

STUCK IN CYBERSPACE:
SHIFTING POWER IN THE INFORMATION AGE

By

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Abstract

The rise of the Internet has provided opportunities for universal access to communication platforms, but it has also reinforced the infrastructure of centralized surveillance, further polarizing the societal tension between grassroots liberation and hierarchical control. The following thesis investigates the impact of these changes in various social and political spheres. Utilizing a harmonious theoretical framework which incorporates the values of Community Psychology, with the reflexive philosophical methods of Michel Foucault, the thesis highlights the fluid nature of truth and social power. Throughout eight essays, these notions of truth and power are probed at individual, interpersonal, and collective levels. At the individual level, these topics include the effect of technological devices in people's everyday lives, the increasing automation of human environments, and the manner in which search engines and other sources of knowledge shape conceptions of truth. At the interpersonal level, the topics addressed include labels of deviance and public shaming, and the chasm between apathy and activism online. Finally, at the collective level, these essays address the tension between government surveillance and hacker communities, reformed concepts of labour under the sharing economy, and the innovation of disadvantaged global communities who utilize technology to improve their shared quality of life.

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Chapter 1: Introduction

The following thesis explored the increasing ubiquity of modern information and communication technologies across the globe. Probing varied aspects and consequences of the invention and widespread adoption of computers and the Internet, this thesis presented the beginning of a synthesized theoretical framework to conceptualize the shifts in social power that surround these new technologies. Unlike a traditional participant-based research thesis, the intention was not to prove a singular hypothesis or reach a concrete answer to a research problem. Rather, the expectation was that the complex tensions of power and agency in the present age would be thoroughly explored, with recommendations provided for further investigation and discussion.

This exploratory endeavour was accomplished through the production of essays which highlight concrete examples of cultural negotiation related to ICT adoption. The implications of such a project are as open-ended as the implications of contemporary technological growth itself. However, the primary intended outcome was to encourage a more informal and creative approach to establishing and defending academic theory. Analysis in the age of the Internet inevitably mimics some of the Internet's own defining qualities, including adaptability, fluidity, and a rejection of claims to objective truth. The necessity of such an adaptation follows the same patterns of innovation and creative growth

that were addressed in the literature review of this thesis, and will demand an accompanying shift away from some of the traditions of academia.

Significance of Topic of Study

Widespread advances in technology, industry and economy have always been accompanied by a parallel evolution of societal epistemes. The rise of computer and Internet culture have served as the newest iteration of such previous epistemic shifts as the Agricultural and Industrial Revolutions (Winner, 1994; Halcli & Webster, 2000; Castells, 2004). In the past few decades alone, technological development has had wide-ranging effects across personal, relational and collective levels of human life. By 2013, 37.9% of the global population was using the Internet, and an estimated three billion users will be online before the end of 2015 (Kende, 2014). The growth of cell phone usage in the Global South has progressed at an even faster pace, and cell phones are the primary source of Internet access for the majority of the global population (Panagakos & Horst, 2006; Brown & Marsden, 2013).

The rise in Internet access has been paired with a relational shift in how communities engage and communicate. The rise of social networking sites like Facebook and Twitter have rapidly blurred the traditional boundaries between public and private spheres of communication (Bakardjieva, 2005; Reilly, 2013). Widespread opportunities for global visibility, both for creative and political

purposes, have allowed for a radical shift in media production and the immediate dissemination of local news (Brighenti, 2007; Meyers, 2012). Additionally, online tools and platforms enhance the organizing capabilities and widespread engagement of activist movements (Rosenau & Johnson, 2002; Pickard, 2006; AlSayyad & Guvenc, 2013; Valenzuela, 2013).

Finally, at the personal level, the ubiquity of technological devices and the increasing alteration of human environments has had a significant impact on citizens of the Global North who are immersed in ICT landscapes. As patterns of communication and interaction shifted, so have individuals' experiences of both the fluidity of space and the immediacy of time (Castells, 2004; Crang, Crosbie & Graham, 2006; Ling, 2012; Moshe, 2012). The reliance on technological devices and omnipresent online connectivity has altered human relationships, while creating new norms of daily behavior and expected routines (Winner, 1994). Ultimately, the rise of computer technologies and the Internet have produced visible effects from the level of global governance, to the realm of community interaction, all the way to daily human behaviour.

Personal Interest in Subject

My personal interest in this topic derived from my standpoint as a member of the generation which has straddled the rise of widespread adoption of the Internet, and its accompanying practices of constant connectivity. Additionally,

following my undergraduate degree, I gained increasing awareness of the underlying processes of computer use and the associated activism around free and open access to ICT resources. In particular, I was stirred into action after the suicide of the young Internet activist Aaron Swartz in 2013, who was facing federal criminal charges for accessing and openly distributing academic articles (Murnane, 2014). This incident raised many questions about the existing legislation around copyright law, and connected directly to activist concerns about limitations on open information sharing and fair use. There have been many signs, as described above, that Internet culture is irrevocably changing the landscape of global society, and that this topic is therefore crucial to contemporary theory. However, the conceptual martyrdom of a fellow academic activist, with criminal charges exceeding those placed upon violent offenders, solidified my personal dedication to exploring issues of power and agency in the Internet age. Aaron Swartz's vision of open information and education for all human beings is shared by so many, and highlights the crucial precipice for ensuring equitable access to these resources at the global level.

Statement of Purpose

This thesis has explored how an interdisciplinary conceptual analysis of the historical and contemporary development of information and communications technology can clarify the interdependence of technology and cultural practices,

especially as they impact the complex fluidity of social power.

Theoretical Assumptions

The primary assumption of this thesis was that interdisciplinary theory can be effectively applied to analyze current events, even without a component of traditional participant-based research. Traditionally, informal theoretical work does not stand on its own merit in psychology or the hard sciences, where research validity is considered “an indication of accuracy in terms of the extent to which a research conclusion corresponds with reality” (MacBurney & White, 2010, p. 173). In contrast to participant-based research, philosophical inquiry is often viewed as a mere foundational framework for more concrete qualitative or quantitative study (Babbie, 2005). This project addressed this limitation of perceived academic relevance through its broad but thorough incorporation of references to the research and statistics of pre-existing interdisciplinary sources. The test of validity in such an undertaking does not fall along traditional scientific measures, but instead is produced in “an analysis that can only achieve a status of validity from the community of readers” (Poster, 1989, p. 141). This argument has taken for granted the constructivist principle that writing and reading are themselves inherently valuable source of meaning-making (MacBurney & White, 2010).

Additionally, this project’s unique structure and central focus on the

rapidly developing contemporary sphere required an even more radical departure from conventional concepts of research validity. The traditional narrow focus on a small body of peer-reviewed literature was assumed to be an aspect of an inherent and problematic bias in academia, and therefore it was purposely disregarded as a symptom of the long-standing fracture between theoretical analysis and the cultural context which it has addressed. This thesis will take for granted the assumption that informal “artifacts” from contemporary Internet culture are an ideal source for hermeneutical interpretation of the present age as an ever-shifting “text” in itself. Thus, the contemporary sources that were invoked for the body of the thesis essays included opinion pieces, academic speeches, videos, and contemporary news articles. The supposed limitation of incorporating non-standardized sources was utilized as a strength, making the thesis more accessible to a wide range of readers, while acknowledging that rigid peer-reviewed sources serve an important role in more formal research inquiries than this one.

On a more traditional academic level, this thesis built upon the assumption that critical theory, at its core, creates an interdisciplinary context for understanding the relationship between human discourse and societal practices. Following Poster (1989), this thesis was further focused by the capability for “poststructuralist theory, thus far perhaps largely unexplored [...] to clarify a

social order increasingly characterized by electronically mediated language constellations” (p. 7). Writers who were broadly labelled as poststructuralist thinkers, such as Michel Foucault, characteristically rejected theoretical attempts to present interpretive perspectives regarding causation or even meaningful correlation, designating such efforts as overly reductive (Poster, 1989). However, interpretation and the pursuit of cause-and-effect relationships are natural elements of human thought, and can only be mitigated, rather than eliminated. In one sense, this abstract poststructuralist reflexivity has been invaluable to this project’s aim of addressing multiple perspectives on each topic without arguing for conclusive outcomes. However, it was difficult to stay loyal to poststructuralist skepticism regarding notions of truth and meaning, while surveying opinions and commentary provided by contemporary media sources.

Community Psychology has always been a value-laden field, driven by concerns of social justice above all else. In contrast, Michel Foucault declared his academic intentions to be largely apolitical, and instead tried to analyze human history from a neutral perspective. Both Community Psychology and Foucauldian theory share a fixation on systems rather than individuals, and a preoccupation with the complexity and centrality of power in society. Therefore, these disparate approaches to academic analysis can provide a surprisingly thorough and balanced view of the current state of technological culture.

Chapter 2: Literature Review

Theoretical Frameworks

Community Psychology is a discipline focused on mobilizing communities against systemic oppression and empowering them to fight for their own needs and interests. One of the central elements of the Community Psychology framework is an ecological perspective of society, which acknowledges the multiple levels of collective, relational and individual well-being (Bronfenbrenner, 1977; Rappaport, 1977; Kelly, 2006). For Community Psychologists, the equitable distribution of power in society is of central concern, in terms of political and personal agency, access to resources, and social inclusion (Nelson & Prilleltensky, 2010). Community Psychology depicts power as a complex and multidimensional concept which applies across multiple axes.

Negative forms of power include the power to oppress, whether through direct violence or indirect marginalization, and the abuse of one's social privilege in lieu of standing in solidarity with oppressed people (Choules, 2007; Reich, Pinkard & Davidson, 2008). Productive forms include empowerment and conscientization, which entails gaining awareness of one's position in the larger social order and the available routes to supporting one's community (Freire, 1974; Roberts, 2000).

One of the primary interests of Community Psychologists is addressing the negative effects of globalization, and embracing possibilities to truly empower

marginalized populations across the world, rather than furthering their historical disenfranchisement (Cruz & Sonn, 2011; Prilleltensky, 2012).

Michel Foucault is considered by most to be a poststructuralist theorist, though his work often transcended boundaries and definitions. Foucault's work redefined academic notions of power in human society, recentering the concept from a quantity that is held and enacted by human actors, to a description of the constantly fluctuating interactions and relationships between individuals (Dreyfus & Rabinow, 1983; Poster, 1989). Foucault emphasized that power is never solely concentrated in a top-down distribution, but instead moves through all levels of society, being reproduced and shifted by the actions of the larger population (Foucault, 1977; Baudrillard, 2007). Additionally, Foucault drew unique connections between concepts of power, knowledge, and truth, problematizing the traditional academic perspective that objective knowledge or truth can exist. For Foucault, all knowledge is inextricably tied to power, and truth is merely a designation for forms of knowledge that are privileged within certain epistemic narratives (Foucault, 1980; Shiner, 1982).

The work of Foucault is often referenced in Community Psychologists' writing, as it lays the groundwork for intensely analyzing the fluidity of larger social systems, and uncovering the ideas that are taken for granted in dominant thought (Partridge, 2008; Montero, 2009). There is a significant divergence

between Community Psychology's and Foucault's approaches to politics. The former discipline designates all academic work as inherently politically motivated, while Foucault attempted to bracket political affiliation from his work, without wholly discounting it. However, the deep-rooted similarities in both frameworks' visions of social power ensure their harmonious application to the history of ICT development and the practices of contemporary Internet culture.

The Small, Medium, and Large Picture

Throughout history, the innovative development of new tools and technologies has continually changed the way individuals conduct their lives (Franklin, 1990; Castells, 2004; Ling, 2012). This is even more true with the rapid, widespread adoption of personal technological devices, and the ever-present connectivity to the Internet. Whereas once, space was bounded by the local, and time was dictated by the immediate present, new tools and practices have rendered human environments increasingly abstract and automated (Zerzan, 2008; Moshe, 2012; Marvin, 2013). Communication and the search for knowledge are permanently altered, as well, and individuals have quickly become accustomed to immediate results from online searches and immediate responses from instant messaging (Hughes, 2004; van Dijck, 2010a). It has become expected that the answer to any question will immediately be at one's fingertips, which may be leading to a diminished evaluation of whether those answers are the

right ones, or the wrong ones.

Individuals' changing agency in the online sphere creates new opportunities for participation and visibility. This is tempered by an increasing trend in the erosion of privacy, and in consumer profiling and data collection which tracks users' cumulative online behavior (Vaidhyanathan, 2011; Kinsley, 2013). Therefore, there is a continual tension between the increasing platforms for creative collaboration and production, and the still-extant enforcement of archaic copyright restrictions and top-down control of information and abstract resources (Lauer, 2011; Reilly, 2013). Personal visibility on the societal stage can result in expressive freedom, political agency, or unintentional notoriety and labels of deviance (Brighenti, 2007; Meyers, 2012). The rapid cycle, and short-term collective memory, of social networking sites and modern news dissemination has both empowered marginalized groups' identities and further polarized designations of deviance and outsider status (Marvin, 2013; Tufekci, 2013).

Emerging ICT development leads theorists to reformulate the notion of a community, which has been traditionally rooted in location and physical proximity between community members (Slack & Williams, 2000). With long distance virtual interaction and Internet use increasing steadily, communities which arise within the virtual setting of cyberspace erode the notion of locality as

the defining quality of strongly bound communities (Terranova, 2004; Graham, 2011). Ultimately, this leads to the collective realization of a new type of community, one which is entirely dependent upon the constructions and collaboration of members in a fluid interaction (Srinivasan, 2004). Activists and social justice practitioners are employing new technologies to increase opportunities for political resistance and project-oriented community building (Parrott & Madoc-Jones, 2008; Tatarchevskiy, 2010). This shift in concepts of community also has wide-ranging global consequences, increasing the availability of information and open dialogue, while often simultaneously reinforcing existing oppression and financial exploitation (Little, 2000; Castles, 2001; Crang, Crosbie & Graham, 2006).

As disadvantaged populations gain increasing access to technology resources, the Internet provides a forum within which individual perspectives can potentially be heard over dominant narratives (Mudhai, 2006; Dencik, 2013).

However, there are also many ways in which oppressive financial entities have utilized new technologies to more efficiently exploit the poor, so that the 'digital divide' reinforces the significant economic disparity between the Global North and the Global South (Mattelart, 2002; Migiro & Kwake, 2007; Lingus, 2005).

Additionally, global governance has shifted, as the power of the nation-state is weakened in some ways by ICT's support of transnational corporations (Rosenau

& Johnson, 2002; Karatzogianni, 2004; Kumar, 2010). Both governmental and private surveillance are rapidly increasing, and technological advancement is becoming one of the most valuable resources for any global entity to wield (Goodwin & Spittle, 2002; Ansorge, 2011; Brown & Marsden, 2013).

Statement of Issue

Throughout the history of modern information and communications technology development, there has been an interactive relationship between grassroots innovation and systemic control. At times this has taken the form of harmonious cooperation, and at other times it has presented as disruptive contestation. By acknowledging this tension as inevitable, and refraining from assigning moral primacy to either side of the equation, it is possible to illustrate the complexity of new ICT's powers over global governance, community cohesion, and individual identity. Additionally, the forms that technological devices take, and the infrastructure of computer interfaces, further shape the possibilities and practice of cultural adoption. In order to understand the shifting forms of the enactment of power, and its effects, it is beneficial to explore various examples of current technological practices in order to explore the practical circumstances of epistemic and ethical changes in society.

Theoretical Framework: Community Psychology

Community Psychology developed as a broad interdisciplinary field in response to gaps in traditional psychology's frameworks, and the resulting inadequacies in social services and support for disadvantaged members of society. The theories and practices of Community Psychologists incorporate the content of the social sciences with the foundations of ethics and the immediacy of politics. Whereas individual psychology addresses individuals' struggles to meet the expectations and demands of normative society, Community Psychology aims to critically evaluate and recentre those cultural norms in an attempt to ensure collective well-being, inclusivity, and social justice. This is supported by practitioners' responsibility "to people who suffer from exploitation and marginality, not to those who use and abuse their power for personal, governmental or corporate interests" (Nelson & Prilleltensky, 2010, p. 130).

