example of a digital humanities project that charts cultural trends through various genres of literature. Moretti refers to his method as conducting a "distant reading" of thousands of texts simultaneously, as opposed to traditional close reading of individual texts.[126] He constructs an archival database of texts and creates quantitative graphs, evolutionary trees, and geographic maps to view literature as a "collective system."[127]

Yet, literature is not the only area that may be viewed as a collective system. In the *Language of New Media*, Manovich calls for research to incorporate "software studies," and

since 2001 when the *Language of New Media* was published, scholarship has been moving to analyze software, source code, and the storage structures of information.[128] Manovich himself has been involved in a number of critical analysis of code in various anthologies and books over the past decade.[129] Similarly, Mark Marino, in *Critical Code Studies*, describes a method of analyzing software using the same techniques humanities scholars use to examine any other social text. He proposes it is possible to "read and explicate code the way we might explicate a work of literature."[130] Building upon the approach set forth by Manovich, Marino, and a growing number of digital humanities scholars, Matthew Fuller's 2008 anthology *Software Studies: A Lexicon* calls for theorists to broaden the scope of research topics to include digital artifacts such as computer languages. Fuller believes has the potential to yield research in areas that are "concerned with culture and media from the perspectives of politics, society, and systems of thought and aesthetics."[131] One approach to examining code within *Software Studies* comes from Joasia Krysa and Grzesiek Sedek's chapter "Source Code," which provides a brief description of the way source code is a model for creative practice by historicizing the emergence of Perl, Python, and other high-level source code. They argue the emergence of these programs was based on social practices as much as technological innovation.[132]

A third area of concentration for scholars studying digital media is video game studies. Once seen as a trivial subject, digital games study has grown in acceptance as they provide a vantage point to study the interaction between people and technology and the adoption of various cultural roles while playing.[133] These relationships are put alongside socio-economic and political theories to gain an understanding of digital games in everyday life. The methods used to study digital are necessarily broad, ranging between ethnographic audience studies, to textual analysis, code studies, and historical archival analysis. The participatory aspect of games has

come to the forefront of a cultural analysis of games both because of their relation to society and because "games have a close relation to simulation" that allows scholars to examine games at both a cultural level and a code level.[134] Authors Ian Bogost, Galloway, and Consalvo have examined games from a user standpoint to observe the protocols games follow, the way users interact with each other, and as Consalvo points out in her book *Cheating: Gaining Advantage in Videogames*, how users interpret and reject gaming protocols. Other approaches to understanding video games incorporate both video game studies and critical code studies to examine the role of games within our culture. A recent example from Nick Monfort et al is *10 PRINT CHR$(205.5+RND(1)); : GOTO 10,* a book that examines a single line of code for the Commodore 64.[135] The authors of *10 PRINT* take a close read of the line of code in the title, and through the microscope of software studies, game studies and other theoretical frameworks are able to situate computers, digital media, games, and code firmly in the realm of material cultural artifacts.

Summation

One can think of digital media studies in three main segments covering different technological layers of media. The first layer covers the networks which makeup the backbone of digital communications systems, including the Internet and the World Wide Web. Castells, Galloway and others developed social theories based on the way people communicated and connected over these networks both economically and socially. These theorists worked to uncover the power structures capable of determining the flow of information and the formation of digital public spheres. The structure and flow of information in a digital environment will shape contemporary democracies by determining how citizens are able construct public spheres

and which citizens are allowed to participate in online political discussions. Contemporary examples include the Wikileaks case, revelations on NSA's use of digital wiretapping, and concerns over net neutrality are each current areas of research which will necessarily expand on the early work of Castells and others.

The second technological layer encompasses the spaces connected by networks. These spaces are comprised of communities that communicate through email, websites, games, and other digital and material arenas. Each of these spaces contains an identity, both shaping the identity of the user and being shaped by the user's personal identity. Nakamura, Wilding, and others research the way identity is formed online, the potential digital media has for breaking through barriers as well as reaffirming existing gender and racial discrepancies and stereotypes. Researchers have also noticed a shift in how participatory media changes traditional technological and audience roles. Jenkins illustrates the convergence of media technology as audience members experience the same entertainment franchise through a variety of platforms. Andrejevich and others have noted that the technological has also been accompanied by a change in the role of the audiences, as media consumers have converged with the role of media producers. Audiences are no longer thought to be a static entity, but are actively taking part producing media through fan websites, social media, or other participatory activities. These changes reflect a new opportunities for scholars to question the validity of theorizing a *mass audience* in digital media terms.

The third technological layer within this field is the databases and computer code required to physically construct a digital space. Manovich and others describe the way people store and access information via a database changes the presentation and interpretation of data. Information contains an aesthetics that both shape the data itself, and as Reinder discusses,

changes the way people understand their own environment. Scholars who work directly with computer programing languages take a similar approach, reading code as a text or an artifact which provides insight into the social practices of creating media-making and communication machines.

Cultural Studies scholars work across all three layers to find the intersections and cultural significance of technology, media and culture. Employing a wide range of methods and theories, ranging from ethnographic audience studies, network theory, theories on social control, gender and race identities, aesthetics and software studies, each digital media project allows a different vantage point to theorize the way people interact with, use, are affected by, and affect media they consume. In the introduction to this document, I described digital media as a messy field due to its relative newness and breadth, but the messiness also makes digital media an extremely productive field; new applications and new directions are being uncovered as quickly as they can be published.

Bibliography

Aarseth, Espen J. *Cybertext: Perspectives on Ergodic Literature*. Baltimore, Md: Johns Hopkins University Press, 1997.

Adorno, Theodor W., and Max Horkheimer. *Dialectic of Enlightenment: Philosophical Fragments*. Cultural Memory in the Present. Stanford, Calif: Stanford University Press, 2002.

Anderson, Chris. *The Long Tail: Why the Future of Business Is Selling Less of More*. New York: Hyperion, 2008.

Andrejevic, Mark. *Reality TV : The Work of Being Watched*. Lanham, Md.: Rowman & Littlefield Publishers, 2004.

Ang, Ien. *Watching Dallas: Soap Opera and the Melodramatic Imagination*. London ; New York: Methuen, 1985.

Bell, David. *Cyberculture Theorists Manuel Castells and Donna Haraway.* Hoboken: Taylor & Francis Ltd., 2006. http://public.eblib.com/EBLPublic/PublicView.do?ptiID=356004.

Benkler, Yochai. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven: Yale University Press, 2006.

———. "WikiLeaks and the PROTECT-IP Act: A New Public-Private Threat to the Internet Commons." *Daedalus* 140, no. 4. (Fall 2011): 154–164.

Benson, Rodney. "Shaping the Public Sphere: Habermas and Beyond." *The American Sociologist* 40, no. 3 (July 15, 2009): 175–197. doi:10.1007/s12108-009-9071-4.

Bernhard Peters, Hartmut Wessler, Stefanie Sifft, Michael Brüggemann, Katharina Kleinen-v.Königslöw, and Andreas Wimmel. *Transnationalization of Public Spheres*. Transformations of the State. New York: Palgrave Macmillan, 2008.

Berry, David. *Revisiting the Frankfurt School: Essays on Culture, Media and Theory*. Farnham, Surrey, England ; Burlington, VT: Ashgate, 2012.

Bogost, Ian. *How to Do Things with Videogames*. Minneapolis: University of Minnesota Press, 2011.

———. *Persuasive Games : The Expressive Power of Videogames*. Cambridge, MA: MIT Press, 2007.

Bollier, David. *Viral Apiral: How the Commoners Built a Digital Republic of Their Own*. New York: New Press, 2008.

Bolter, J. David, and Richard A Grusin. *Remediation: Understanding New Media*. Cambridge, Mass.: MIT Press, 2000.

Bruckman, Amy. "Identity Workshop: Social and Psychological Phenomena in Text Based Virtual Reality." presented at the MIT Media Lab, April 1992. ftp://ftp.cc.gatech.edu/pub/people/asb/papers/identity-workshop.ps.

Calhoun, Craig, ed. *Habermas and the Public Sphere*. Cambridge, Mass.; London: MIT Press, 1993.

Castells, Manuel. "Communication, Power and Counter-Power in the Network Society." *International Journal of Communication* 1 (2007): 238–266. doi:1932-8036/20070238.

———. *End of Millennium*. Oxford: Wiley-Blackwell, 2010.

———. *The Informational City: Economic Restructuring and Urban Development.* Basil Blackwell, 1991.

———. *The Power of Identity*. Chichester: Wiley-Blackwell, 2010.

———. *The Rise of the Network Society: The Information Age*. 2nd ed. The Information Age : Economy, Society, and Culture v. 1. Chichester, West Sussex ; Malden, MA: Wiley-Blackwell, 2010.

Coleman, E. Gabriella. *Coding Freedom : The Ethics and Aesthetics of Hacking*. Princeton: Princeton University Press, 2012.

Consalvo, Mia. "Cyberfeminism." In *Encyclopedia of New Media: An Essential Reference to Communication and Technology*. Thousand Oaks, CA: Sage Publications, 2003.

Couldry, Nick. *Media, Society, World: Social Theory and Digital Media Practice*. Cambridge; Malden, MA: Polity, 2012.

Crawford, Susan. "The New Digital Divide." *New York Times*, December 3, 2011, sec. Opinion. http://www.nytimes.com/2011/12/04/opinion/sunday/internet-access-and-the-new-divide.html?pagewanted=all&_r=0.

Deleuze, Gilles. "Postscript on the Societies of Control." *OCTOBER* 59, no. Winter (1992). http://www.n5m.org/n5m2/media/texts/deleuze.htm.

Deleuze, Gilles, and Félix Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia*. Minneapolis: University of Minnesota Press, 1987.

Dijk, Jan van. *The Network Society: Social Aspects of New Media*. London ; Thousand Oaks, Calif: Sage Publications, 1999.

———. "The One-Dimensional Network Society of Manuel Castells." *Chronicle World (chronicleworld.org)*, January 7, 2001.

http://www.utwente.nl/gw/vandijk/research/network_society/network_society_plaatje/d_castells_review_castells_net.pdf.

Dines, Gail, and Jean McMahon Humez, eds. *Gender, Race, and Class in Media: A Critical Reader*. Thousand Oaks, Calif.: SAGE Publications, 2011.

Foucault, Michel. *Discipline and Punish: The Birth of the Prison*. 2nd Vintage Books ed. New York: Vintage Books, 1995.

Fraser, Nancy. "Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy." *Social Text* 25, no. 26 (1990): 56 – 80.

Fuller, Matthew. *Software Studies: A Lexicon*. Leonardo Books. Cambridge, Mass: MIT Press, 2008.

Galloway, Alexander. *Protocol: How Control Exists After Decentralization*. Cambridge, Mass.: MIT Press, 2004.

Galloway, Alexander, and Eugene Thacker. "Protocol, Control, and Networks." *Grey Room* 17 (October 2004): 6–29. doi:10.1162/1526381042464572.

Gane, Nicholas, and David Beer. *New Media: The Key Concepts*. English ed. Oxford ; New York: Berg, 2008.

Gauntlett, David, and Ross Horsley, eds. *Web Studies*. 2nd ed. London : New York: Oxford University Press, 2004.

Gehl, Robert. "Ladders, Samurai, and Blue Collars: Personal Branding in the Web 2.0." *First Monday* 16, no. 9 (September 2011).

Habermas, Jürgen. *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*. Translated by Thomas Burger and Frederick G Lawrence. Cambridge, Mass.: MIT Press, 1989.