Community Psychology is centered on a set of crucial values and principles which guide both theory and practice, outlined in detail by Nelson & Prilleltensky (2010). Practitioners account for realities in the personal, relational and collective levels of people's lives, and aim for transformation and change at the higher levels of these systems, rather than ameliorating localized symptoms of collective problems. Community Psychologists also prioritize the well-being and agency of oppressed groups, introducing tools for collaborative action in

egalitarian partnerships. This commitment to social justice supports the vision of “a world in which human beings and their relationship with each other and the environment are the determining considerations behind our decisions, not profit” (Choules, 2007, p. 463). Thus, Community Psychologists acknowledge the primacy of holism, inclusion, and the pursuit of collective liberation. Rappaport (1977) also adds the supplementary values of cultural relativity, diversity, and ecology.

Community Psychologists understand that committing to these core values will not, in itself, create systemic change in the world. Thus, the practice of community psychology aims to shift power relations in society through grassroots political organizing, equitable resource distribution, and reformed research practices. Prioritizing the self-professed needs of marginalized populations, and connecting them with the tools to speak for themselves, can reform the traditional practices of professional social services (Nelson & Prilleltensky, 2010; Reyes Cruz & Sonn, 2011). Crucial to this is an understanding of the history and power relations that have led to existing inequities, and aiming to rewrite dominant narratives that have justified oppression. As “neither the liberation nor the oppression of a group of people is spontaneous,” Community Psychologists attempt to uncover the historical conditions which have led to contemporary injustices (Reich, Pinkard, & Davidson, 2008, p. 175).

Clearly, a discussion of Community Psychology requires an adequate understanding of ‘community.’ In this field, the term community refers to distinct subgroups within larger societies. In the simplest sense, a community is “a group or groups of citizens who have something in common,” and share a feeling of cohesion or shared identity (Nelson & Prilleltensky, 2010, p. 103). Though this invokes a feeling of belonging, it doesn’t imply that communities lack in-group diversity or tensions. Instead, communities are marked by an overall structure which addresses the human need for connectedness. As communities may exist at many levels, and in many formulations, a model is inevitably needed to identify these different realms of connection.

Ecological Model

Rappaport (1977) explains that the earliest adaptations of the biological ‘ecology’ metaphor to the social sciences were grounded in human beings’ relationship to their direct environment, determining whether it is harmonious or discordant. For Rappaport, when this relationship appears to be dysfunctional, the Community Psychologist’s job is to identify and build upon existing strengths and resources, rather than trying to force external norms upon the individual. This emphasizes that human differences and diversity are to be celebrated, rather than merely tolerated, and that the status quo must be questioned rather than upheld. Theorists in this field continually invoke metaphors and models which echo the

biological concept of ecosystems, as human social environments and their dynamics directly parallel the concrete environment of our planet.

Early on, Bronfenbrenner established the ecological model as an intuitive and generalizable framework to assess systems and communities (Bronfenbrenner, 1977; Bronfenbrenner, 1994). Just as his model owes its name to the study of life on Earth, it focuses on the complexity of interdependent human environments, which he divides into conceptual layers. At the base level is the microsystem (i.e., family, school, and neighbourhood), which represents an individual's concrete daily interaction, and at the highest level is the macrosystem (i.e., cultural norms, laws, and behavioural expectations), which represents the codified institutional structures of society (Bronfenbrenner, 1977). Additionally, he introduces a fifth element, the chronosystem, which takes into account the evolution of these studied systems over time (Bronfenbrenner, 1994; Leonard, 2011). In all five systems' interrelations, established patterns of interaction aggregate and shape individuals' development. Though the ecological model clearly delineates the relevance of each of these gradient systems,

Bronfenbrenner's own work often explored the smaller community levels as they affected individual well-being and health. Despite this, he clarified that these smaller systems of the ecological model were dependent upon the qualities of the larger systems (Bronfenbrenner, 1999). An inquiry into societal power

must be concentrated on the overarching macrosystem, which provides context for the written and unwritten laws of its culture, including belief systems and ways of being in the world (Bronfenbrenner, 1994).

Another crucial contributor to the bio-ecological metaphor in Community Psychology was James G. Kelly, who tracked patterns of interdependent causes and effects in the web of communities. In Kelly's approach, more formalized and methodological concepts from the so-called hard sciences provided a framework for interpreting social systems, just as they were applied to food webs and predators in biology (Kelly, 2006). Kelly interprets personal behavior as either adaptive to, or disharmonious with, an individual's environment and ecological context. In order to overcome the limitations of oppressive practices, practitioners must re-write the entrenched rules dictating whether or not individuals 'deserve' to receive support and crucial resources. This approach replaces internalized concepts of entitlement and worth with to a more holistic evaluation, acknowledging that social locations are shaped by interdependent external factors.

For Kelly, some crucial components of this bio-ecological framework are adaptation, interdependence, the cycling of resources, and succession (Kelly, 2006; Nelson & Prilleltensky, 2010). Each of these four principles illustrate a central view of social systems and communities as complex and constantly

fluctuating. *Adaptation* refers to the changes that individuals make to fit into their environments, as well as the way that larger environments will themselves shift after enough individual changes. Similarly, *interdependence* identifies the complementary concept that when a single element in a system is changed, the outcome will have other, often unexpected, effects within its environment. The *cycling of resources* depicts the concrete reality of the distribution of systemic resources amongst individuals. Finally, *succession* accounts for the shift and development of systems over time. The principle of succession identifies the “dynamic equilibrium” of communities, replacing notions of a steady state of collectivity with a critical analysis of the constant process of development and change (Rappaport, 1977, p. 155).

The ecological metaphor has been adapted by many other social disciplines and for a variety of uses, varying from modelling abstract social theory to holistically tracing qualitative effects in social settings. One of the most common operational applications of an ecological model occurs in program evaluation, especially in education, where evaluators will parallel students' success or failure with the ability of organisms to thrive in natural ecologies (Bruce & Hogan, 1998; Zhao & Frank, 2003). On the other end of the theoretical spectrum, there are rigorous models which investigate the functional applicability of ecological terms within the analysis of ordered systems (Peirson, Boydell,

Ferguson & Ferris, 2011; Sieh, 2012). In all cases, it is clear that a model based on the foundations of life itself faithfully accommodates many representations of human lives and communities.

Of particular critical importance is the work of the critical theorist Felix Guattari. His work *The Three Ecologies* (2000) boldly asserts that a crisis of disequilibrium is endangering contemporary societies, just as biological disequilibrium threatens the bio-physical world. In contrast to the starkly visible effects of climate change and animal extinction, the traces of an erratic social ecology manifest subtly in the erosion of subjectivity itself. Guattari refers to his adaptation of the ecological concept as an ‘*ecosophy*,’ or “an ethico-political articulation [...] between [...] the environment, social relations and human subjectivity” (2000, pp. 19-20). For Guattari, activist movements are often rooted in campaigns that are too specific, and fail to connect localized issues to larger systemic problems. This failure to engage in larger-order change can lead communities to pursue myopic solutions which address only the surface symptoms of cultural disequilibrium.

Unlike many other ‘ecologies’ of the social sciences, Guattari plants radical roots in his model, constructing a more faithful parallel to biological ecology. He concretely connects the destruction of the earth's physical resources with the social devastation caused by modern global capitalism, and argues that

neither problem can be solved without addressing both. For Guattari, oppressive power in modern capitalism is no longer linked directly to political nation-states, but is instead dispersed throughout the actions globalized corporate entities as well. He argues that theorists must delineate these new power structures, making visible the machinations of worldwide exploitation, while also addressing the individual-level effects of the resulting alienation and depowerment.

Power

Nelson & Prilleltensky (2010) acknowledge the complexity and abstraction of power, identifying that for Community Psychologists, “power is a combination of ability and opportunity to influence a course of events” (p. 108). In practical terms, *ability* represents the degree of agency available to an actor, and *opportunity* represents the presence or lack of a societal structure which allows that actor to effect change. Power is evasive and fluctuating, and exists within various strata of visibility. However, multiple models can be applied to trace its recognizable behaviors, and to identify some frequent patterns of interpersonal power relations.

One such model is presented in Nelson & Prilleltensky’s (2010) categorization of three generalized forms of power: the power to to strive for wellness, the power to oppress others, and the power to resist oppression and pursue liberation. *Liberation* allows movement from the relational level of power

exchange to second-order effects, and potential collective transformation.

Oppression is definitionally “a state of asymmetric power relations characterized by domination, subordination and resistance,” although it can also refer to active and purposeful processes of domination and persecution (Nelson & Prilleltensky, 2010, p. 115). There are political and psychological mechanisms of oppression, the former including physical force and withholding of resources, and the latter including learned helplessness and internalized oppression. Finally, liberation is the polar opposite of oppression, in which communities work together and mobilize for justice and equity. In order to fight against oppression and pursue liberation, practitioners must gain a deeper understanding of the actual behaviors and processes that influence these power dynamics.

Before exploring these three generalized categories of exercised power, it must be clarified that each individual’s access to social power is as complex as the macrocosmic effects of power in general. Lorion & McMillan (2008) emphasize that there can be no neat divide drawn between those with power and those without, and that reaching a state of greater equality does not involve a mere transfer of static power from one group to another. A contemporary academic concept that is very useful for navigating these subtleties is the notion of intersectionality, coined by Kimberlé Crenshaw within the field feminist legal studies (Lutz, Vivar & Supik, 2011). *Intersectionality* refers to the overlap

between a single individual's many characteristics of identity and group membership, and the resulting interplay of degrees of privilege and oppression that can occur for one person within different contexts (Grabham, Cooper, Krishnadas, & Herman, 2009).

The paradigm of intersectionality reflects the importance of an ecological perspective, emphasizing the complexity of human beings and their environments above the simplistic categorization which reduces each person to observable qualities (Lutz, Vivar & Supik, 2011). Additionally, intersectionality encourages collaboration and dialogue by emphasizing that even those with apparent power can experience disempowerment in some realms of their lives, and those who are oppressed have unique sources of strength to draw on. Finally, intersectionality highlights the reality of less obvious categories of marginalization, such as invisible disabilities, and spectrum sexuality and gender identity (McIntosh & Hobson, 2013). By identifying individuals' social locations as effects of power, rather than as power's fixed source and origin, it is possible to stay true to the ecological view while still critically investigating the larger systems that create and reproduce oppression (Lykke, 2010).

The Power to Strive for Wellness: Empowerment

The concept of empowerment refers to the process in which marginalized groups and individuals achieve the tools and access to advocate on their own

behalf and fight oppression (Rappaport, 1977; Partridge, 2008; Nelson & Prilleltensky, 2010; Maton, Seidman, & Aber, 2011). While the colloquial usage of the word *empowerment* refers to internal changes in individuals' capacities, Community Psychologists apply the term to operationalizable action in the pursuit of collective social change. In this pursuit, marginalized populations achieve participatory self-determination and gain access to political, social and financial resources. It is crucial that the outcomes in these settings can span ecological layers, with concrete localized actions contributing to larger-order societal change (Rappaport, 1977). Additionally, empowerment is not only manifested in outcomes, but is a continuous process of "obtaining, producing or enabling power" (Nelson & Prilleltensky, 2010, p. 106).

Community Psychologists regularly attend to concrete settings in the community as potential sites of empowerment. Maton (2008) identifies local settings as ideal for collaboration and community organizing. He argues that settings are most likely to be effective when the group participants share beliefs, a strong vision, and are invested in changes that are both localized and transformative. Additionally, Trickett (2011) emphasizes the difference between empowering and empowered settings: the former emphasize the voices of traditionally marginalized community members, while the latter mobilize existing sources of power within the community to enact larger societal change. Though

these conceptual spaces are interdependent, and often overlap, empowering settings must take priority in order to put the community's needs first.

As with Bronfenbrenner's ecological model, the empowerment paradigm accounts for chronological effects (Rappaport, 1977). Empowering processes develop over time in communities, rather than being rooted in singular events. It is also important to account for and trace the '*ripple effects*' of community mobilization, referring to the secondary changes that accompany the primary goals or outcome (Trickett, 2011). Ripple effects alter participants' relationships with others, their experience and perspective of their own strengths, and the way they interact with every aspect of their environments. *Mediating structures* such as schools, neighborhood nonprofits, and local organizations, can all serve as pillars for maintaining these long-term changes (Maton, Seidman, & Aber, 2011).

The successful outcome of a local community intervention, such as neighborhood development of a program for at-risk youth, is a first-order change which ameliorates a specific and localized problem. The empowerment paradigm suggests that interventions should also focus on the systemic, or second-order, changes which ripple effects may foster (Rappaport, 1977). In the example given, a truly empowering and strengths-based youth pedagogy could lead to its participants discovering and pursuing great passions in their lives long-term, and contributing their stories and visions to the society they live in. The emphasis on

understanding and enacting these second-order transformations is central to Community Psychology's values and principles (Nelson & Prilleltensky, 2010). However, such transformations can be blocked by the entrenched structures of oppression which are furthered by unacknowledged privilege.

The Power to Sustain Oppression: Privilege

As discussed above, oppression describes the reality of asymmetrical power relations in communities and societies. In most cases, the larger systemic state of oppression is perpetuated by the invisibility of this asymmetry. The term privilege is used to denote the subtle and often invisible advantages which are experienced by members of dominant groups (McIntosh, 1990). In general, this concept illustrates that privileged individuals "have safe, uncontested positions from which to judge any situation [...as well as] an ability to act without consequences and as if one had the right to set the rules" (Choules, 2007, pp. 471-472). Additionally, privilege is not something that is gained or acquired through action, but rather an outcome of the societal norms around inherent traits such as race, gender and sexuality. Identifying positions of privilege can be difficult, as privilege's very nature serves to obscure its existence.

A functional and productive awareness of one's privilege requires conscious critical reflexivity. Nelson & Prilleltensky (2010) identify *critical reflexivity* as a continual and adaptive recognition of how someone's own

experiences, beliefs and intersectional social location permeate their actions and perspectives in daily life. This is a necessary prerequisite to, and component of, understanding and fighting systemic inequalities in society. Maintaining a purely meritocratic viewpoint can lead individuals to assume that more oppressed groups lack advantages because of some sort of inherent weaknesses or deficiencies (Weinstein, 2006). By bracketing these preconceived ideas of the factors that allow people to thrive and survive in society, individuals with a relative level of privilege can better perceive the strengths in marginalized communities, and act as effective allies (Nelson & Prilleltensky, 2010). Consequently, critically reflexive community engagement opens a space for productive dialogue, and creates opportunities to challenge and resist this systemic oppression.

The Power to Resist Oppression: Conscientization

Paolo Freire's concept of *conscientização*, or conscientization, describes the productive process in which community members learn about the larger systems that contribute to oppressive conditions, and in which they collaborate to develop strategic and liberating practices (Freire, 1974). For Freire, the struggle for basic survival places oppressed communities in a state of either 'magical' or 'naive' consciousness. In *magical consciousness*, people take things at face value, and accept the immediate explanations put forth by their environments. *Naive consciousness* involves a greater degree of questioning the larger world, but

still reduces perceived meaning to stereotypes and generalizations (Roberts, 2000). In contrast, the *critical consciousness* which is pursued via conscientization results in deeper inquiry into why things are the way they are, as well as a willingness to hear and accept different opinions and perspectives (Findlay, 1994).

The term *conscientization* is inextricably rooted in its contextual origins as a tool in promoting literacy and political consciousness within oppressed communities in Brazil during the 1950s and early 1960s (Freire, 1974). When its contemporary usage has been divorced from this origin and applied in a more codified approach, Freire's intentional nuance has often been minimized or erased. In particular, the common depiction of conscientization as a linear process, moving from magical consciousness, to naive consciousness, to a 'final' stage of critical consciousness, undermines the true complexity of Freire's vision of conscientization as a fluid and never-ending activity (Roberts, 2000).

Roberts (2000) rejects this simple, three-step model of conscientization, and instead ties the concept to the process of praxis, or active, collaborative participation in transformative events. As he explains, Freire hinted at the omnipresence of characteristics of magical, naive, and critical consciousness at every stage of his work within communities. As with any pursuit of growth, there is no 'final state' of critical consciousness that can be reached and permanently

maintained. Instead, critical consciousness is a developmental process, as individuals engage in dialogue and work together to enact change. Thus, for Roberts (2000), critical consciousness is not an outcome, but “the reflective dimension of praxis [... because as] one engages in praxis, one is of necessity being conscientized” (p. 146). Finally, conscientization does not merely refer to the acquisition of knowledge, but is inherently political. One becomes conscientized about the structures of power, oppression, and liberation that surround and create communities, and this conscientizing praxis can increase the capacity for communally transformative acts.