Hall, Stuart. "Encoding/Decoding." In *Culture, Media, Language: Working Papers in Cultural Studies, 1972-79*. London: Routledge, 1992. http://www9.georgetown.edu/faculty/irvinem/theory/sh-coding.pdf.

Hansen, Miriam. "Mass Culture as Hieroglyphic Writing: Adorno, Derrida, Kracauer." In *The Actuality of Adorno: Critical Essays on Adorno and the Postmodern*, edited by Max Pensky. SUNY Series in Contemporary Continental Philosophy. Albany: State University of New York Press, 1997.

Hindman, Matthew. *The Myth of Digital Democracy*. Princeton, N.J.: Princeton University Press, 2009. http://press.princeton.edu/chapters/s8781.pdf.

Jackson, Linda, Yong Zhao, Anthony Kolenic, Hiram E. Fitzgerald, Rena Harold, and Alexander Von Eye. "Race, Gender, and Information Technology Use: The New Digital Divide." *CyberPsychology & Behavior* 11, no. 4 (August 2008): 437–442. doi:10.1089/cpb.2007.0157.

Jenkins, Henry. *Convergence Culture: Where Old and New Media Collide*. New York: New York University Press, 2008.

———. "Cyberspace and Race: The Color-Blind Web: A Techno-Utopia, or a Fantasy to Assuage Liberal Guilt?" *MIT Technology Review* (April 1, 2002). http://www.technologyreview.com/article/401404/cyberspace-and-race/.

Jensen, Klaus Bruhn. *Media Convergence: The Three Degrees of Network, Mass, and Interpersonal Communication*. London ; New York: Routledge, 2010.

Johnson, Richard. "What Is Cultural Studies Anyways?" In *What Is Cultural Studies?: A Reader*, edited by John Storey. London ; New York : New York, NY: Arnold ; Distributed exclusively in the USA by St. Martin's Press, 1996.

Juul, Jesper. *A Casual Revolution Reinventing Video Games and Their Players*. Cambridge, Mass.: MIT Press, 2010. http://search.ebscohost.com/login.aspx?direct=true&scope=site&db=nlebk&db=nlabk&AN=291830.

Krysa, Joasia, and Grzesiek Sedek. "Source Code." In *Software Studies: A Lexicon*, edited by Matthew Fuller. Leonardo Books. Cambridge, Mass: MIT Press, 2008.

Lau, Andrea, and Vande Moere. "Towards a Model of Information Aesthetics in Information Visualization." 87 – 92. Los Alamitos, Calif. : Washington, D.C: IEEE Computer Society ; Conference Publishing Services, 2007.

Laurel, Brenda. *Computers as Theatre*. Second edition. Upper Saddle River, NJ: Addison-Wesley, 2014.

Lemley, Mark. "Property, Intellectual Property, and Free Riding." *Texas Law Review* 83 (2005): 1031.

Lessig, Lawrence. *Code: And Other Laws of Cyberspace*. [New York, N.Y.]: Basic Books, 2000.

———. *Code: Version 2.0*. 2nd ed. New York: Basic Books, 2006.

———. *Free Culture: The Nature and Future of Creativity*. New York: Penguin Press, 2004.

———, and Robert McChesney, "No Tolls on the Internet," *The Washington Post*. Opinions (June 8, 2006), http://www.washingtonpost.com/wp-dyn/content/article/2006/06/07/AR2006060702108.html.

Lister, Martin. *New Media: A Critical Introduction*. 2nd ed. Milton Park, Abingdon, Oxon ; New York, N.Y: Routledge, 2009.

Losh, Elizabeth. "Hacktivism and the Humanities: Programming Protest in the Era of the Digital University." In *Debates in the Digital Humanities*, edited by Matthew K Gold. Minneapolis: Univ Of Minnesota Press, 2012.

Macnamara, Jim. *The 21st Century Media (R)evolution: Emergent Communication Practices*. New York: Peter Lang, 2010.

Manion, Mark, and Abby Goodrum. "Terrorism or Civil Disobedience: Toward a Hacktivist Ethic." *ACM SIGCAS Computers and Society* 30, no. 2 (June 1, 2000): 14–19. doi:10.1145/572230.572232.

Manovich, Lev. *Info-Aesthetics*. London: Bloomsbury Academic, 2010.

———. "Introduction." In *The New Media Reader*. Cambridge, Mass: MIT Press, 2003.

———. *Software Takes Command: Extending the Language of New Media*. International Texts in Critical Media Aesthetics. New York ; London: Bloomsbury, 2013.

———. *The Language of New Media*. Cambridge, Mass.: MIT Press, 2002.

———. "The Practice of Everyday (Media) Life: From Mass Consumption to Mass Cultural Production?" *Critical Inquiry* 35, no. 2 (October 2009): 319–331.

Marino, Mark. "Critical Code Studies." *Electronic Book Review*. Electropoetics (December 4, 2006). http://criticalcodestudies.com/wordpress/.

Mayra, Frans. *An Introduction to Game Studies*. London: Sage Publications Ltd., 2008.

McChesney, Robert Waterman. *The Problem of the Media: U.S. Communication Politics in the Twenty-First Century*. New York: Monthly Review Press, 2004.

McLuhan, Marshall. *Understanding Media: The Extensions of Man*. 1st MIT Press ed. Cambridge, Mass: MIT Press, 1994.

Meyer, Philip. *The Vanishing Newspaper: Saving Journalism in the Information Age*. Columbia: University of Missouri Press, 2009.

Microsoft. "What Is Digital Media?," April 26, 2010. ://technet.microsoft.com/en-us/library/what-is-digital-media-2.aspx.

Miklitsch, Robert. *Roll over Adorno: Critical Theory, Popular Culture, Audiovisual Media*. The SUNY Series in Postmodern Culture. Albany: State University of New York Press, 2006.

Montfort, Nick, John Bell, Patsy Baudoin, Ian Bogost, Jeremy Douglas, Mark Marino, Michael
    Mateas, Casey Reas, Mark Sample, and Noah Vawter. *10 PRINT CHR$(205.5+RND(1)); :
    GOTO 10*. Cambridge, Mass.: MIT Press, 2013.

Moretti, Franco. *Graphs, Maps, Trees: Abstract Models for Literary History*. London; New York:
    Verso, 2007.

Morozov, Evgeny. *The Net Delusion: The Dark Side of Internet Freedom*. 1st ed. New York: Public
    Affairs, 2011.

Munster, Anna. *Materializing New Media Embodiment in Information Aesthetics*. Hanover, N.H.:
    Dartmouth College Press : Published by University Press of New England, 2006.

Murray, Janet Horowitz. *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*.
    Cambridge, Mass: MIT Press, 1998.

Nakamura, Lisa. *Cybertypes : Race, Ethnicity, and Identity on the Internet*. New York: Routledge,
    2002.

———. *Digitizing Race : Visual Cultures of the Internet*. Minneapolis: University of Minnesota
    Press, 2008.

———. "Race For/in Cyberspace: Identity Tourism." In *CyberReader*, edited by Victor J. Vitanza,
    453. 2nd ed. Boston: Allyn and Bacon, 1999.

Nakamura, Lisa, and Peter Chow-White. *Race After the Internet*. New York: Routledge, 2012.
Napoli, Philip. "Navigating Producer-Consumer Convergence: Media Policy Priorities in the Era of
    User Generated and Distributed Content." *Communications & Convergence Review* 1, no. 1
    (2009): 32–43.

Nayar, Pramod K., ed. *The New Media and Cybercultures Anthology*. Chichester, West Sussex, UK ;
    Malden, MA: Wiley-Blackwell, 2010.

Negroponte, Nicholas. *Being Digital*. New York: Vintage Books, 1996.

Neuman, Russell. *Media, Technology, and Society: Theories of Media Evolution*. Ann Arbor: Digital
    Culture Books/University of Michigan Press : University of Michigan Library, 2010.

Olphert, Wendy, and Leela Damodaran. "Older People and Digital Disengagement: A Fourth Digital
    Divide?" *Gerontology* 59, no. 6 (2013): 564–570. doi:10.1159/000353630.

Prey, Robert. "The Network's Blindspot: Exclusion, Exploitation, and Marx's Process-Oriented
    Ontology." *TripleC: Communication, Capitalism & Critique. Open Access Journal for a Global
    Sustainable Information Society* 10, no. 2 (2012): 253 – 273.

Rensmann, Lars, and Samir Gandesha. *Arendt and Adorno Political and Philosophical Investigations*. Stanford, Calif.: Stanford University Press, 2012.

Rieder, David. "From GUI to NUI: Microsoft's Kinect and the Politics of the (Body As) Interface." *Present Tense: A Journal of Rhetoric in Society* 3, no. 1 (2013).

Ross, Andrew. "Technology and Below-the-Line Labor in the Copyfight over Intellectual Property." *American Quarterly* 58, no. 3 (2006): 743–766. doi:10.1353/aq.2006.0066.

Saxtoft, Christian, Noman Muhammad, and Darvide Chiavelli. *Convergence User Expectations, Communications Enablers and Business Opportunities*. Chichester: John Wiley & Sons, 2008.

Shaw, Adrienne. "Do You Identify as a Gamer? Gender, Race, Sexuality, and Gamer Identity." *New Media & Society* 14, no. 1 (June 16, 2011): 28–44. doi:10.1177/1461444811410394.

Bowman, Shayne and Chris Willis. *We Media: How Audiences Are Shaping the Future of News and Information*. The Media Center at The American Press Institute, July 2003. http://www.hypergene.net/wemedia/download/we_media.pdf.

Sifry, Micah. *Wikileaks and the Age of Transparency*. New York: O/R Books, 2011.

Silver, David. "Internet/Cyberculture/ Digital Culture/New Media/ Fill-in-the-Blank Studies." *New Media & Society* 6, no. 1 (February 1, 2004): 55–64. doi:10.1177/1461444804039915.

Silverstone, Robert. "What's New about New Media? Introduction." *New Media & Society* 1, no. 1 (April 1, 1999): 10–12. doi:10.1177/1461444899001001002.

Smith, Ralph Lee. *The Wired Nation; Cable TV: The Electronic Communications Highway*. 1st ed. Harper Colophon Books, CN 243. New York: Harper & Row, 1972.

Stiegler, Bernard. *Technics and Time*. Translated by Richard Beardsworth and George Collins. Meridian. Stanford, CA: Stanford University Press, 1998.

———. *The Decadence of Industrial Democracies*. Cambridge: Polity Press, 2011.

Svensson, Patrik. "Humanities Computing as Digital Humanities." *Digital Humanities Quarterly* 3, no. 3 (2009).

Turkle, Sherry. *Life on the Screen: Identity in the Age of the Internet*. New York: Simon & Schuster, 1995.

Vaidhyanathan, Siva. "Critical Information Studies: A Bibliographic Manifesto." *Cultural Studies* 20, no. 2/3 (August 23, 2005): 292–315.

Valtysson, Bjarki. "Access Culture: Web 2.0 and Cultural Participation." *International Journal of Cultural Policy* 16, no. 2 (May 2010): 200–214. doi:10.1080/10286630902902954.

Wajcman, Judy. "TechnoCapitalism Meets TechnoFeminism: Women and Technology in a Wireless World." *Labor and Industry* 16, no. 3 (May 2006): 7 – 20.

Wessler, Hartmut, Stephan Leibfried, Achim Hurrelmann, Kerstin Martens, and Peter Mayer, eds. *Public Deliberation and Public Culture: The Writings of Bernhard Peters, 1993-2005*. Transformations of the State. Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2008.