Psychopolitical Validity

Psychopolitical validity requires a cognizance of the previously discussed interaction of power dynamics across the psychological and political axes, at the personal, relational and collective levels. There are two types of psychopolitical validity: *epistemic*, which relates to analytic approaches in research, and *transformational*, which requires effective social change in interventions (Nelson & Prilleltensky, 2010). In order for these criteria of validity to be reached, practitioners and activists must first pursue psychopolitical literacy, thinking critically about the complex issues that affect wellness and the pursuit of justice (Prilleltensky & Fox, 2007). This process of learning is necessary to immerse practitioners in a deep and rich awareness of psychopolitical factors, rather than

merely echoing empty promises about equality. Prilleltensky's idea of psychopolitical validity has been central to enriching theories of power in Community Psychology, and as a result many practitioners have responded to challenge and further develop these original definitions. Lorion & McMillan (2008) question what they see as a simple divide drawn between those with power and those without, and the accompanying assumption that in order for one group to be empowered the other group must be disempowered. These authors insist that mediators like Community Psychologists must be ready to compromise with those in power, determining whether needed changes are realistic based on existing conditions.

Montero (2009) further delineates the moral and ethical responsibility of Community Psychologists to embrace, rather than evade, the inevitably political nature of community work and engagement in the public sphere. Though the field presents a strong stance of solidarity with community empowerment, the political responsibilities of the practitioner must not end with simply handing over control and direction to the communities themselves. Complex and fluid power relations, which exist even within the smaller ecological levels of social circles, mean that not every member of an oppressed group may receive the opportunity to speak and contribute. The politics of community action are ever-shifting, and practitioners must give support to the strengths of the stakeholder groups while

staying aware of intersectional politics within the groups themselves.

Christens & Perkins (2008) argue that there can be no true psychopolitical validity without *ecological validity*, which ensures that research and interventions account for the full context and rich layers of the environment in which research or practice take place. The context provided by true ecological validity provides the foundation to determine psychopolitical validity. Without accounting for factors of both, instigating change in one part of the community can lead to unforeseen negative effects in others. Additionally, a failure to account for this full range of context can result in outcomes that are not particularly useful or meaningful to the community in question. Similarly, as Reich, Pinkard & Davidson (2008) investigate the effect of chronological time in empirical research settings, they uncover weaknesses in the current application of psychopolitical validity in real world practice. The authors emphasize the importance of both epistemic and transformative validity when engaging with communities. Epistemic validity requires the practitioner to pursue a critical understanding of power and oppression, privileging the perspective and autonomy of the communities they serve. In turn, transformative validity requires this critical knowledge to be applied through action that creates systemic change and supports collective well-being.

Fryer (2008) critiques Prilleltensky's writing on psychopolitical validity,

suggesting that the representation of power within Prilleltensky's work mainly addresses dynamics in the interpersonal realm. Fryer (2008) suggests that power should be seen as a "property [...] of social systems" rather than a quality or quantity located within individuals (p. 243). This approach highlights how these subtle effects of power, as they act upon and through individuals, are much more visible to those who are disempowered within these systems. Such a criticism returns to the vital relevance of psychopolitical literacy about privilege, and critical reflexivity regarding the intersectional aspects of power that imbue the practitioner's social location.

Neoliberal Capitalism, Globalization, and Social Justice

Community Psychologists are increasingly aware of the ubiquitous effects of globalization and neoliberal capitalism on worldwide inequity (Naftsad et al., 2009; Cruz & Sonn, 2011; Prilleltensky, 2012; Speer, Tesdahl & Ayers, 2014). Prilleltensky (2012) emphasizes that in the age of globalization, psychologists must maintain an ecological and multidimensional view of well-being and justice, and a commitment to larger-order systemic change. He describes the relevant elements of globalization: the shift of interactive processes and exchanges of "persons, processes and products" (p. 613). However, while modern capitalism's globalizing forces have devastated developing nations, post-colonial populations show great resilience and creativity in responding to these exploitative practices

(Prilleltensky, 2012).

Not only has the advent of centralized global finance reinforced material gaps, neoliberal ideology subtly reinforces the status quo narrative that those with power are somehow more deserving, whereas those who are oppressed are somehow deficient (Speer, Tesdahl & Ayers, 2014). Community Psychology's strengths-based framework is useful when addressing the effects of globalization, as the local processes and capacities of Global South populations can be identified and reinforced. As long as traditional charitable efforts prioritize aid for post-colonial nations to 'catch up' with the world capitalist system, there will be a sustained gap in these countries' agency on the world stage (MacGillivray, 2006). By building upon the strengths and priorities of indigenous practices, oppressed populations can engage in unique and subversive strategies to thrive without buffeting the dysfunctional system of neoliberal globalization.

Social Change in Action

Cruz & Sonn (2011) provide more specific reflection on the crucial decolonizing standpoint, which takes into account the ways in which colonialism has shaped Western discourse, and the way in which Community Psychology itself is thus both a practice and a product of this history. In terms of further action, Prilleltensky (2012) points out that the dominant narrative in privileged nations represents the negative outcomes of globalization as distant and far too

large to change. Community Psychologists can enact conscientization and change within the Global North by increasing the visibility of the trickle-down effects of the choices privileged citizens make in their daily lives. This conscientization can increase societal understanding about the unjust practices of major corporations and the misdirection in transnational governance that sustain global poverty and oppression. When the average citizen in the Global North becomes aware of the power of consumer choices, boycotting, and civic engagement, localized actions will accumulate and progress toward collective transformation.

At the global level, Guattari (2000) calls for “collective forms of administration and control, rather than a blind faith in the technocrats of the State apparatuses,” pointing out that the current forces entrusted with policy and regulation are the same forces that benefit from the results of lax policies in pursuit of profit (p. 28). Guattari does not believe that such change is possible working within existing systems, but instead through the rise of alternative community practices and approaches. True change will start within individuals and local communities, leading to the reorganization of public sphere norms, and eventually, worldwide governance. Guattari suggests this movement will involve transitioning from the current mass-media era to a ‘*post-media age*,’ in which a multiplicity of voices will simultaneously destabilize and reconstruct the normative structures of communication and civic engagement.

Current and Future Directions

Although the principles, values, and mission of Community Psychology have been well defined, many commentators point out that the paths to action identified by the field in the real world remain vague. Addressing the crucial importance of working within real world contexts, Rappaport (1977) advises to “‘know the system before you try to change it’” (p. 154). Effective social transformation will require collaborations between participatory community action, traditional education and research, public policy reform, and creative and informational media creation. In this spirit, the majority of current Community Psychological publications encourage interdisciplinary collaboration (Kelly, 2006; Weinstein, 2006; Christens & Perkins, 2008; Reich, Pinkard, & Davidson, 2008; Reyes & Sonn, 2011). Haines, Godley & Hawe (2011) provide support from their observation of an international project for complex social interventions, whose nineteen team members spanned nine different disciplines of expertise. The authors’ sociometric approach showed that each member of the team felt their connections were strengthened by the diversity of participants’ areas of expertise.

Practitioners have also emphasized that collaborative models of social research are not sufficient for real world application. Too often, Community Psychologists have opted out of larger-scale political stances regarding the increasingly troubling trends in economic globalization and capitalist practices.

Embracing interdisciplinary theory on an abstract level will help practitioners construct a realistic worldview, but the principle of social justice cannot be realized without a firm stance against oppressive capitalist practices. Maintaining a narrow focus on qualitative research and neighborhood interventions may ameliorate various local problems, but collective transformation requires radical commitment to global activism.

Theoretical Framework: Foucauldian Notions of Power

Michel Foucault's work is a process and a project, not a totalizing theory, and a faithfully thorough review of his oeuvre would extend far beyond the scope of this project. The following literature review section will merely address the larger issues that surround his work, and highlight the most crucial concepts he investigated regarding power in society. Through 'writing a history of the present,' Foucault aimed to expose the tactics of power in its relationship to knowledge, rather than imbue it with definitive meaning (Dreyfus & Rabinow, 1983; Garland, 2014). He rejected the concept of objective intellectual truth, and thus his writing does not attempt to provide conclusive outcomes. Instead, his collected writings present a continual analytic inquiry focusing on the observable, embodied practices of history, particularly those which have not been emphasized in dominant narratives (Smart, 2002). Some authors would suggest that he illuminated more about human discourse and values by refusing to directly study

their content, instead exploring the larger structures which shape and perpetuate them (Gillan & Lemert, 1982; Dreyfus & Rabinow, 1983).

Foucault accomplished this inquiry via rich descriptions and syntheses of primary documents recounting the complex unspoken histories of social constructs like madness, discipline, and sexuality (Gilbert & Powell, 2009). This produced representations of a dynamic and multi-layered structure of power, obedience and resistance in human civilization (Foucault, 1980; Rabinow, 1984). Perhaps the most unique aspect of Foucault's focus was his rejection of the notion of consistent historical origins. Instead of searching for markers of fluid societal development, his work focuses on what he sees as a continuous displacement of one system by a new one, which can be identified by investigating "the breaks that punctuate history" (Shiner, 1982, p. 387). This divergence from viewing history as a sequential process allowed Foucault to unearth sometimes aberrant, and always unspoken, societal justifications for common human practices (Tamboukou, 1999). By refusing to proclaim a specific ideology or fixed theoretical perspective, Foucault strove to avoid falling into the trap of intellectual stagnation (Shiner, 1982).

Foucault's purposeful imprecision led to the fluid invocation of new concepts in the body of his texts without explicit delineation or introduction (Poster, 1989). This may be one of the sources of confusion in tracing and

summarizing his central project, as he leaves it to the reader to parse the intended context of his often radical new ideas. Baudrillard points out that Foucault's style of writing mimics the complexity of his content, depicting "an interstitial flowing of power that seeps through the whole porous network of the social, the mental, and of bodies, infinitesimally modulating the technologies of power" (2007, p. 29). In simpler terms, Foucault's work must be seen as a landscape, rather than a compass. Allen (2012) suggests that the academic or practitioner who intends to make use of Foucault's body of work should treat the available ideas as a toolbox, rather than as a concrete theory. This returns to the fact that one of the underlying goals of Foucault's career was to highlight the dangerous futility of constructing visions of supposedly all-encompassing truths (Derian, 2008).

It has been suggested that post-structuralism's emphasis on anti-systematic thinking may veer too far into the abstract, undermining its ability to present ideas in a coherent or accessible manner (Poster, 1989; Rohle, 2005). Poster (1989) points out that Foucault's concerted effort to avoid the intentionality or truth claims linked to systematic theory does not, and cannot, constitute a successful exemption from the inevitable power effects of the author's position. Foucault cannot eradicate the biases of constructing theory merely by acknowledging them. Indeed, despite his penchant for identifying and exposing the baseline biases of academia, Foucault's work depends on a few committed assumptions of its own.

One of these central assumptions is that human beings' experience and existence in Western society changed radically at the end of the 18th century due to the effects of rapid developments in science, philosophy and industry (Foucault, 1970; Dreyfus & Rabinow, 1983). For Foucault, the movement towards concrete categorization amongst distinctive disciplines enforced a shift in how people thought about themselves and lived their lives (Foucault, 1970). In the new order, a person imbued with self-consciousness and self-reflection found himself or herself to be both "individual-as-object and individual-as-subject [...which] effectively interpenetrate one another" (Goldstein, 1999, p. 43). This marked a disruptive shift from previous normative practices, in which people's daily lives were less blatantly impacted by the imposition of a normative order which dictated and classified their identities into firm categories. The new movement toward disciplinary classification established "processes of integration and exclusion" which changed the way people saw themselves and one another in relation to the greater population (Shildrick, 2005, p. 758).

Another central assumption in Foucault's work is the idea that the effects of power are best understood through the observation of human practices, rather than the investigation of human language and discourse. His intense study of the '*technologies of the self*,' by which people come to understand themselves and construct their identities, reinforced his refusal of the humanist concept of

individuals as “subjects” pre-existing the effect of power in normative social practices (Paden, 1987). For Foucault, human beings are only self-aware subjects insofar as they have come to see themselves as such, through enacting the behaviours and attitudes proscribed by normative frameworks of intertwined power and knowledge (Dreyfuss & Rabinow, 1983). This complex perspective will be easier to comprehend with a brief review of some of the settings and institutions that his writing focused on across his career.

Foucault’s Published Works and Range of Study

Foucault’s choices of contextual investigation centered on supposedly divergent social minority groups, based on gender, sexuality, disability, and designations of deviance. His approach to the analysis of these topics focused earlier in his career on language and discourse, and later increasingly addressed the embodied practices and behaviors of humans in their daily lives (Dreyfus & Rabinow, 1983). As Gordon (2013) highlights, Foucault’s primary texts serve as investigations of the “births” of institutions, from the asylum, to the medical clinic, to the prison (p. 94). In each of these publications, his “genealogical method” is characterized by careful attention to the way these historical institutions of power shaped and influenced people’s behaviour and practices (Tamboukou, 1999). Al-Amoudi (2007) points out that Foucault’s genealogies draw their examples from these institutions, not because they are the only sites

where these fluid power strategies play out, but rather because their extreme contrast with “mainstream” societal institutions makes the strategies more easily visible to study.

The Order of Things (1994) is the closest Foucault ever came to a direct explanation of the central concepts driving these genealogies. In this text, rather than providing an intensive investigation of a single institution’s history, he describes contemporaneous shifts, starting at the end of the eighteenth century, within Western civilization’s disciplines of language, taxonomic biological classification, and the exchange of wealth. He connects all of these to an earlier transformation at the beginning of the seventeenth century, when “thought cease[d] to move in the element of resemblance” (Foucault, 1970, p. 51). In other words, human thought began to center on classification, separation, and exclusion. Rather than finding a universal basis in similarity, representation became fixated on drawing distinctions between things.

In this text, Foucault also established the foundational claim that “in any given culture and at any given moment, there is always only one *episteme* that defines the conditions of possibility of all knowledge, whether expressed in a theory or silently invested in a practice” (1970, author’s emphasis, p. 168). This societal episteme maintains the dominant narrative, which guides the practices by which individuals discipline themselves and maintain their lives. Crucially, the

resistance against this dominant narrative is located with what Foucault would call “subjugated knowledges,” which are rejected or “othered” forms of knowing and seeing the world (1980). These subjugated knowledges were precisely what he highlighted in his various genealogies, from the knowledge of the “mad” in the asylum, to the knowledge of the “criminal” in the prison, to the knowledge of the “deviant” in sexuality (Ali, 2002). This illustrates that his use of the word knowledge, just like his use of the word technology, extends beyond its traditional meaning, and encompasses something more akin to experience or view of the world. For Foucault, subjugated knowledges were potentially disruptive to the systems of institutionalized truth that maintain relative order in society (Smart, 2002).

Perhaps Foucault’s best-known work, *Discipline & Punish* is an investigation of the shift in the “technology of power” employed through societal punishments for crime (Poster, 1989, p. 110). During the nineteenth century, the movement from public torture to systematic incarceration paralleled cultural developments of economic and cultural shifts. Though both torture and incarceration focused on the human body, the former served as a public spectacle, whereas the latter sought to enact a form of discipline (Foucault, 1977). Rather than a system or institution of power, this discipline operated as a condensed set of strategies which shaped and controlled the behaviour of individuals, and altered

their perceptions of themselves in relation to the larger society (Best, 2010). This reflects Foucault's focus on strategies of power which are "located where knowledge has the body in its grip," shaping embodied realities rather than ideological beliefs (Lemert & Gillan, 1982, p. 70).

Many Foucauldian commentators have pointed out the persistent misunderstandings in academia regarding Foucault's description of the Panopticon (Gillan & Lemert, 1982; Poster, 1989; Smart, 2002). The architectural structure of the Panoptic prison consists of a central watchtower, whose interior is obscured through opacity, surrounded by a ring of exposed cells housing individual prisoners (Dreyfus & Rabinow, 1983). As the Panopticon's inventor, Bentham intended for this design to ensure "that the inmates should be caught up in a power situation of which they are themselves the bearers" of surveillance and discipline (Foucault, 1977, p. 201). Humphreys (2006) succinctly phrased that under the structural operation of the Panopticon, "prisoners are meant to internalize supervision, to ultimately be self-regulative" (p. 303). The prisoners would be aware that they might be watched at any given moment, but they could never verify whether or not that was true in the present. For Bentham, this was as effective as having the prisoners under truly constant surveillance (Humphreys, 2006). For Foucault (1977), it was even more sophisticated, because the prisoners learned to "police" themselves through vigilant self-awareness.

Placing individuals in isolation, while maintaining their awareness of the constant threat of surveillance, also takes away their power to collaborate with other prisoners and escape that self-consciousness, even briefly, through distraction (Foucault, 1977). Taken as a whole, panoptic control was, for Foucault, a new technology of power which reflected a shift in how society leads its members to conduct themselves (Ansorge, 2011). Foucault was careful not to present this movement from punishment toward systematic discipline as an “enlightened” moral advance, because even though it reduced the brutality of physical torture, it also enabled the advance of more effective and totalizing control over populations (Poster, 1989). Discipline and surveillance were not the only technologies of control Foucault identified and studied in modern society, however. He was equally interested in the shaping of conduct around sexual practices and behaviour.

Foucault (1990) pointed out that the idea of sexuality as we know it was not introduced into society until the early nineteenth century. This current conception of sexuality is a self-referential one, in which individuals hail themselves as “sexual subjects” who are expected to behave in certain ways, and even experience their own pleasure in carefully delineated ways. It is crucial to highlight that, to Foucault, this notion of sexuality was not an alteration of a previous self-conscious conception of one’s sexual identity, but rather, it was

inserted by society “*where there was nothing before* except uncontrolled, senseless, unstable, or highly ritualized forms” (Baudrillard, author’s emphasis, 2007, p. 42). In other words, it was the construction of a new type of self-recognition, one that led to a highly regulated set of practices.

Foucault addressed a popular theory that he termed the “repressive hypothesis,” which held that, before Victorian times, sexuality had been free and unrestricted, and that after, it was stifled and censored. Foucault’s criticism of the repressive hypothesis as an all-encompassing explanation for modern sexual norms and practices is not a refutation of the concept that sexual roles have been shaped and altered over the course of modern history. For Foucault, the most important effects of the epistemic shift on modern sexual roles have included the transformation of classical “codes of living” (revolving around the care of the self, the successful enactment of one’s expected marriage duties, and the maintenance of one’s property and household) into more self-aware codes (regarding agency and passivity in sexual interaction) which are imbued with implied power and submission (Foucault, 1990).

The struggle to maintain moderation and austerity is not an outcome of modern repression, but has always been an culturally cultivated experience, often seen in a literal internal battle with one’s “base” desires (Goldstein, 1999). Thus sexual repression does not sidestep the play of power between society and the

individual's life, but is a manifestation of it in action, as the attempt to escape repression "in the name of sexual freedom is part of the apparatus of repression" (Lemert & Gillan, 1982, p. 79). In other words, the negotiation of what is and isn't considered appropriate sexual behaviour is one more realm in which power commands, rather than condemns, the individual body to act a certain way (Dreyfus & Rabinow, 1983). The productive and enticing element of power in this arrangement shows through in such actions as the near-magnetic draw of religious confession about sexual misdeeds. Such confession indirectly promises the confessor a secure place within the ideological structure of "truth," and allows him or her to return to living as "a moderate subject living a life of moderation," both experienced in transgression but freed from its consequences (Foucault, 1990, p. 89).

Power, Knowledge and Truth

According to Foucauldian thought, power is a dispersed set of strategies, not an element or force (Baudrillard, 2007; Allen, 2012). Additionally, power does not purely consist of top-down repression, as has often been represented in social and political theory. Instead, power relations are fluid, and function primarily via individuals' internalized conceptions of 'truth' and the resulting practices in which they engage (Rabinow, 1984; Smart, 2002). Thus, individuals may obediently replicate dominant power structures, subversively resist them, or,

more often, engage in a combination of a spectrum of these behaviours (Ali, 2002). Previous theories of power generally illustrated that control and domination were successfully enacted through restraining or repressing the actions and agency of others, in a classic model of top-down prohibitive rule (Foucault, 1977; Gillan & Lemert, 1982). Instead, Foucault emphasized the many ways in which power is a productive force, illustrating “power relations [...as] a mobile network of struggle [...] less a matter of domination than of circulation” (Shiner, 1982, p. 390). For Foucault, power exists in what people do, rather than in abstract thought. Power relations condense from the multiplicity of actions taken by individuals, which inevitably cohere in widespread patterns that may not have been deliberately planned, but still take on the appearance of strategic action (Rabinow, 1984).

Not only is power complex and multidimensional in historical and social contexts, it is present in all human events and discourse. The thread that runs through all of Foucault’s work “may well be described as the *principle of the ubiquity of power*, according to which all socio-historical formations are in effect, in one form or another, a product of what he would call the *will to power-knowledge*” (Jiménez-Anca, 2012, p. 38, author’s emphasis). Power and knowledge are inextricably connected; there is no power that is not transmitted as/with knowledge, and there is no knowledge that is not imbued with, and

carrying the effects of, power (Dreyfuss & Rabinow, 1983; Ali, 2002; Bell, 2011). In more direct terms, “power cannot corrupt knowledge because knowledge is already the product of power” (Allen, 2012, p. 2). For Foucault, this relationship underlies much of the development of civilization as we know it.

Unlike many social theorists, Foucault (1980) saw the production of knowledge as a ubiquitous process which could not be fully controlled by centralized, top-down power structures. For Foucault, everyone can and does produce and transmit knowledge, and due to its social construction there can be many different forms of this knowledge (Gillan & Lemert, 1982; Bell, 2011). In contrast, truth is knowledge situated within the dominant societal narrative, and disseminated within the top-down power structure (Rabinow, 1984). Therefore, there is no such thing as an objective, pre-existing ‘truth’ to be discovered. What we call truth is merely power/knowledge that is legitimized within a society’s dominant epistemic discourse. Foucault built upon Nietzsche’s existing ideas that truth is indelibly shaped by its origins, especially determined by who proclaimed it, and within what cultural context (Tamboukou, 1999). Dominant concepts of ‘truth’ are derived from the specific narratives privileged within a society, and thus truth is both culturally relative and inevitably linked to the systems of power which endorse them (Foucault, 1980; Gillan & Lemert, 1982). Foucault’s investigations often focus on the “many forms of excluded and subjected

knowledge” that exist on the fringes of these systems of truth (Shiner, 1982, p. 384).

However, the production of ‘truth’ does not just occur through easily identified regimes of power, such as propaganda, but also through representations of supposedly anti-authoritarian paradigms, such as liberal humanism (Paden, 1987). Foucault suggested that the tendency for academic theorists to claim their stances against perceived oppressive practices as truth merely establishes a new form of dominant narrative, imbued with its own strategies of power (Allen, 2012). In this sense, “Revolution is a codification of the same relations” (Foucault, 1980, p. 122). This conception of truth as a sort of ideological roundabout returns to one of Foucault’s consistent observations: ‘truth’ is not defined by its forced dissemination on people from a seat of power, but rather by the status it is afforded within tiers of accepted discourse in a society (la Branche, 2005). From this perspective, a ‘truth’ that speaks out against the dominant narrative, but is endorsed by the majority of academics, is not itself external to those dominant structures of power, but is itself an alternative claim to the same narrative dominance (Foucault, 1980).

Biopower and the Manipulation of Subjects

“Biopower” refers to the power imbued in the control and functioning of bodies, as seen in disciplinary and repressive practices described above (Hannah,

2006; Bell, 2011). Before the cultural shifts Foucault studied, sovereign power was exercised through the “juridico-discursive” ability to take life away from subjects, as epitomized by a king’s ability to a subject’s execution (Baudrillard, 2007). In contrast, the modern strategies of “biopower” enact the more subtle “power to make live” (Lemert & Gillan, 1982, p. 80). This power is exercised not through stark spectacle, but via subtle conditioning of entire populations (Ruppert, 2011). Within Foucault’s genealogical investigations, “this order reveals itself to be a strategy, with no one directing it and everyone increasingly enmeshed in it, whose only end is the increase of power and order itself” (Dreyfus & Rabinow, 1983, p. xxvi). Biopower is enacted via the introduction of “technologies of the self,” in pursuit of shaping individuals into “docile bodies” which will further the epistemic norms of society.

Technologies of the self are enacted through the ways in which a given society directs its citizens to behave, particularly in regards to self-care and self-knowledge (Goldstein, 1999). This is particularly characterized by the social narrative that these choices are autonomous, rather than guided by conditioned norms (Ruppert, 2011). However, these technologies of the self are inherently identified by their deep connections to institutional practices, and their widespread adoption within the population (Goldstein, 1999). More often than not, power is expressed through the shaping of individuals’ actions and subjective

perspectives, rather than through direct rules (Allen, 2012).

The most prominent example of technologies of the self in Foucault's work is expounded upon in the *History of Sexuality* volumes, surveying the careful control and grooming of bodies in relation to self-consciousness about sexuality. In the *History of Sexuality*, Foucault didn't attempt to delineate the history of the actual "content" of desire, but rather focused on the manner in "which individuals were led to focus their attention on themselves, to decipher, recognize, and acknowledge themselves as subjects of desire" (1990, p. 5). This self-monitoring and its inherent reflexivity place the individual body as the locus of both obedience and resistance, but rather than grounded in ideology and discourse, these strategies of power play out at a micro-level in daily behaviour (Willcocks, 2006). The successful outcome of this process results in "docile bodies," wherein individuals in the social order are successfully assimilated into morally obedient behaviours which further the episteme of truth (Smart, 2002).

Though he did not often speak of resistance, the popular reading of Foucault's work as pessimistic and deterministic is wholly misconstrued (Gillan & Lemert, 1982; Poster, 1989). He highlighted these sites of extreme control in order to better illustrate his points, via the strong contrast between the institutions which enacted biopower and the subjugated individuals who were shaped into docile bodies (Shiner, 1982; Rabinow, 1984). When he did address resistance,

primarily in interviews and lectures, he emphasized that outside of such totalizing sites of power effects as prisons and institutions, individuals have significant agency in their daily acceptance, rejection, or modification of the proscribed technologies of the self (Foucault, 1980; Ali, 2002). Thus, even with his claims to apolitical theory, Foucault provided a subtle avenue of human liberation in the face of potential oppression (Poster, 1989).

Background and Context: Information and Communication Technology

An analysis of power throughout the development of information and communication technologies must depend on a thorough examination of its material and cultural history. The following review illustrates the interdependence between the process of technological innovation and the cultural impact of adopted inventions. The progress of this interdependent development has relied both on material invention and the capitalist model of growth that has driven the global economy throughout the 20th and 21st century. Additionally, technological innovation and its cultural effects have been influenced equally by the invention of devices (i.e., the medium) and the content of the media (i.e., the message) which they transmit and disseminate (McLuhan & Fiore, 1967).

It is crucial to keep in mind that there are no absolutes in an analysis of power in human society, and the growth of the Internet provides an ideal example of the constant tension between centralized control and liberating resistance.

Examples like the Free & Open Source Software movement and online activist groups sustain the academic origins of an open, many-to-many structured network. However, the increasing commercialized use of the World Wide Web and other Internet services, and the gradual rise of government tracking and surveillance, illustrate the movement toward a less free and more centrally dominated online sphere. In order to analyze the complexity of power as it is enacted in the informational age, the foundational structures which enable free communication, or alternately, ubiquitous surveillance and user profiling, must be carefully examined.

This tension in the balance of power in the modern age can be highlighted in many specific contexts: there is the contrast between crowd-sourced collaborative projects and the automated scripts which allow them to run without human interference, between user-contributed creative content and the commercial platforms that co-opt that content in order to sell advertising, between the free provision of online services and the inherent collection of data that comes along with those services. The Internet provides new arenas for users to have their voices heard, but often that opportunity is reserved for a small subsection of the global population who already experience financial privilege and a high level of computer literacy. Finally, the Internet is accessed for passive entertainment purposes just as often as it is used for participatory communication, if not more

so.

The following literature review lays the groundwork for understanding how modern society arrived at the current state of both computer hardware development and Internet infrastructure, with a particular focus on the many stages of unique innovation along the way. It explores the various qualities of online communities and subcultures, the different roles that users take online, the way technology influences their daily experiences and practices, and the most common activities they pursue, from social networking, to information-seeking, to file-sharing. It also highlights some of the most pressing issues to be addressed as the information age continues its advent, and the nature of labor, creative production, and the state of the environment are deeply affected by current practices. Finally, this literature review addresses the shifting nature of international relations and global governance, as nation-states attempt to navigate a reality in which Internet corporations have increasing power over global politics.

History of Tools & Technics

Lewis Mumford (1962) thoroughly reviewed the historical development from primitive to modern technologies. He examines the specific material effects of tools throughout societal shifts, and produces a thick description of constructed human environments. For Mumford, “technics” began with the earliest humans’

exploration and manipulation of their raw environment (1962, p. 60). From the first crude tools to the mass production of automated machines, technical advancements have enacted significant paradigmatic shifts throughout history. Organized agriculture, the capitalist exchange system, and industrialization each depended upon the material innovations taking place in their respective ages.

In a larger context, the term “technology” descended from Heidegger's “*techne*,” which referred not only to the material tools, but to the forms of knowledge and ideology which accompany them (Srinivasan, 2012, p. 206). This, in turn, was derived from the roots of ‘*teks*’ [Indo-European] and ‘*tekhnē*’ [Greek], both of which emphasized creativity and craft (Hughes, 2004, p. 3). Thus, from the very beginning, technology was not just about the tools wielded by human beings, but about their larger cultural context as well. However, Mumford’s (1962) deliberate choice of the term “technics” emphasizes this cultural context, as the term refers specifically to the interactivity between humans and technology, rather than merely referring to the tools themselves (Segev, 2005; Kinsley, 2013).

Chodos, Murphy & Hamovitch (1997) compare the rise of internet and communications technology with the growth of the telegraph and railway system as tools for expansion and connectivity across the vast expanse of Canadian territory (p. 48). Hughes (2004) agrees that the development of mechanized

transport via railroad lines encouraged the further colonization of frontier lands in North America, and led to an explosion of technological growth in society. He adds that the production of automobiles in systematically constructed factories under the design of Ford further cemented this movement to transform the face of nature (Hughes, 2004). Though efficiency and productivity grew within these automated systems, the increase in mechanization threatened to override the centrality of organic methods and ways of life (Mumford, 1962; Franklin, 1990; Hughes, 2004). Bookchin (1971) similarly identified tools as devices which amplify individuals' pre-existing abilities and increase the power of their actions, and contrasted this with machines, which operate automatically and potentially alienate individuals from their labor.

Mumford (1962) demarcates three larger epistemes of human technological development: the *eotechnic* phase (i.e., developments in skilled craftwork, especially those derived from the invention of the clock), the *paleotechnic* phase (i.e., industrial developments focused on the manipulation of the natural environment and its resources) and the *neotechnic* phase (i.e., intellectual developments related to the rise of electricity, increases in efficiency and small-scale technological manipulation). These phases are linear, but also accumulative, because even as new technology advances, the new tools and techniques are always dependent upon the old. Innovation and growth can shift

the cultural context of technology without entirely replacing its previous forms. Castells (2004) agrees, describing that the advent of informational technologies supplement and restructure previous industrial technologies, rather than replacing them. In Mumford's neotechnic phase, technology shifts toward an informational focus, interdependent with cultural paradigms of reason and science. However, all of the phases of Mumford's technics reflect the complexity of the relationship between human culture and technological invention.

Technology as a Cultural System

Franklin (1990) contextualizes technology as an entire system in which “the relationship between tool and task is of fundamental importance” (p. 49). Just as necessity leads to the invention of new tools, the form and function of available tools in a society will structure the way tasks are viewed and handled in the social context. Existing structures of powers and governance demonstrate an interdependent effect with technology, as the mass adoption of new tools and practices is subtly guided by the dominant paradigms of the current time (Bakardjieva, 2005). As for users' lived experience, “as new technologies are invented, the kinds of people who will be using them are also invented” (Winner, 1994, p. 193). Boal (1995) agrees, stating that “different mediating technologies [...] construct different subjects” (1995, p. 10). In return, the social relationships of subjects shape and restructure the technologies they choose to use (Wessels,

2007). This inevitably extends to the effects on larger groups and communities as well.