Wilding, Faith. "Next Bodies." In *The Feminism and Visual Culture Reader*, edited by Amelia Jones. London; New York: Routledge, 2010.

Notes

_____

[1] Martin Lister, *New Media: A Critical Introduction,* 2nd ed (Milton Park, Abingdon, Oxon ; New York, N.Y: Routledge, 2009), 3.

[2] David Silver, "Internet/Cyberculture/ Digital Culture/New Media/ Fill-in-the-Blank Studies," *New Media & Society* 6, no. 1 (February 1, 2004): 55–64, doi:10.1177/1461444804039915.

[3] Lister, N*ew Media: A Critical Introduction*, 11.

[4] Matthew Fuller, *Software Studies: A Lexicon,* Leonardo Books (Cambridge, Mass: MIT Press, 2008), 1.

[5] Microsoft, "What Is Digital Media?," April 26, 2010, ://technet.microsoft.com/en-us/library/what-is-digital-media-2.aspx.

[6] Manovich, Lev. "Introduction." In *The New Media Reader*. Cambridge, Mass: MIT Press, 2003, 2 -8.

[7] Roger Silverstone, "What's New about New Media? Introduction," *New Media & Society* 1, no. 1 (April 1, 1999): 10–12, doi:10.1177/1461444899001001002, 10.

[8] Theodor W. Adorno and Max Horkheimer, *Dialectic of Enlightenment: Philosophical Fragments*, Cultural Memory in the Present (Stanford, Calif: Stanford University Press, 2002).

[9] QTD Miriam Hansen, "Mass Culture as Hieroglyphic Writing: Adorno, Derrida, Kracauer," in *The Actuality of Adorno: Critical Essays on Adorno and the Postmodern*, ed. Max Pensky, SUNY Series in Contemporary Continental Philosophy (Albany: State University of New York Press, 1997), 83.

[10] See Rensmann, Lars, and Samir Gandesha. *Arendt and Adorno Political and Philosophical Investigations*. Stanford, Calif.: Stanford University Press, 2012. http://site.ebrary.com/id/10555807.and Robert Miklitsch, *Roll over Adorno: Critical Theory, Popular Culture, Audiovisual Media*, The SUNY Series in Postmodern Culture (Albany: State University of New York Press, 2006).

[11] Richard Johnson, "What is Cultural Studies Anyway?" in *What is Cultural Studies? A Reader,* ed. John Storey. 1996. ISBN 0-340-65240 3, 75.

[12] Jim Macnamara, *The 21st Century Media (R)evolution: Emergent Communication Practices*. New York: Peter Lang, 2010, 63.

[13] Published in 1982 in the Netherlands, and translated for the United States in 1985, Ien Ang's book *Watching Dallas: Soap Opera and the Melodramatic Imagination* explored the way Dutch audiences interpreted the immensely popular television show *Dallas*. She works to explore the

popularity of the show as an import to the Netherlands, yet at the same time the Dutch criticized American cultural conquest is publicly denounced. She arrives at the concept that culture is produced by the audience's reception and cannot be imposed by an outside force, brining into question earlier theories that audiences were simply passive consumers.

[14] Stuart Hall's essay on the Encoding/Decoding model of communication outlined his model of media production, distribution, and reception. He argues that during the production process, media is encoded with various ideologies. The message is received by the audience and decoded, but audiences do not always decode the media in an expected way, and often use the media in unforeseen ways.

[15] Manuel Castells, "Communication, Power and Counter-power in the Network Society," *International Journal of Communication* 1 (2007): 239.

[16] A distributed network is a collection of computers that are linked together without the need for a centralized computer.

[17] Negroponte was involved with the Spatial Data Management 1976 project, a research group tasked with developing a computer user interface that resembled things inside of an office. The research resulted in a prototype to the original Apple Macintosh OS. He was also a founder and director of MIT's Media Lab, and has recently been instrumental in the United Nation's One Laptop per Child initiative.

[18] Nicholas Negroponte, *Being Digital* (New York: Vintage Books, 1996), 168.

[19] The concept of "push/pull" is typically using in marketing terms to designate the different between a producer *pushing* goods towards a consumer and a consumer *pulling* goods of the figurative shelf. The term expanded somewhat with Chris Anderson's *The Long Tail* where he discusses the ways purchasing digital products (such as MP3s) changes the relationship between marketers and consumers, thus forcing alterations to the traditional push/pull model. Anderson argues that audiences are more willing to pull the products they need at will. For more information see Christian Saxtoft, Noman Muhammad, and Darvide Chiavelli, *Convergence User Expectations, Communications Enablers and Business Opportunities (*Chichester: John Wiley & Sons, 2008), 6 – 9.

[20] Negroponte, *Being Digital*, 16.

[21] Negroponte, *Being Digital*, 84.

[22] Nicholas Gane, and David Beer. *New Media: The Key Concepts* (English ed. Oxford ; New York: Berg, 2008), 16.

[23] Manuel Castells, *The Rise of the Network Society: The Information Age*, 2nd ed., The Information Age : Economy, Society, and Culture v. 1 (Chichester, West Sussex ; Malden, MA:

Wiley-Blackwell, 2010). And Manuel Castells, *The Power of Identity* (Chichester: Wiley-Blackwell, 2010). And Manuel Castells, *End of Millennium* (Oxford: Wiley-Blackwell, 2010).

[24] Jan van Dijk, "The One-Dimensional Network Society of Manuel Castells," *Chronicle World (chronicleworld.org)*, January 7, 2001, http://www.utwente.nl/gw/vandijk/research/network_society/network_society_plaatje/d_castells _review_castells_net.pdf.

[25] Castells, *The Rise of the Network Society*, Preface.