A wide spectrum of technocultural perspectives exist, from utopian endorsements of the internet's liberatory capacity to pessimistic suspicions about the rise of surveillance and centralized control (Rosenau & Johnson, 2002; Fuchs, 2012; Söderberg, 2013). These polar extremes share a common feature: they are forms of technological determinism, which anchor society's future growth almost entirely in the outcomes of ICT development (Rosenau & Johnson, 2002; Hamilton & Heflin, 2011). Such technological determinism “assumes that a certain technology has exactly one specific effect on society” (Fuchs, 2012, p. 387). Söderberg (2013) points out that perspectives on technology's potential outcomes are shaped very specifically by the cultural context among various groups and communities, as those closest to the development of new inventions is likely to place more trust and optimism in their positive powers.

Around the Industrial Revolution, technologically optimistic thinkers included Werner Sombart, who claimed that the machine would free man from the limitations of his own capabilities and environment. The American historians Mary and Charles Beard predicted that mass production would reduce heavy labor, deliver more goods to the working class, and even equalize gender representation in the working force (Hughes, 2004). Another term for this

optimistic perspective is techno-fundamentalism, “the notion that you can always invent something to solve the problem that the last invention created” (Vaidhyanathan, 2011, p. 76). This builds upon the promise of human innovation, but may overlook many of the pitfalls of prioritizing invention over philosophy. In contrast, the more pessimistic Luddites saw the rise of automating technologies as a threat to human freedom and autonomy. Boal (1995) draws a parallel between the Luddites' early protests against the advent of machines and contemporary critics who are wary of increasing surveillance and centralized control in the computer age.

In response to technological determinism, many theorists present ecosystem metaphors to describe the symbiotic interaction between culture and technology (Franklin, 1990; Hughes, 2004; Lehman-Wilzig & Cohen-Avigdor, 2004; Lingus, 2005; Sieh, 2012). These ecological models are useful to conceptualize the interdependence of systemic developments both in the invention of hardware and societal biases about the utility and relevance of such tools. However, fully polarized techno-deterministic perspectives appear to overlook the complex spectrum of human beings' engagement with daily technologies, and the ways in which they both accept and rebel against the formative effect of new tools on existing behaviors (Bruce & Hogan, 1998; Bakardjieva, 2005). This dialectical tension is starkly evident in social reactions to the introduction of new

innovations.

Radical or Gradual Innovations

Parallel to Franklin's (1990) distinction between holistic and prescriptive models of technology, Latzer (2009) highlights the contrasting effects of different forms of technological innovation. He differentiates between sustaining technologies, which gradually improve upon existing tools, and disruptive technologies, which incite radical paradigmatic shifts in the larger cultural context. Sustaining innovations are incremental and generally predictable. Disruptive, or radical, innovations are discontinuous and unpredictable, even causing "entire industries and markets to emerge, transform or disappear" (p. 605). Companies and organizations that have monopolized existing markets or resources may be defensive in response to these potentially game-changing innovations.

Franklin (1990) points out that this shift toward mainstream incorporation of new technologies can subtly reinforce users' dependence on the very structures these inventions were intended to subvert. It is not the technology itself that 'enslaves' the user, but the economic co-opting of innovation into capitalist practices, which encourage superficial dependence upon these devices in their "harmless domesticity" (Franklin, 1990, p. 100). As innovations are subsumed into prescriptive practices, their potential to radically disrupt traditional practices

of governance and cultural norms are eroded. Essentially, while technological innovations originally present as disruptive, dominant institutions of society will often adapt and co-opt these devices to further traditional patterns of governance and control.

Ling (2012) provides a domestication framework for contextualizing the way that people integrate new technologies into the environments of their existing lives. In the first stages of an invention's introduction, *early adopters* have more opportunities to shape what will become the expected behaviors and standards around the larger cultural use to come. As more users gradually take on the new technology, social legitimations are constructed and circulated within communities, emphasizing the strengths and value of adoption. If these legitimations are accepted by a large proportion of the population, they begin to “structure social interaction [... until they eventually] achieve a stable and taken-for-granted role in society” (Ling, 2012, p. 35). This final stage of critical mass adoption shifts cultural norms around the new technology, so that a formerly new device will be seen as ‘indispensable’ amongst the majority of members of that society (Vaidhyanathan, 2011).

This is not to imply that the majority of consumers will blindly adopt whatever innovations are presented to them. User interest and reception, rather than technical specifications, are the key to a new technology's success or failure

(Winston, 1998; Lahlou, 2008). A culture's "social need and readiness" for a specific innovative development is the most important factor in its mass adoption (Lehman-Wilzig & Cohen-Avigdor, 2004, p. 715). Additionally, many innovations occur from the ground up, through user invention and hobbyist exploration (McKinnon, 2012).

When potential users of new technology are denied access, they can find ways to adapt available tools in an imitation of new devices. Rantanen (2001) explains that as the Soviet Union moved towards collapse, state controls over media access began to weaken. Some members of the public began to modify their available, outdated telecommunication devices to gain access to previously blocked worldwide news. In particular, access to televised depictions of uprisings against Soviet control in "real time" may have accelerated further revolt (Vaidhyathan, 2011). By patching a perceived gap in material development and embracing 'tactical media,' these citizens may have paved the way for cultural integration with the global capitalist market (Lovink, 2002). Castells (2004) agrees that "innovation [...] is at the root of economic productivity," though he balances this perspective with a warning about polarized access to resources in the informational age (p. 11).

Capitalism and Innovative Growth

Since the rise of capitalism, and its gradual transformation into neoliberal

global capitalism, there have been conflicting viewpoints about whether this economic model has positive or negative effects on human societies. One point of debate is the influence of capitalism on technological innovation. A concrete focus on the statistical economic figures of the past few decades would suggest that the capitalist market is an undeniable source of productive funding for new ICT research and development (Castells, 2004; Greenstein, 2008). Smart (2011) identifies that, by its very definition, “capitalism is an economic system that necessitates growth,” and thrives with the constant introduction of new goods, services and markets (p. 133).

In contrast, Bookchin (1971) warns that modern capitalism’s reliance on the machine has led to a bureaucratic system which undermines community opportunities for creation and self-expression. Similarly, Mumford (1962) points out that the neotechnic stage provide the tools for an even greater stratification of resources and wealth in the capitalist system, “particularly the institutions limiting ownership and dividends to a small fragment of the population, who thus absorb the purchasing power by excessive re-investment in industrial enterprise and add to its over-expansion” (p. 267). Other contemporary authors identify the ease with which informational capitalism reinforces centralized power structures which have been increasingly institutionalized in post-industrial society (Aronowitz, 1994; Winner, 1994; Halcli & Webster, 2000; Lauer, 2011).

Castells (2004) popularized the term 'informational capitalism' as a model for the contemporary global economy. Though knowledge is a central source of power in all societal structures, Castells uses the adjective 'informational' to specifically signify our increasing reliance on microelectronics-based technologies. Whereas once, information signified messages and content to be communicated, it increasingly informs the dynamics of the entire societal and global environment (Terranova, 2004). This shift can be specifically traced to the Cold War era and beyond, when increasing globalization led to new forms of transnational competition and exchange (MacGillivray, 2006). Castells acknowledges that this rising 'informationalism' reinforced the existing capitalist structure, rather than transforming its essential modes of functioning. Many of the modes of capitalism are essentially unchanged under the current system, but what has changed is the type of labour which is required and valued in the global economy. In some ways, this has enabled new opportunities in global labour, but in others ways, it has increased the capability for small groups to wield power over the masses (Halcli & Webster, 2000; Castells, 2004).

Many theorists argue on behalf of capitalism's contributions to societal growth, rather than warning against its potential polarization of power and resources. A key factor in successful capitalist markets is the avoidance of monopoly in industries, because the diversity provided by competition promotes

rapid innovation and keeps costs down for consumers and service users (Greenstein, 2008). Throughout the developmental history of telecommunications, governments have waged legal battles over regulating the growth of such monopolies among service providers (Chodos, Murphy & Hamovitch, 1997; Winston, 1998; Greenstein, 2008). Monopolies are more likely to happen in industries that require a large material infrastructure to provide services (Segev, 2005). Building and maintaining such an infrastructure is costly, so competition hinges on research and development into improving performance and efficiency, as well as striving to create disruptive innovations which can restructure those competitive markets (Challoner, 2008). It is equally important for companies to promote “market penetration” to encourage widespread adoption of these new, disruptive models and their accompanying technologies (Lehman-Wilzig & Cohen-Avigdor, 2004, p. 713). Often, the market of potential customers is directly related to the forms taken by popular culture’s new media.

Defining New Media

Most academic inquiries into technoculture have analyzed the content of the communicative sphere, whether in the dissemination of media or the new realm of interactive online engagement. As discussed, the actual infrastructure of these technologies is crucial to support such social critique, but the more popular discourse on cultural media issues is relevant as well. Marshall McLuhan

originated some of the best-known ideas on media and its strong influence on the development and path of modern society. His catchphrase “the medium is the message” became a widespread and well-known message in itself (McLuhan & Fiore, 1967). This statement implied that the content of communication is inextricably linked to its mode of delivery, and that different media formats act as different “selection, sorting and framing mechanisms” for the interpretation of information (Bucher, 2012, p. 1166). This overall concept enforces that media forms are not transparent or disembodied conduits for information transfer, but rather, their material and concrete characteristics and limitations inevitably shape and alter their communicative content (Lehman-Wilzig & Cohen-Avigdor, 2004; MacDonald, 2006).

Peters (2009) challenges McLuhan's popularization of ‘new media studies,’ arguing that all historical media has been new media in its time. In order to better highlight this, he breaks down the referent of ‘new media’ into two general categories: media undergoing radical contemporary innovation, and “‘media we do not yet know how to talk about’” (Peters, 2009, p. 18). Peters argues that since the ancient shift from oral to written culture, all media shifts have undergone roughly the same transition processes, with variations dependent upon the public sphere and power relations in each respective society. As each technological medium enters society, it hybridizes ‘new’ and ‘old’ forms in a

continual adaptation. Winston (1998) makes a similar argument about the “fundamental continuity” of historical innovation.

Peters’ (2009) approach is reminiscent of Mumford’s *Technics in Civilization* (1967), structuring a loose chronology of stages in new media development. For Peters, these consist of the technical invention of the new medium, cultural innovation and social incorporation, legal regulation and co-opting practices, economic distribution, and finally, integration into the social mainstream, at which point the medium is no longer considered ‘new.’ Carlsson (1995) supplements this understanding, explaining that as the advent of written literacy overrode the traditions of the spoken word, “fragmentation of consciousness, specialization, and complex analysis [...became] possible in ways not possible in oral societies” (p. 240). Thompson (2011) describes the shifts in media content that accompanied the rise of the printing press, in which mass distribution created commercial markets focused on entertainment, rather than just the transmission of information. Similarly, Lauer (2011) traces the consistent effects created by new media, “from writing to webcams [...in producing] new forms of authenticity and truth” (p. 571). Tracing these developments inevitably lays the groundwork for understanding media shifts with the advent of modern information and communications technology.

New Media in the Information Age

Even if current technology's 'new media' follows similar cycles to old media, it significantly alters their dissemination and consumption in terms of accessibility and participation. The advance in instantaneous worldwide data transmission recalls McLuhan's vision of telecommunication media as a transcendental force, driving contemporary society toward a global village (McLuhan & Fiore, 1967). Additionally, internet users have a greater degree of agency in choosing what to watch or read, and a greatly expanded arena for response and commentary in the virtual public sphere (Meyers, 2012). For example, whereas television was a one-way device for media transmission, computers and the internet presented the opportunity for direct and reciprocal communication between producers and consumers of content (Bell, 2001). However, even in its early days, the internet was often still accessed in the context of passive media consumption (Chodos, Murphy & Hamovitch, 1997; Winston, 1998).

As Franklin (1990) points out, "today the question of whether or not an event is reported and televised may be more important than the content of the event itself," and new media may encourage the priority of being heard over the guarantee of being understood (p. 35). As the modern news industry grows with the rise of live media coverage, the sudden and intense spotlight on scandalized

subjects has intensified (Brighenti, 2007). Individuals' experiences of shame have always been inextricably linked to social norms and the presence of an audience, real or imagined (Madianou, 2011). With the current advent of social media as a legitimized mainstream narrative, community members who are singled out in news stories may have a greater chance to voice their responses. However, they are also subject to the incredibly rapid pace of this grassroots digital news cycle (Meyers, 2012).

Polarized academic analyses fail to account for the fluidity of new media forms, either focusing the mainstream 'normalization' of disruptive media, or the 'revolutionizing' of entrenched mass media formats, when in reality the situation lies somewhere between these two extremes (Wright, 2011). There is inevitably a tension between the traditional hierarchy of mass media and the new practices of 'collaborative production' (Deuze, 2006). The new sphere of citizen reporting through blogging and media upload creates an accessible platform for many-to-many media communication, which does indeed provide the potential to subvert traditional mass media news production (Meyers, 2012). However, in many cases, the latter is coming to rely on the former as a source, which leads to a continual negotiation between disruptive and hegemonic practices (Palmer, 2012). Additionally, in terms of citizen reporting through video footage upload, contributors cannot predict the contextual framing of the public reception of their

footage, especially when co-opted and disseminated by the mainstream media (Reilly, 2013). This lack of control over potential outcomes leaves the original uploader open to potentially negative effects, opening a portal to either “the dream of perfect communication [...or] the horror of continuous inquisition” in the public eye (Lauer, 2011, p. 579). This delicate balance between optimistic and pessimistic outcomes is characteristic of the general field of commentary on information and communication technologies.

Historical Evolution of Information and Communications Technology

Franklin (1990) distinguishes between the biosphere, which includes all living things and their material environment, and the new bitsphere, which represents the immaterial realm of information transmission and communication. The term 'bit' refers to a small unit of data, and is meaningful in its reference to the binary logic of inclusion and exclusion which drives the programming of computer technology (Castells, 2004). All computerized devices communicate and process information via binary code, which has allowed modern technology to progress beyond the previous limitations of analog media channels (Terranova, 2004). The basic communication of data within modern technology systems, described as digital transmission, breaks all commands and information into these representational strings of 1s and 0s (Chodos, Murphy & Hamovitch, 1997; Winston, 1998). Now, all forms of media break down into this raw binary, which

is universally comprehensible within computing, so even as hardware is updated and adapted, backward compatibility will still be possible (Challoner, 2008).

With the increasing centrality of computers in modern society, the rapid developments of the technical layer of technology have subtle and often unseen effects. Lahlou (2008) presents an interpretive model illustrating three layers of cognitive technologies: the technical layer of material reality and artifacts, the human layer of interpretations and representations, and the social layer of institutional rules and regulations. Lahlou argues that the physical layer of computer technology is evolving the most rapidly, and that our social and cultural responses to increasingly advanced devices inevitably lag behind. However, he acknowledges that the relationship between devices, their representations, and the social rules which govern their use is interdependent rather than unidirectional, which recalls the importance of regarding technology as a holistic cultural system (Hughes, 2004; Bakardjieva, 2005; Lingus, 2012).

Castells' (2004) notion of the contemporary network society underlines the effects of technology's infrastructure on human culture. For Castells, this form of society is characterized by “networks powered by microelectronics-based information and communication technology [...with] no center, just nodes [...but] all nodes [...] are necessary for the network's performance” (2004, p. 3). This is in contrast to the more traditional top-down and hierarchical structure of information

transmission under previous technologies. The movement of information in networks consists of flows, which are transfers of data between these nodes. If data or nodes become irrelevant or outdated, the networks will usually self-correct, demonstrating “flexibility [...] scalability [...] and survivability” (Castells, 2004, p. 6). Networks are characterized not only by their connectivity and mutability, but also by their ability to store and retrieve information, often in what would be referred to as databases, in which “bits of data are retained according to a model that logically relates them to each other” (Ansorge, 2011, p. 66). All of these processes provide the foundation for a network's unique model of functioning.