[26] One of the major theoretical advancement of his text, beyond the myriad economic arguments, is Castells' theory of "timeless time" that changes the way that people experience time and space in digitally. "Timeless time...the dominant temporality in our society, occurs when the characteristics of a given context, namely, the informational paradigm and the network society, induce systemic perturbation in the sequential order of phenomena performed in that context." Castells, *The Rise of the Network Society,* 464.

[27] Castells, Manuel. *The Informational City: Economic Restructuring and Urban Development*. (Wiley-Blackwell, 1991),170.

[28] Ibid.

[29] Castells, "Communication Power and Counter-power," 241.

[30] Ibid.

[31] It is worth noting that Dijk is writing about social networks in 1991, long before the widespread public adoption of "social media" in the mid 2000s.

[32] Jan van Dijk. *The Network Society*: Social Aspects of New Media. Trans Leontine Spoorenberg. Sage (London, Thousand Oaks, New Delhi). 1999, 24.

[33] Ibid., 221

[34] Ibid., 77.

[35] Robert Prey, "The Network's Blindspot: Exclusion, Exploitation, and Marx's Process-Oriented Ontology," *TripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society* 10, no. 2 (2012): 257.
[36] There is some discrepancy in the way Galloway uses the term "protocol." He uses it interchangeably to mean either computer language (code) or the Internet itself, depending on the context.

[37] Alexander Galloway, *Protocol: How Control Exists After Decentralization* (Cambridge, Mass.: MIT Press, 2004)., 122.

[38] Deleuze and Guattari use the image of a rhizome to convey a non-hierarchical social structure, one that describes the way knowledge flows in and out of a culture. In A Thousand Plateaus they authors define the model: "the rhizome connects any point to any other point, and its traits are not necessarily linked to traits of the same nature; it brings into play very different regimes of signs, and even nonsign states. The rhizome is reducible to neither the One or the multiple. It is not the One that becomes Two or even directly three, four, five etc." Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987), 21.

[39] Alexander Galloway, *Protocol,* 168; Also Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 1987).

[40] The difference between the two social control methods is that the power structures have different requirements. A disciplinary model requires workers to take care of the bodies. However, a control society isn't concerned as much about having a worker, as it is about having a consumer. Though, there is certain some argument to setting up the periodization this way, I believe this is what Galloway has in mind.

[41] Galloway, *Protocol*, 175.

[42] Bernard Stiegler, *The Decadence of Industrial Democracies* (Cambridge [etc.]: Polity Press, 2011). 4.

[43] Bernard Stiegler, *Technics and Time*, trans. Richard Beardsworth and George Collins, Meridian (Stanford, CA: Stanford University Press, 1998).

[44] Bernard Stiegler, *The Decadence of Industrial Democracies*. (Cambridge, MA: Polity Press, 2011), 23.

[45] Ibid.

[46] Lessig is a lawyer and the founder of Creative Commons, a non-profit organization that provides licenses for media creators to use copyright-licenses that make creative works easier to legally distribute and share.

[47] Lawrence Lessig, *Code: Version 2.0*, 2nd ed. (New York: Basic Books, 2006), 7.

[48] See Lawrence Lessig, *Free Culture: The Nature and Future of Creativity* (New York: Penguin Press, 2004).

[49] David Bollier, *Viral Spiral: How the Commoners Built a Digital Republic of Their Own* (New York: New Press, 2008). 7.

[50] Ibid.

[51] Bjarki Valtysson,. "Access Culture: Web 2.0 and Cultural Participation." International Journal of Cultural Policy 16, no. 2 (May 2010): 200–214. doi:10.1080/10286630902902954, 203.

[52] Bollior, *Viral Sprial*, 51.

[53] Habermas was a member of the Frankfurt school and studied under Theodor Adorno and Max Horkheimer, however he did not finish his doctoral degree at the Institute for Social Research where he began. Due to a disagreement with Horkheimer, he completed his studies at the University of Marbug under Wolfgang Abendroth.

[54] Rodney Benson, "Shaping the Public Sphere: Habermas and Beyond." *The American Sociologist* 40, no. 3 (July 15, 2009): 175–197. doi:10.1007/s12108-009-9071-4, 177.

[55] Ibid., 188.

[56] Ibid., 181.

[57] Craig Calhoun, ed., *Habermas and the Public Sphere* (Cambridge, Mass.; London: MIT Press, 1993).

[58] Bernhard Peters et al., *Transnationalization of Public Spheres*, Transformations of the State (New York: Palgrave Macmillan, 2008).

[59] Nancy Fraser, "Rethinking the Public Sphere: A Contribution to the Critique of Actually Existing Democracy," *Social Text* 25, no. 26 (1990): 58.

[60] Fraser, "Remaking the Public Sphere," 77.

[61] Russell Neuman, *Media, Technology, and Society: Theories of Media Evolution* (Ann Arbor: Digital Culture Books/University of Michigan Press : University of Michigan Library, 2010). 3.

[62] Philip Meyer, *The Vanishing Newspaper: Saving Journalism in the Information Age* (Columbia: University of Missouri Press, 2009), 10.

[63] Newman, "Theories of Media Evolution," 1.

[64] Shayne Bowman and Chris Willis, "We Media: How Audiences Are Shaping the Future of News and Information. The Media Center at The American Press Institute," July 2003, 7.

[65] Hartmut Wessler et al., eds., *Public Deliberation and Public Culture: The Writings of Bernhard Peters, 1993-2005*, Transformations of the State (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2008).

[66] Klaus Bruhn Jensen, *Media Convergence: The Three Degrees of Network, Mass, and Interpersonal Communication* (London ; New York: Routledge, 2010), 122.

[67] Reno v ACLU U.S. 521 (1997); Quoted in Matthew Hindman, *The Myth of Digital Democracy* (Princeton, N.J.: Princeton University Press, 2009), 3.

[68] Hindman, *The Myth of Digital Democracy*, 4.

[69] Robert Waterman McChesney, *The Problem of the Media: U.S. Communication Politics in the Twenty-First Century* (New York: Monthly Review Press, 2004). 11.

[70] Evgeny Morozov, *The Net Delusion: The Dark Side of Internet Freedom*, 1st ed (New York: Public Affairs, 2011), xiv.

[71] Susan Crawford, "The New Digital Divide," *New York Times*, December 3, 2011, sec. Opinion, http://www.nytimes.com/2011/12/04/opinion/sunday/internet-access-and-the-new-divide.html?pagewanted=all&_r=0.

[72] Jim Macnamara, *The 21st Century Media (R)evolution: Emergent Communication Practices* (New York: Peter Lang, 2010), 77 - 84.

[73] Linda Jackson, Yong Zhao, Anthony Kolenic, Hiram E. Fitzgerald, Rena Harold, and Alexander Von Eye. "Race, Gender, and Information Technology Use: The New Digital Divide." *CyberPsychology & Behavior* 11, no. 4 (August 2008): 437–442. doi:10.1089/cpb.2007.0157, 437.

[74] Henry Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York: New York University Press, 2008), 23.

[75] Wendy Olphert and Leela Damodaran, "Older People and Digital Disengagement: A Fourth Digital Divide?" *Gerontology* 59, no. 6 (2013): 564–570, doi:10.1159/000353630.

[76] See Gail Dines and Jean McMahon Humez, eds., *Gender, Race, and Class in Media: A Critical Reader* (Thousand Oaks, Calif.: SAGE Publications, 2011). Also, Lisa Nakamura, *Cybertypes : Race, Ethnicity, and Identity on the Internet* (New York: Routledge, 2002).

[77] Siva Vaidhyanathan, "Critical Information Studies: A Bibliographic Manifesto," *Cultural Studies* 20, no. 2/3 (August 23, 2005): 292.

[78] Ibid.

[79] Ibid.

[80] Le Mark Lemley, "Property, Intellectual Property, and Free Riding," *Texas Law Review* 83 (2005), 1031.

[81] David Berry, *Revisiting the Frankfurt School: Essays on Culture, Media and Theory* (Farnham, Surrey, England ; Burlington, VT: Ashgate, 2012), 136.

[82] Micah Sifry, *Wikileaks and the Age of Transparency* (New York: O/R Books, 2011), 175.

[83] Benkler, Yochai. "WikiLeaks and the PROTECT-IP Act: A New Public-Private Threat to the Internet Commons." *Daedalus* 140, no. 4. (Fall 2011): 154–164.

[84]Internet neutrality (often abbreviated to Net Neutrality) is the concept that the all websites should have equal access to bandwidth, regardless of content. Additionally, Internet neutrality disregards plans to charge users additional fees for accessing specific websites. These concepts grew out of a response to telecommunications companies seeking to offer tiered bandwidth services to their users, allowing the telecom industry to effective serve as gate keeper to the internet, allowing these company to privilege websites they deem worth, while making access more difficult for all other sites.

[85] Lawrence Lessig and Robert McChesney, "No Tolls on the Internet," *The Washington Post*, Opinions (June 8, 2006), http://www.washingtonpost.com/wp-dyn/content/article/2006/06/07/AR2006060702108.html.

[86] The hacker group Anonymous is often credited with hactivist activities, engaging in politically motivated protests. Protests include storing Wikileaks information, hacking the CIA homepage, and other actions.

[87] Mark Manion, and Abby Goodrum, "Terrorism or Civil Disobedience: Toward a Hacktivist Ethic." *ACM SIGCAS Computers and Society* 30, no. 2 (June 1, 2000): 14–19. doi:10.1145/572230.572232; Also, Elizabeth Losh,. :Hacktivism and the Humanities: Programming Protest in the Era of the Digital University," Gold, Mathew Ed. *Debates in the Digital Humanities*. Minneapolis: Univ Of Minnesota Press, 2012.

[88] Pramod Nayar, ed., *The New Media and Cybercultures Anthology* (Chichester, West Sussex, UK; Malden, MA: Wiley-Blackwell, 2010). Also, David Silver and Adrienne Massanari *Critical Cyberculture Studies* (New York; New York University Press, 2006). And David Bell, *Cyberculture – Theorists Manuel Castells and Donna Haraway* (Rutledge 2007, New York: NY).

[89] Sherry Turkle, *Life on the Screen: Identity in the Age of the Internet* (New York: Simon & Schuster, 1995).

[90] Bruckman, Amy. "Identity Workshop: Social and Psychological Phenomena in Text Based Virtual Reality," Unpublished manuscript. Quoted in David Silver, "Introducing Cyberculture" in *Web.Studies*. 2nd ed. (London : New York: Oxford University Press, 2004).

[91] Lisa Nakamura, "Race For/in Cyberspace: Identity Tourism," in *CyberReader*, ed. Victor J. Vitanza, 2nd ed (Boston: Allyn and Bacon, 1999), 453.

[92] Lisa Nakamura, *Digitizing Race : Visual Cultures of the Internet* (Minneapolis: University of Minnesota Press, 2008), 1.

[93] Nakamura, *Race after the Internet*, 3.

[94] Henry Jenkins, "Cyberspace and Race: The Color-Blind Web: A Techno-Utopia, or a Fantasy to Assuage Liberal Guilt?," *MIT Technology Review* (April 1, 2002), http://www.technologyreview.com/article/401404/cyberspace-and-race/.

[95] Robert Gehl, "Ladders, Samurai, and Blue Collars: Personal Branding in the Web 2.0," *First Monday* 16, no. 9 (September 2011).

[96] Faith Wilding, "Next Bodies," in *The Feminism and Visual Culture Reader*, ed. Amelia Jones (London; New York: Routledge, 2010). 27.