Beer (2009) presents the term 'technological unconscious' to describe those invisible but constitutive technological structures which influence human behavior and choices. This term derives from the psychological concept of the unconscious in quite a deliberate sense, but applies to a more collective societal level, addressing the “increasingly powerful and active technological environments that operate without the knowledge of those upon whom they are taking an effect” (Beer, 2009, p. 990). As technology is widely adapted, it becomes embedded in the functioning of both society and individuals' daily routines, and therefore it becomes structurally 'invisible' to its users (Bruce & Hogan, 1998). This perspective returns to McLuhan's concept that 'the medium is

the message,' but invokes a more totalizing environmental force: the medium of ICT shapes the impetus to communicate, as well as the message itself, “actually [...steering] users' behavior by adjusting the interface” (van Dijck, 2010a, p. 403). Understanding the functional operations of this 'technological unconscious' requires a more concrete understanding of the material development of hardware and software, which have created the familiar interfaces of computers and other technological devices.

Material Context of Computer Hardware

An interdisciplinary review combining social theory with ICT history necessitates a more simplified explanation of the infrastructure of grounded technology than would be provided within the hard sciences. Computers are defined by their architecture, or hardware design structure. The distinction between computer devices and previous technology lies with central processing units (CPUs), which create the capability to process and transmit binary information (Curran, 2009). The historical development of the components of modern computers is long and detailed, beginning with mechanical engineering during the World Wars (Winston, 1998). The development of sophisticated electronics incorporating precious metals, especially silicon, as conductors, allowed for flexible functionality unlike anything seen in previous technological inventions (Challoner, 2008).

Once engineers began to develop and improve upon these devices, the progress of improvement was exponential, and computers that had once taken up entire rooms decreased in size while their processing power increased (Winston, 1998; Curran, 2009). This was in part because of the rapid miniaturization of the hardware components, and in particular the ability to fit more transistors on the semiconductors of CPUs. This led to the co-founder of Intel Corporation, Gordon E. Moore, making the famous observation that “every 2 years the power of electronic chips doubles while their size decreases” (Lahlou, 2008, p. 233). This decreasing size could not continue indefinitely, but in the modern age the conceptual increase in capacity has continued via the development of more complex, multiple core processors. As processors handle active tasks, hard drives store all relevant data, making the computer “a unique synthesis of immediacy and archival capacity” (Gehl, 2011, p. 1231). This results in a device that can be programmed to execute tasks, rather than one which passively stores information (Winston, 1998).

In the early development of computers, software was seen as a less important component than hardware (Hughes, 2004). However, as the structure of computer hardware was standardized, programming became more crucial to advancing these devices' capabilities and specializing their functioning (Banks, 2008; Brunton, 2013). Programmers compose source code, producing a line-by-

line designation of all of the commands a program can receive and all of the tasks it can then execute (Petersen, 2013). The interface of a piece of software is completely structured by this compilation of foundational code (Schweik & English, 2012). Computer code is unique in terms of its performativity, which allows it to “make things happen” rather than just transmit a static message (Mackenzie & Vurdubakis, 2011, p. 6). Source code is a set of literal, specific instructions bound by specific rules, which allow computers to 'translate' these commands into action (Winston, 1998; Challoner, 2008). Throughout the advent of personal computing, there has been parallel progress in the design of new, more complex programming languages, which allow for greater ease and more complex operations in manipulating that universal source code.

Programming and Free & Open Source Software

Modern computer programming owes its origins, in large part, to the academic and computer hobbyist communities of the 1970s and 1980s (Winston, 1998; Bell, 2001). While such innovations were still restricted to a specialized group of enthusiasts, community values of collaboration and open sharing prevailed; in fact, without the desire to connect and share information, the original networks of data transmission would not have been developed (Banks, 2008). Gradually over time, major corporations began to copyright their developments in software, and they accordingly placed limits on access to its inner workings

(Chopra & Dexter, 2008). The remainder of enthusiasts who endorsed collaborative processes identified themselves as the Free & Open Source Software [F/OSS] community. Free and Open Source Software communities embrace the principle “that commercialism breeds secrecy and secrecy is anathema to the free flow of information” (Thomas, 2005, p. 605). It is important to underline that it is the secrecy accompanying commercial software enterprises that is under criticism, and not the request for financial compensation for programmers' hard work.

Stallman (2002) clarifies the terminology of the F/OSS movement, and rejects the incorrect use of a polar opposition between free and non-free software. Often, the term 'free' is applied in contrast to commercial software, with the former costing nothing and the latter sold as a traditional commodity. In reality, the terms 'free' and 'open source' are used in the ICT field to describe software which is distributed with open access to its source code, maintaining transparency about the structure and design of the program (Schweik & English, 2012). In contrast, non-free software is released without transparent access to its source code (Dixon, 2004). Programmers who make significant advances in developing new software can charge money for their designs, as long as they allow open access to the source code as a sort of blueprint of that work, so other programmers can investigate and build upon it if they wish (Terranova, 2004). Therefore, in open source programming collaboration, participants who develop and improve

programs “make no ownership claims over the final product” (McInerney, 2009, p. 210). Interested programmers can tweak and improve free software, whereas non-free software is under commercial monopoly by its producer (Greenstein, 2008).

The average user rarely encounters this underlying programming which comprises technology's physical and logical infrastructural layers, as long as their computers work seamlessly. Once personal computers were available for widespread purchase in the 1980s, they were already preloaded with user-friendly visual programming in place of text-based source code, due to the development of Graphical User Interfaces [GUIs] (Challoner, 2008). The first GUI was designed by Xerox researchers in 1978, and a later model was introduced to consumers by Apple in 1984, then mimicked by Microsoft in 1985 (Baron, 2009). Ultimately, all of these graphical operating systems [OSs] have stayed true to the essentials of the original Xerox design, replicating familiar visual elements from the real world such as icons, folders, and windows, and use similar structural hierarchies of file organization and pop-up system messages (Bell, 2001). The intuitive nature of these graphical frameworks enables the majority of entry-level technology users to accomplish all desired tasks through pointing, clicking, and typing (Best, 2010). The companies behind the dominant operating systems continue to work toward simplifying user interfaces and hiding automated system processes below

the surface of the software (Challoner, 2008; Best, 2010). This user accessibility would become even more crucial with the development of the Internet, which would accelerate the widespread adoption of personal computing devices.

Rise of the Internet

The historical development of the Internet was influenced by a fluctuating balance between militarized, academic, and commercial interests (Castells, 2004). The origins of this network lay with ARPA, a strategic project by the US Department of Defense to decentralize official communication systems in case of nuclear engagement during the Cold War (Chodos, Murphy & Hamovitch, 1997; Winston, 1998). ARPANET was the successful end result of the military organization's venture, and though it was still a self-contained network, researchers developed some of the first applications for remote log-on, file transfer, and the forerunner to modern email between the computers on that internal network (Bell, 2001; Banks, 2008). ARPA began to fund and collaborate with academic institutions which were experimenting with creating local computer networks (Franklin, 1990; Curran, 2009). These universities' local area networks were disparate and could not yet communicate with one another (Brunton, 2013). Still, by sharing information between these various institutions, the pieces were being put in place to develop these fragments into an eventual, cohesive whole (Banks, 2008).

Some researchers from the ARPANET project moved on to work at Xerox Corporation's Palo Alto Research Center in the late 1960s, and contributed to the foundational development of personal computing (Winston, 1998; Bell, 2001; Hughes, 2004). As awareness of these networking technologies spread, hobbyists and informal tech users took a more instrumental role in the development of the Internet's structure. Taking advantage of existing phone service networks, early adopters in the 1980s designed protocols which would allow direct data transfer between individual computers via modems, and formed communities via Computerized Bulletin Board Systems [CBBS] (McKinnon, 2012). In 1988, the Finnish programmer Jarkko Oikarinen developed an Internet Relay Chat [IRC] program, which allowed for communication to proceed in something closer to real time (Thomas, 2005). The innovations taking place within these informal communities of computer enthusiasts were just as influential to the future of the Internet as the more formal infrastructures being built by government and commercial interests (Brunton, 2013).

One subset of computer enthusiasts who were truly crucial to the flourishing of the Internet were hackers. The earliest designated '*hackers*,' who identify this term as a synonym for "clever programmers," were working on the cutting edge of computer technology at the Massachusetts Institute of Technology as early as the 1960s (Thomas, 2005). The hacker subculture was influential in

ensuring an open architecture for the Internet's foundational infrastructure (Lovink, 2002; Taylor, 2005). From the beginning, hackers led the vanguard of information technology security, although their popular depiction would eventually be tainted in popular opinion, coming to be associated with the malicious infiltration of security systems and the dissemination of viruses (Söderberg, 2013). However, the origin of 'viruses' was not exclusively malicious, and original viruses were designed to internally test systems for weaknesses to be fixed, or sometimes, to play harmless pranks on other programmers (Bell, 2001).

In 1970, the US Department of Defense offered control of the fledgling Internet to the commercial telecommunications provider, AT&T, but the company turned it down (Castells, 2004). This disinterest would shift in the 1990s when the popular appeal of the Internet became visible, and major telecommunications and television cable companies began to take on the role of Internet service providers [ISPs] (Greenstein, 2008). The widespread adoption of the Internet in the Global North was accelerated due to the commercial promotion of modems (Bell, 2001). Once the Internet was available to average citizens as an accessible medium, it had morphed into an entirely different project from ARPANET's original military objectives: it appeared to demonstrate “no central authority, [...and embraced] many-to-many communication” (Chodos, Murphy &

Hamovitch, 1997, p. 55). Indeed, it was seen by enthusiastic advocates as an "ungoverned and ungovernable [...] perfect libertarian space" (Vaidhyanathan, 2011, p. 13). This would prove to be a very specific utopian perspective; one that would become increasingly contested as the Internet's user base grew via 'massification' (i.e., saturation of a wide population of participants) and commercial interests took stronger hold over its content (Lovink, 2002).

By this point, the Internet was primarily composed of email services, text-based forums and newsgroups, and the earliest instantiation of the World Wide Web. The World Wide Web was developed in the 1980s, in Switzerland's CERN physics laboratory, by Tim Berners-Lee and his colleagues, who aimed to make sense of the sometimes disorganized and ever-growing databases of their lab's network (Chodos, Murphy & Hamovitch, 1997; Hughes, 2004). The original interface culminated in a browser and an editor to navigate the literal 'web' of available information (Castells, 2004; Greenstein, 2008). This built upon the principle of navigable hypertext links which connected different sources of information for interactive reference (Bell, 2001).

Hypertext, which is composed using Hypertext Markup Language [HTML], translates information into pages which are identified by their Universal Resource Locators [URLs] (Bell, 2001). Unlike plain text, HTML provides clickable gateways between these different URLs and pages, demonstrating the

“potential ability to link up to everything digital from everywhere and to recombine it” (Castells, 2004, p. 10). This hypertextuality was widely embraced in the 1990s after the popularization of graphic web browsers presented a more accessible visual interface for end users (Chodos, Murphy & Hamovitch, 1997; Lehman-Wilzig & Cohen-Avigdor, 2004; Thomas, 2005). As this accessibility increased, more and more people began to use the Internet; simultaneously, these users became more insulated from the technical functions and underlying infrastructure that had been laid bare in the days of hobbyists' tinkering.

The Internet's Infrastructure and Data Transmission

Choucri & Clark (2013) identify four layers of the Internet's infrastructure: the physical resources which provide actual access, including computer servers and cell phone towers; the logical interfaces with which we navigate the Internet, such as service provision companies and web browsers; the informational media and content that is indexed on the world wide web; and the communicative level of user interaction, as exemplified in social media (p. 22). The first two ‘layers’ provide an oversimplification of the true technical model of the Internet, which involves a stack of seven layered protocols, but the overall representation is adequate in parallel (Brown & Marsden, 2013). These layers of service and content provision essentially function as a hierarchy, in which higher level connectivity is based on the reliable functioning of the underlying physical layers

(Greenstein, 2008). The following discussion will lay the groundwork for understanding the first two of Choucri & Clark's (2013) foundational layers, the physical resources and logical interfaces. The informational and communicative layers are equally crucial to the functional Internet, as users both contribute and consume information. However, if social theorists underestimate the importance of physical hardware, coded software, and the automated processes of the Web, debates over cultural shifts will remain disconnected from the functional impact of these foundations (Terranova, 2004; Kinsley, 2013).

The Internet refers to the all-inclusive realm of online communication and browsing, and can be conceptualized most simply as “an extended database, crossed by repeatable sequences of commands enabling the retrieval of documents located at different points in the planet” (Terranova, 2004, p. 47). The web pages, email services, and media streaming that have become so familiar for most citizens of the Global North could not exist without the transmission of data. One of the early advances of digital data transmission was the development of packet-switching in place of the circuit-switching methods used in traditional telephone networks (Banks, 2008; Brunton, 2013). The standardized form of binary code, discussed above, allows for information or media transmissions to be broken up into small, uniform-sized 'packets' which are transferred across networks separately (Wessels, 2007; Challoner, 2008). This allows the server to take

advantage of multiple routes and more easily navigate potential queues and stoppages. When they are received on the other side, they are processed and reassembled by the host computer (Winston, 1998; Bell, 2001).

These processes of data transmission, in turn, require an organized and orderly system to identify locations and paths for transfer. Internet Protocol addresses are assigned to each device that connects to the Internet based on the router which establishes their connection (Terranova, 2004). As Challoner (2008) describes, "the Internet is a vast, global IP network of IP networks-- an 'internetwork'" (p. 26). These IP addresses function as literal addresses for data transmission, identifying the location where packets of data originate from, and where requested packets of data should be sent (Curran, 2009). The integrity of this process is managed via a universally standardized data transport protocol, of which the predominant standard is TCP/IP, which normalizes data flows and corrects errors in transfer between different or unknown networks (Lessig, 2006). This level of organization enables the complex paths of transmission in an increasing "peer-to-peer networking" system, in which computers both send and receive data from one another (O'Hara & Stevens, 2006). This replaces the previous unidirectional transfer model, in which all data was processed and sent by centralized servers specially designated for that purpose (Segev, 2005). Peer-to-peer networking processes allow for diffuse management of data exchange, and

can often contribute to greater speed and efficiency in data retrieval (Austin, 2009).

The term 'bandwidth' refers to the rate of such data transmission across a network connection (Winston, 1998). Achievable bandwidth for any given connection is generally dependent upon the lowest common denominator between the computer's ability to process received data, the speed of the network connection itself, and the speed at which the server, or peer clients, can transmit that data (Lessig, 2006). Various forms of network connection have different expected bandwidth speeds, from the earliest model of phone network dial-up via a modem, to the currently widespread use of cable and satellite networks, and to the most effective transmission via fibre optic cables, which transmit data using pulses of light (Lovink, 2002; Challoner, 2008). Most end users connect to these services using routers, which use radio bands to broadcast wireless access [Wi-Fi] to the network (Greenstein, 2008). However, with the increasing adaptation of advanced cellphones [smartphones] and tablet computers, cellular telecommunications networks have become an ubiquitous source of Internet and data access. Finally, in terms of local area connectivity, Bluetooth technology has been employed to connect many devices to one another (Hassan, 2003).

Developing and Future Technologies

In the ICT field, research and development in hardware continues to

proceed rapidly, and the major technology companies of the present are already shaping a vision of the near future. With the rise of increasingly advanced cell phones and tablet computers, our society is shifting toward *thin client computing*, in which device-based storage is sacrificed in favor of constant connectivity to data network storage (Challoner, 2008; Lessig, 2008). As device owners increasingly store the majority of their data on remote internet servers, referred to colloquially as '*the cloud*,' they require constant connectivity (Curran, 2009). This shift to thin client computing and cloud storage also enables movement toward 'the Internet of Things,' in which objects, appliances, and entire home environments are being altered to link into networked systems, allowing centralized user control and increasing automation of their processes (Brown & Marsden, 2013). This furthers the 'embedded system' of technology, in which the foundational ICT tools of daily life are invisible to their users (Bruce & Hogan, 1998).

Another important tool for these developments is the RFID chip, which is a tiny microchip which contains both an integrated circuit and an antenna to receive and broadcast radio signals (Hayles, 2009). RFID chips are currently used primarily to track the movement, sale and exchange of objects, but they are increasingly being employed to monitor the movements and identities of human beings, especially as they are incorporated into passports (Beer, 2009). RFID

chips support the growing technology of biometric security systems, in which individuals' fingerprints and voiceprints can be recognized for user recognition purposes (Challoner, 2008). The information collected by scanning RFID chips is one example of the metadata which is increasingly produced by technological devices, providing information on the time, place, and file information of pieces of data (Vaidhyathan, 2011). With the increase in metadata recording, it becomes easier to track and profile actions and behavior.

Current developments in computer hardware increasingly allow users to interact with technology with a wider range of senses and skills. The advance of voice recognition software and touchscreen capabilities contributes to convenience of use, enhances the integration of devices into daily life, and perhaps most importantly, builds upon accessibility for users with disabilities (Bell, 2001; Parrott & Madoc-Jones, 2008). However, truly immersive interfaces will require an advance in artificial intelligence algorithms, including greater flexibility and recognition of the intricacies of human language (Challoner, 2008; Petersen, 2013). As devices grow smaller and more portable, and incorporate greater connectivity to data networks, they become more embedded in the norms of culture and daily life (boyd, 2008; Kinsley, 2013). Additionally, as the content of the World Wide Web and its connective platforms become more intuitive and omnipresent in social circles, there is even greater impetus for adoption of

informational technology.

Web Platforms

There has been a colloquial classification of the developmental stages of the Internet from Web 1.0, the largely text-based Internet, to Web 2.0, which introduced the interactive agency of users with online content (Bell, 2001; Beer, 2009; Allen, 2012). Web 2.0 built significantly upon the foundational practice of hyperlinking, increasing the visibility and connectivity of various web pages. Web 2.0 is driven by user content production, and is depicted as “characterized by open communication, decentralization of authority, freedom to share and re-use, and the market as a conversation” (Curran, 2009, p. 93). This movement represents a shift from a data-focused world wide web to an application-oriented web, building upon the repository of static indexed content to create a dynamic, customizable, and mostly user-generated multimedia and communicative sphere (Challoner, 2008; Petray, 2011).

However, Allen (2012) similarly argues that framing the ‘versions’ of Web 1.0 and Web 2.0 is an oversimplified analysis, and that each ‘version’ simply builds upon the different inevitable capacities of the internet’s built-in potential. As with Mumford’s (1962) stages of historical technics, the newest iteration of the Web has not replaced the previous version in a linear fashion. Rather, the multiple forms of content and communication supplement one another and

intertwine to create the contemporary Web as we know it. The cultural commitment to promote 'Web 2.0' as a marker of technological advancement calls to mind Beer's (2009) warning against illusions of "teleological progress" (p. 986). New forms of content provision and communication are not necessarily superior to their predecessors, and these structural advances may contribute to control and surveillance as much as they provide opportunities for expression and connection (van Dijck, 2011; boyd, 2012; Gerlitz & Helmond, 2013).

Gillespie (2010) illuminates the structural, social and political implications of the term 'platform' as it is applied to the contemporary World Wide Web. The existence of these platforms for user submitted and crowd regulated media content is often touted as a realm for free expression and unlimited creative control. In reality, companies like Youtube have uncovered an ideal middle ground for modern commercial entities: as a platform, Youtube evades the legal "intermediary liability" for what users upload, while simultaneously benefiting financially from selling advertising space on the site (Brown & Marsden, 2013, p. 76). Gillespie (2010) does not reject the argument that open platforms like Youtube create new opportunities for self-expression and visibility, but he warns against cyber-utopianism which overlooks the underlying profit motive for these sites.

Like most elements of the new information age, the 'platforms' of Web 2.0

are still swiftly evolving, and so the term does not currently have a fixed meaning. These platforms are actively shaped by the activity of their users, as “surfing behavior is constantly being tracked and this knowledge is then filtered back into the interface design and content, creating a constantly changing feedback loop” (Lovink, 2002, p. 138). van Dijck (2012) suggests that web platforms are “instruments [...] to recalibrate communicative norms in the public sphere,” rather than representing a new form of public sphere themselves (p. 165). The ubiquity of opportunities for online commenting merely lends greater visibility to the informal opinions that people were already sharing within their local circles. What was once intimate interpersonal dialogue may now be immortalized in written form on the Internet.

Facebook, Twitter, and Social Network Performativity

Though the concept of dedicated ‘Social Networking Sites’ [SNS] has risen to prominence in the age of Web 2.0, the concept of social networking has been one of the foundational aspects of the Internet since its inception (Brown & Marsden, 2013). Social networking services and sites have merely categorized and formalized the already-extant tendencies to form webs of online connection, through their advanced compilation of structured databases and centralized user profiles (boyd, 2004; Baron, 2009; Tatarchevskiy, 2010). Owen & Imre (2013) examine social networking services as sites where individuals can construct

meaningful, purposive relationships with their social environments, but where they are simultaneously exposed to corporate surveillance and profiling. These authors conclude that the structures and practices involved in social networking sites can be seen as participatory and empowering, or as dystopian and threatening, depending on each individual's priorities regarding self-expression and privacy.

The two most popular and instantly recognizable social network services in the English-speaking world are Facebook and Twitter (boyd, 2008; Buffardi & Campbell, 2008; Gruzd, Wellman & Takhteyev, 2011). Since its introduction in 2006 as a closed social network for college campuses, Facebook has become a massive platform for global communication (Caers et al., 2013). On Facebook, users create personalized profiles, 'friend' other users, post pictures and other personal content, and comment on their friends' posts. In addition to creating formalized networks of friends, a central element of Facebook consists in this process of 'liking' and 'sharing' content, increasing its visibility across the larger base of users. Over time, these processes have been progressively co-opted for purposes of commercial advertising and brand recognition, particularly as Facebook develops unique and specific profiles of its users based on their previous activities, posts, and 'likes' (van Dijck, 2011). As Gerlitz & Helmond (2013) emphasize, the ubiquitous 'like' button nearly automates users' positive

responses to one another, relegating social support to Beers' (2009) description of the technological unconscious rather than purposeful communication.

The all-inclusive record of users' activities and statements highlights that social networking sites like Facebook are also proprietary corporate spheres, whose "rhetoric of sociality and connectivity [...turn users' social interactions] into valuable consumer data" (Gerlitz & Helmond, 2013, p. 1349). What individuals experience as simple self-expression provides the stream of data that is necessary to monetize these sites through advertising and user profiling (van Dijck, 2012; Constantinides, 2012). Like most membership-based sites, Facebook achieves explicit, but covert, consent for this surveillance within the dense and formal language of both its Terms of Service [ToS] and End User License Agreement [EULA], to which users must agree when they sign up on the site (van Dijck, 2010a; Gehl, 2011). This profiling is made more thorough by Facebook's encouragement of users to expose their real-life identities, and integrate their various other Internet accounts with their Facebook account in order to provide a more complete picture of their habits and preferences (van Dijck, 2013). Thus, platforms for social networking and content sharing present the appearance of an "end-to-end system" but in fact maintain highly detailed and rigorous monitoring of their users (Flanagin, Flanagin & Flanagin, 2010, p. 182).

The concept of privacy is increasingly identified as "the terms of control

over information, not the nature of the information,” but the structure of social networking platforms and their EULAs obscures the user’s terms of control over the dissemination of such personal information (Vaidhyanathan, 2011, p. 93). The distinction between public and private realms of communication has rapidly blurred with the widespread popularity of these various platforms for online communication (Bakardjieva, 2005; Vaidhyanathan, 2011). With the rapid development of new social norms and online practices, “the boundaries that do exist at any point in time are porous, contestable and subject to constant negotiation and struggle” (Reilly, 2013, p. 64). This continuous flux reflects the rapid evolution of the platforms and sites themselves.

Just as the increased use of these social networking platforms has eroded the line between public and private spheres, it has redefined the distinction between self-expression and self-promotion (boyd, 2008; van Dijck, 2013). Users engage with ‘mediated visibility,’ which detaches self-expression from their local, embodied context and instead broadcasts a crafted projection of their overall identities (Thompson, 2011; Lester & Hutchins, 2012). Though the process of building and altering social networking profiles may highlight naturally existing social relationships, it can also illustrate a deliberate manipulation of one's public persona in order to appear in a certain light (boyd, 2004; Cover, 2012). In the process of cataloguing life experiences, users “turn social interactions and events

into durable objects” to be shared and displayed (Schwarz, 2012, p. 79). Bucher (2012) points out that the interrelation of social networking performativity is intertwined with the desire for visibility on Facebook, which increasingly ranks and promotes content in a hierarchical manner, based upon user popularity, timing, and predicted strength of user relationships. As a result, Facebook has a direct impact on the information available to its users, despite its presentation as an open platform.

Passini (2013) suggests that this rise in performative social media use has contributed to an increasingly narcissistic society, in which individuals do not experience validation without feeling that every event in their lives has been broadcast, seen, and approved. Similarly, Buffardi & Campbell (2008) observed a possible correlation between narcissistic personality traits and frequent, highly active engagement with social media. It appears as though the generation immersed in social networking is experiencing a rise in individualistic thinking, overriding traditional perspectives which focused on concrete membership in communities and society (Flores & James, 2012). boyd (2004) points out that it has become normalized for young people in the Global North to publicly share most, if not all, aspects of their daily lives, relationships, and interests. However, it is crucial to avoid generalizing entire groups of SNS users, much less a specific age group, as it is clear that the defining factor in these patterns of social behavior

relate to how users are engaging with the sites, rather than their basic membership on those sites (Lichy, 2012).

Twitter has distinguished itself from Facebook based on its short-form communication style, in which users are restricted to 140 characters per message, or ‘tweet’ (Kassens-Noor, 2012). The site has a minimal focus on profile-building, in favor of a constant flow of interactive site-wide conversation. It is also characterized by its asymmetrical networking patterns: whereas other services like Facebook require a bidirectional relationship in which both parties agree to become ‘friends’ on the network, Twitter’s processes of “following” and “being followed” are not necessarily reciprocal (Gruzd, Wellman & Takhteyev, 2011). Twitter is perhaps best known for its immediacy and interactivity: users on the site can tweet ‘at’ other users publicly, and they can also include ‘hashtags’ in their messages, which act as hypertext links to similar tweets and discussions across the Twittersphere (Bruns, Highfield, & Burgess, 2013). Twitter’s unique, turbulent platform recalls Rizzo’s (2008) description of cell phone text messages as comprising “a system of communication where the circulation of messages becomes its primary function” (p. 137). It is the unabating flow of information that sustains Twitter, rather than a prominent identification of individual actors.

Lindgrem & Lundström (2011) highlight that despite its lack of a centralized structure, the simple and universal expectation engendered by

Twitter's communicative style "evolves and leads, at the aggregated level, towards tweeting patterns that give rise to a terminology shared to some extent by anyone entering the field" (p. 1014). Unlike Facebook, Twitter does not enforce users' association of their accounts with their real-life identities, focusing instead on interactivity and 'trending conversations' which rapidly spread in real time (boyd, 2008). This leads to a constant flux between the broad and diverse base of general contributors and the dominance of already-popular voices (Tufekci, 2013). Due to its lax standards of identity-checking, Twitter is also one of many sites that grapples with automated 'bot' accounts used for advertising and spam (Brunton, 2013).

Collaboration Versus Automation

As previously discussed, the collaborative interactions of human beings in the online sphere is merely the top layer of a complex system of code and data transmission (Brown & Marsden, 2013). Just as the underlying processes of operating systems and applications are invisible to end users when they are functioning properly, automated scripts and programming languages which allow the retrieval of information and the construction of new content remains unseen by casual Web users (van Dijck, 2010). What is hailed as the revolution of participatory Web 2.0 depends upon this crucial core of automated processes that propel and sustain the modern internet. As human beings innovate exponentially

more advanced network technology, these tools are increasingly dependent upon automated scripts and “non-human actors” contributing to society (Niederer & van Dijck, 2010, p. 1384). Beer (2009) bases some of his discussion of the technological unconscious on this internet-wide automation, and emphasizes that such algorithms are “generative rules” rather than restrictive codes (p. 994). In other words, algorithms produce the foundational conditions and structure of the internet as we know it, rather than responding to human actors after the fact.

One of the most prominent structures associated with online collaboration is the “wiki,” a collaborative site which allows all users to add, remove or edit content (Curran, 2009). Due to its flexibility and communal editing processes, both the content and authorship community of a wiki is in constant flux (Baron, 2009). The most popularly known and accessed wiki project on the World Wide Web is Wikipedia (Schweik & English, 2012). Wikipedia is a non-profit, consensus based encyclopedia, which openly promotes its reliance on the cooperation and peer review of a wide range of participants (Pentzhold, 2010). Editors can maintain relative anonymity, although the IP addresses of those who deface pages or incite conflict can be traced and banned (Baron, 2009). Despite Wikipedia’s vocal emphasis on the contribution of end users, the site is just as reliant on algorithmic codes as any other Internet structure.

Niederer & van Dijck (2010) illuminate this automated sub-stratum of

content review on Wikipedia. Wikipedia's emphasis on peer consensus editing is made possible by a carefully designed hierarchical system consisting of both a bare-bones administrative faculty and sets automated scripts, or 'bots', created by a core group of committed Wikipedia users (Baron, 2009). The programmed functions of these bots include detecting signs of vandalism, checking spelling, copying updated information from approved outside databases, and flagging banned IP addresses. Though the bots are designed by human beings, and approved and employed by general consensus processes, once they are put into place, the scripts operate completely independently, and with a much higher level of administrative permissions than most Wikipedia users (Niederer & van Dijck, 2010). They have user ID credentials and profile pages, as if they were human editors, but each bot performs only the specific and repetitive activity that it was programmed to do. These automated scripts function at an exponentially faster pace than any human actor could, and are consistently responsible for the majority of edits on the English Wikipedia site (Niederer & van Dijck, 2010, p. 1377). The necessity for automated scripts in managing supposedly collaborative websites is underlined by unsuccessful attempts at pure collaborative projects which have failed due to user inactivity. The United States Library of Congress attempted to direct a crowd-sourced online archive of historical photographs, but in the end, most of the work was “performed by a small number of about 20 'power

commenters” (van Dijck, 2010a, p. 411). Underwhelming participation in projects like these may suggest that the automation of simpler tasks and maintenance is the most productive means for developing new initiatives online.

Wikis and archival sites are not the only areas of the Internet that are structured and maintained via automated algorithms. As discussed previously, Facebook manipulates the visibility of user-posted content based on elaborate predictive algorithms, automatically promoting some content while obscuring posts that the algorithms do not predict will be ‘popular,’ reducing the impact of the multitude of voices on the site (Bucher, 2012). All of these examples illustrate that the informational shifts in modern culture have altered patterns of human interaction, and the blurred distinction between automation and collaboration means that “community-building happens partly as strategic and conscious manoeuvres, partly as habitual and unconscious accomplishments on the semantic as well as structural level” (Pentzold, 2010, p. 717). The participatory component of online communities combines traditional cultural norms with these new protocols of interaction and expression (Lagos, Coopman, & Tomhave, 2013).

Motivations and Barriers for Online Participation

Stanley's (2002) qualitative research in urban California illuminates some of the individual psychological factors which shape opinions and choices about using computers. She presents three categories of motivational barriers: feeling

that computer use is irrelevant to one's life, being afraid of failing at computer literacy, and a 'self-concept' which precludes self-identification as a 'computer user.' Stallman (2002) argues that major corporations maintain unnecessarily high prices for proprietary hardware and software access by mystifying the way technology works, making more hands-on free and open source computing seem difficult and inaccessible for the end user. Goode's (2010) interviews with college students revealed that attitudes and motivations toward computer use are bolstered by access to technology in the home environment, not just in schools. Students who had learned about the inner workings of computers were more likely to maintain enthusiasm and confidence, whereas students with little previous familiarity reported feelings of anxiety and inadequacy in terms of their skills for college work.

Mossberger, Tolbert, Bowen & Jiminez (2012) explore relations between community, geography and technological access. Although the cost of computer access was certainly one barrier to Internet use, they discovered other strong patterns in their quantitative survey. Even after controlling for participants' income levels, living in poorer neighborhoods was strongly correlated with minimal Internet usage. However, these individual residents expressed average, rather than low, levels of confidence about their technological aptitude, suggesting that geographical factors had a greater influence on ICT use than the self-concept

issues uncovered in Stanley's (2002) study. This suggests that even in the Global North, rural communities and poorer urban neighborhoods were among the last locations to gain access to Internet service provision (Greenstein, 2008).