[97] Judy Wajcman defines Cyberfeminism in her article "TechnoCapitalism Meets TechnoFeminism: Women and Technology in a Wireless World" as feminist theories which concentrate on information and communication technologies. She notes that theories tend to vacillated between "technoutopias and technophobias" and works through each end of the spectrum in her article. According to Mia Consalvo, the term cyberfeminism was coined in 1994 by Sadie Plant, the director of the Cybernetic Culture Research Unit at the University of Warwick in Britain. Consalvo broadens the definition somewhat, to include theories that explore the Internet, cyberspace and new media. Judy Wajcman, "TechnoCapitalism Meets TechnoFeminism: Women and Technology in a Wireless World," *Labor and Industry* 16, no. 3 (May 2006): 7 – 20; Mia Consalvo, "Cyberfeminism," in *Encyclopedia of New Media: An Essential Reference to Communication and Technology* (Thousand Oaks, CA: Sage Publications, 2003).

[98] Wilding "Next Bodies," 27.

[99] Adrienne Shaw, "Do You Identify as a Gamer? Gender, Race, Sexuality, and Gamer Identity," *New Media & Society* 14, no. 1 (June 16, 2011): 28–44, doi:10.1177/1461444811410394.

[100] Nick Couldry, *Media, Society, World: Social Theory and Digital Media Practice* (Cambridge; Malden, MA: Polity, 2012), 16.

[101] Ibid., 18.

[102] Jenkins, *Convergence Culture*, 3.

[103] Ibid., 27.

[104] Ibid., 3.

[105] Ibid., 15.

[106] Ibid., 134.

[107] Ibid., 62.

[108] Lister, Martin, et al. *New Media: A Critical Introduction*, 11.

[109] Philip Napoli, "Navigating Producer-Consumer Convergence: Media Policy Priorities in the Era of User Generated and Distributed Content," *Communications & Convergence Review* 1, no. 1 (2009): 32–43, 33.

[110] Mark Andrejevic, *Reality TV : The Work of Being Watched* (Lanham, Md.: Rowman & Littlefield Publishers, 2004), 6.

[111] Ibid.

[112] Lev Manovich, "The Practice of Everyday (Media) Life: From Mass Consumption to Mass Cultural Production?," *Critical Inquiry* 35, no. 2 (October 2009): 319–331, 322.

[113] Lev Manovich, *The Language of New Media* (Cambridge, Mass.: MIT Press, 2002), 4.

[114] Ibid., xxiv.

[115] Ibid.

[116] Jay David Bolter and Richard A Grusin, *Remediation: Understanding New Media* (Cambridge, Mass.: MIT Press, 2000).

[117] Lev Manovich, *Info-Aesthetics* (London: Bloomsbury Academic, 2010). 1.

[118] Andrea Lau and Vande Moere, "Towards a Model of Information Aesthetics in Information Visualization" (presented at the 11th [IEEE] International Conference Information Visualization: IV 2007: [proceedings]: 4-6 July 2007, Zurich, Switzerland, Los Alamitos, Calif. : Washington, D.C: IEEE Computer Society ; Conference Publishing Services, 2007), 87 – 92.
 http://web.arch.usyd.edu.au/~andrew/publications/iv07.pdf

[119] Anna Munster, *Materializing New Media Embodiment in Information Aesthetics* (Hanover, N.H.: Dartmouth College Press : Published by University Press of New England, 2006), 3.

[120] Ibid., 4.

[121] The Kinect is a motion sensing input device (Natural User Interface) for Microsoft's Xbox 360 video game console. The Kinect camera is able to locate a person within a defined space and track their movements (much like a Natural User Interface for a smartphone) to control actions on screen.

[122] David Rieder, "From GUI to NUI: Microsoft's Kinect and the Politics of the (Body As) Interface," *Present Tense: A Journal of Rhetoric in Society* 3, no. 1 (2013).

[123] Ibid., 1

[124] Father Roberto Busa is often cited as one of the earliest pioneers of computing as a humanities method. He created the "Index Thomisticus," a complete digital archive of Saint Thomas Aquinas' works. The project began in 1946 on a an IBM computer and lasted approximately 30 years; the latest iteration of the project can be found at www.corpusthomisticum.org/it/index.age.

[125] Svens Patrik Svensson, "Humanities Computing as Digital Humanities," *Digital Humanities Quarterly* 3, no. 3 (2009).

[126] Franco Moretti, *Graphs, Maps, Trees: Abstract Models for Literary History* (London; New York: Verso, 2007), 1.

[127] Moretti, *Graphs, Trees, Maps*, 4.

[128] *Lev Manovich Language of New Media,* 48.

[129] Lev Manovich, *Software Takes Command: Extending the Language of New Media*. International Texts in Critical Media Aesthetics (New York ; London: Bloomsbury, 2013); Also Lev Manovich,. *Info-Aesthetics* (London: Bloomsbury Academic, 2010).

[130] Mark Marino, "Critical Code Studies." *Electronic Book Review*. Electropoetics (December 4, 2006). http://criticalcodestudies.com/wordpress/.

[131] Matthew Fuller, *Software Studies: A Lexicon*, Leonardo Books (Cambridge, Mass: MIT Press, 2008).

[132] Joasia Krysa and Grzesiek Sedek, "Source Code," in *Software Studies: A Lexicon*, ed. Matthew Fuller, Leonardo Books (Cambridge, Mass: MIT Press, 2008).

[133] Ian Bogost, *Persuasive Games: The Expressive Power of Videogames* (Cambridge, MA: MIT Press, 2007) viii.

[134] Frans Mayra, *An Introduction to Game Studies*. (London: Sage Publications Ltd., 2008), 7.

[135] Nick Montfort et al., *10 PRINT CHR$(205.5+RND(1)); : GOTO 10* (Cambridge, Mass.: MIT Press, 2013).