Though technology is continually hailed as a potentially liberating opportunity to equalize the socio-economic playing field, these technologies are often employed in ways which reinforce existing inequalities. ICT tools are being integrated into education settings, but only well-off schools and students receive truly up-to-date equipment and effective training (Neill, 1995; Goode, 2010; Park, 2013). Crang, Crosbie & Graham (2006) find that affluent users assimilated the larger networks of technology resources into their daily lives, whereas increasing degrees of poverty created a spectrum toward more sporadic use. This illustrates that in many cases, less financially privileged people do have some access to ICT, but they have far more limited opportunities to integrate these tools in their normal routines (Park, 2013).

Another weakness in the techno-utopian notion of technology as a global panacea is its assumption that every individual will gladly adopt technology-centered behaviors, and assimilate seamlessly into the information age. In a qualitative study from the UK, Selwyn, Gorard, & Furlong (2005) similarly uncovered that for the majority of interviewees who reported little to no use of the Internet, the web simply wasn't relevant to their concepts of their own identities

and needs. However, even apparent non-users of the Internet still come into contact with web technology in more subtle ways, usually through diffuse interactions with their local support networks. For example, an older person who doesn't feel comfortable using a computer may ask one of their relatives to order something online for them. However, the steady growth of the ICT user base may render this pattern of indirect engagement less relevant in the near future (Castells, 2004).

Even with the relative ubiquity of the Internet in the present, larger communities may express limited interest in adopting information and communication technologies. When the UK employed proactive public policies to encourage technological adoption in rural areas in Scotland and Trinidad, many locals rejected these initiatives, and they were able to clearly explain that they had no interest in engaging in an "information society," and merely utilized ICT devices as necessary in business settings (Richards, 2004). Given the earlier discussion of the potential alienation and social fragmentation of rampant Internet use, it is inappropriate for technology scholars to assume that this willingly detached relationship to computer resources is completely detrimental for such communities. Thus, the complex barriers to participation in the online sphere must be understood to include deliberate choices made by informed actors.

Online Communities and Diversity

It is difficult to define exactly what a community is in any context; however, since the advent of informational technology, this task has become even more difficult. Whereas communities have traditionally been identified based on shared location and/or in-group traits, the online realm erodes some of these connections, while opening potential avenues for communities to form between people who were not in previous contact (Slack & Williams, 2000). Therefore, new “virtual” communities are often defined along characteristics of shared interests or values, or networks of social support (Srinivisan, 2004). Since the growth of online communities in the 1980s, motivations for participation have included desires to communicate with others who share social interests or marginalized identities, to contact in-groups who are separated by great diasporic distances, and to escape general loneliness (Rosenau & Johnson, 2002; Bakardjieva, 2005). The communicative sphere of the Internet also allows those with disabilities or social anxiety to connect with others while maintaining physical safety and comfort (Bell, 2001). However, use of the internet which is motivated by loneliness or social isolation may lead to a vicious cycle, in which problematic or addictive engagement with the online sphere further alienates users from their real world environments (Caplan, 2003).

Perhaps the central binding element of online communities is,

appropriately enough, communication. The new patterns of communication can be seen as “an ongoing process that is determined by the willingness to participate in and the ability to invite to collaboration” (Gulbransen & Just, 2011, p. 1096). This desire for collaboration is a constant theme in the more optimistic literature, in which theorists imagine the potential of the Internet as a realm “where meanings are appropriated, re-made and re-distributed and where enthusiasts and volunteers create something together” (Lindgrem & Lundström, 2011, p. 1000). However, the reality of this new public arena has not yet solidified, as there are both opportunities to forge these new collaborative structures, and dangers of reinforcing existing hierarchical structures in which traditionally powerful groups and individuals continue to dominate dialogues (Papacharissi, 2002).

As access to information and communication becomes easier, digital spheres are increasingly important in expanding users' perceptions of the value of diverse social connections, and can even contribute to more active participation in local communities in the real world (Hampton, Lee, & Her, 2011). However, though users may perceive the Internet as a diverse and politically radical space, the web has been statistically dominated by young white males (Baek, Wojcieszak, & Carpini, 2011). It also has to be considered that current web technologies have been designed for the needs and behavior patterns of Northern citizens, often relegating the Global South to a “silent majority” online

(Srinivasan, 2012, p. 203). This is reinforced by the dominance of English as the primary language of most of the navigable World Wide Web (Lovink, 2002).

Additionally, some authors suggest that the Internet actually fragments the public sphere, encouraging like-minded individuals to convene and reinforce their existing shared biases (Dahlberg, 2007; boyd, 2008). The availability of “filter bubbles of digital gated communities” risks an online environment which further segregates different populations (Marvin, 2013, p. 157). Additionally, increasingly customized and personalized search results can limit users’ exposure to new opinions or sources of information, although claims to supposedly neutral search results must be viewed with equal suspicion (Vaidhyanathan, 2011).

Group Norms and Social Roles

Just as the source code of computer programs determines the logical actions that users can take, explicit codes of conduct structure the expected behavior in online communities. At the base level, user interaction is guided by the formats of available communication, from limitations in message length or timing lags to emoticons and site slang. On a broader level, most online forums and comment sections have expectations of 'netiquette,' and enforce this via the option to report another member for misbehavior, 'flag' inappropriate content for removal, and even ban repeat offenders (Bell, 2001). In the earliest years of the Internet, it was common practice for users to participate in discussion in either

complete anonymity or under pseudonyms that were divorced from users' real life identities (Gerhards & Schafer, 2010). However, community norms are easier to enforce consistently on sites that require membership or username registration, and are even more effective when users are expected to provide their actual name and identity, so major sites increasingly encourage or require this practice (Cover, 2012). The establishment of these protocols creates predictable hierarchies on websites, which generally involve one or more administrators who have the privileges needed to enforce the codes of conduct.

MacDougall (2010) analyzed the crowd-driven auction and shopping site "eBay" to better understand the community structures that solidify around economic platform models. eBay relies on peer feedback to prove the quality of sellers' products and the reliability of buyers' prompt payments. eBay members continually determine what the rules mean through real-life dialogue and practice. MacDougall suggests that this supports the hypothesis of internet technology as a democratizing force, although there are significant exceptions seen in users who 'game' the system. Returning to the example of Wikipedia, this open-ended community is guided by a code of conduct with an explicit focus on equality, openness, neutrality, and trust (Pentzold, 2010, p. 714). Pentzold (2010) asked devoted Wikipedia contributors to describe their perspectives on their own collaborative community, and obtained multi-layered definitions of the ethics and

practices which shape the site. Highly active participants and administrators emphasized that on top of the processes of automation, Wikipedia is built upon intentional and strategic community-building practices. The 'talk' forum attached to each page allows active and continued debate about what should and shouldn't be included in articles, and transparency is maintained regarding all updates and changes (Lessig, 2008).

The community-building efforts of “Wikipedians” are sometimes frustrated by both passivity on the part of some users, and active disruption on the part of others. In terms of passivity, Lindgrem & Lundström (2011) identify 'lurkers' on websites and forums as users who read conversations and discussions but do not contribute or comment themselves. Similar to the layer of automation which propels the functions of the Internet, the existence of a sector of silent or passive observers in the communicative sphere further complicates theorists' attempts to classify or delineate the new structure of online communities. In terms of active community disruptions, 'trolls' purposely engage in behaviors intended to upset other internet users and cause chaos (Lessig, 2008). When Shachaf & Hara (2010) interviewed Wikipedia administrators about their experiences dealing with trolls on the site, they described qualities of the 'repeat offenders' they had encountered. These trolls attempted to keep anonymity, but could usually be tracked by their IP addresses, which are completely visible to all

Wikipedia users (Baron, 2009). They usually inserted a consistently polarized political bias, profanity, or absurd jokes into Wikipedia text. In the end, the interviewed administrators described a wide range of potential motivations for this trolling behavior, all of which fell under the umbrella of what is traditionally described as anti-social behavior.

A final social role in the online sphere, which has been briefly mentioned above, is that of the hacker. In the 1990s, highly publicized 'moral panics' around more destructive instances of hacking led to arrests and resulted in the collective association of the term 'hacker' with the term 'criminal' (Thomas, 2005).

However, 'hacking' simply means gaining unauthorized access to a computer system, and under the broader umbrella of 'hackers', there are varying ethical intentions (Curran, 2009). Hacker communities don't identify 'illegal' as automatically 'unethical,' but they don't unanimously endorse illegal actions either (Taylor, 2005).

Holt (2010) emphasizes the importance of specialized insider language, which he refers to as an *argot*, in highlighting these distinctions. Many of these terms identify the varying levels of computer and programming literacy, as well as the legality and techniques of concrete hacking processes. Within this community, a true hacker has a high skill level, and a profound interest in continually learning to manipulate and innovate technological resources (Taylor,

2005). This is in contrast to 'script kiddies,' who co-opt programs created by other hackers, 'lamers', who misuse hacking tactics completely, or 'end users', who have little understanding of how computers work, and use them for simplistic ends (Thomas, 2005). Additionally, a hacker with malicious intentions is referred to as a 'cracker,' and one whose primary intent is to violate copyright law is referred to as a 'pirate' (Holt, 2010). Some of these words have made their way into popular parlance, but it is important to see that even within a highly specific online subculture, there are clear distinctions drawn between roles and underlying community norms.

Political Engagement in the Online Sphere

Smith, Bellaby & Lindsay (2010), contrasting two ICT participation initiatives in the UK, found that canvassing individuals' homes in a neighborhood context was a more effective political recruitment tactic than online engagement. This supports the concept that civic participation and community ties are still strongly rooted in the local, and that tactics in both spheres can be combined to help shift local movements into global movements (Mattelart, 2002; Tatarchevskiy, 2010). It is clear that successful organizing and development should include strategies in both the virtual and physical sphere (Lovink, 2002; Lagos, Coopman, & Tomhave, 2013). An excellent recent example of successful online voter engagement can be found in Barack Obama's 2008 presidential

campaign, in which his team employed multiple tactics for engagement through the Internet (Foy, 2010). This is further supported by examples of grassroots activist movements appropriating new media technologies to be recognized by a wider audience, when their causes may have gone unnoticed by traditional mass media organizations (Mattelart, 2002; Lipschutz, 2005; Dunbar-Hester, 2009; Lester & Hutchins, 2012). The instantaneous nature of online communication can also support more immediate group planning and allow effective responses to urgent issues (Rosenau & Johnson, 2002; Pickard, 2006).

In the Global North, some authors have analyzed purposeful online protest campaigns in which groups agree to either consume or boycott goods and services, noting the increasing reality that “participation is a commercial act” (Goldberg, 2010, p. 747). de Zuniga, Copeland & Bimber (2013) evaluate the relationship between people's use of social media and their patterns of political consumerism, which they measure based on evidence of purposeful support or boycotting of companies' products based on politics and values. This method of political action manifests along a continuum between planned consumer protests and naturalized patterns in individuals' daily purchasing choices. The authors' qualitative review of survey data suggests that frequent use of social media correlates to patterns that would be better described as civic, rather than political, consumerism. However, the proliferation of consumer activism risks a superficial

engagement with deeper societal issues which breed and replicate injustice (Lipschutz, 2005).

Similarly, Mihaildis & Thevenin (2013) challenge the concept that ICT has eroded politically engaged citizenship; instead, they suggest that the methodology of public engagement in the civil sphere has shifted. These authors contrast the traditional notion of the *dutiful citizen*, who gives input through officially mandated channels such as voting and writing letters to representatives, and the *actualizing citizen*, who operates through expressive communication and embraces the agency of individual identity (Mihaildis & Thevenin, 2013). The actualizing citizen is more at home in the age of new technology, where constant flows of information and input require citizens to shape their own responses to shifting political climates. Ideally, this actualizing role can allow citizens to question the legitimacy of totalizing ideologies, and construct critical dialogues via alternative media (Downey & Fenton, 2003).

Lindgren & Lundström (2011) examined the use of Twitter hashtags which referenced the Wikileaks organization, in order “to analyze the potential of elusive and fluid web spaces as sites of mobilization and resistance” (p. 1014). Wikileaks publicizes protected government information provided by whistleblowers, emphasizing the central importance of transparency in larger governance structures (Birchall, 2014). They use the patterns in these hashtags to map out the

networked interactions of supporters and critics of Wikileaks. The majority of the hashtags were employed in support of Wikileaks, but even those who regarded the organization positively often provided complex analyses which held the organization accountable for potential missteps. Lindgren & Lundström concluded that their research “indicates that this particular social space is not closed for other arguments or further debate,” and that even supporters of Wikileaks seemed to hold the organization itself to the same rigorous standards of transparency that it existed to enforce in the mainstream political sphere (p. 1005). Similar discursive flexibility was found by Fozdar & Pedersen (2013), when they identified acts of effective resistance in the context of racist discussions on Australian news blogs, which supported optimistic conceptions of the Internet as a realm for participatory and transformative micropolitics.

Valenzuela's (2013) survey study supports the idea that engagement with social media can lead to an increased investment in political participation. However, some theorists fear that there is a cyclical reinforcement in which those who pursue political action will become continually more politicized, while those who primarily access passive media and entertainment will remain largely apolitical (Segev, 2005). Additionally, the rising support for social networking tactics may promote forms of “activism understood as performative action that do not require actual solidarity” (Tatarchevskiy, 2010, p. 309). This can result in the

proliferation of ‘push-button activism’ in which participants shallowly address causes, only to forget them immediately after (Petray, 2011). It thus grows even more crucial to encourage holistic community involvement as the structure of public communication rapidly develops and changes.

New patterns of distribution of visibility further polarize the available platforms for gaining media recognition. The focus on gaining popular attention has led to prioritizing “networked microcelebrity activism,” in which a few voices are focused on and promoted above others, despite the structural possibility for a more collaborative public sphere (Tufekci, 2013). Lester & Hutchins (2012) point out that in countercultural activism, containing and withholding information within the movement may sometimes be more effective than broadcasting it widely, and that “the ability to *not* be seen at strategically significant moments should be recognized as a sign and source of power” (p. 860). This reinforces the argument that the Internet’s widely-hailed potential for any and all users to have their voices heard must always depend upon the willingness of those users to utilize such a platform, as well as the relative situational power of visibility (Brighenti, 2007).

The Politics of the Arab Spring

Many discussions of global political power and the Internet turn to the example of the so-called Arab Spring revolts that began in 2010, in which activist

movements led to extensive political upheaval in the Middle East and Northern Africa (Srinivasan, 2012). Perspectives on the Arab Spring revolts have often depicted a homogeneous movement in the region, when in fact each nation's concepts of social context and communicative power were quite diverse (Etling, Kelly, Faris & Palfrey, 2010; Bruns, Highfield & Burgess, 2013; Ishay, 2013). In the Global North, the majority of the population received their information on these events solely through traditional mass media channels such as television and newspapers (Aday et al., 2013). Globally, the Arab Spring unfolded as a “mediatized *meta-event*,” in which local events were reframed via transnational representation as symbols of more universal and generic values (Christensen & Christensen, 2013, p. 352, authors' emphasis). Additionally, many of these mass media sources did not give explicit credit to the bloggers and social media users from whom they obtained primary footage and information (Aday et al., 2013; Robertson, 2013). This cultivated a specific homogenous narrative which was widely disseminated outside of the complex local contexts of each nation's particular political circumstances.

Though mainstream reporting in the Global North emphasized the influence of social media in the Arab Spring protests, the true instrumentality of these platforms to the activist events has been debated by scholars. Significant non-traditional outlets for political protest and action arose in youth movements,

including the proliferation of creative expression through music and rap (Kimball, 2013). Wojcieszak & Smith (2013) were surprised to find that many young, skilled technology users in Iran still depended heavily on public broadcast television to receive political information, and that in particular, Twitter was not nearly as important in their daily engagement around politics and communication. Additionally, more radical youth culture movements fused blogging with street promotion of awareness campaigns and movements outside the mainstream (Khalil, 2012).

AlSayyad & Guvenc (2013) suggest that the most important function of social media during the Arab Spring revolts was as a tool to coordinate and organize gatherings in geographical space-- the short-form immediacy of Twitter allowed unprecedented communication of location and plans. Wolfsfeld, Segev and Sheaffer's (2013) case study indicates that participatory utilization of social media tools was taken up as a result of the collective protests, rather than serving as a catalyst to those real world demonstrations. Gonzalez-Bailon, Borge-Holthoefer, and Moreno (2013) reached a similar conclusion in their reconstruction of Twitter communications in Spain during protests in 2011, summarizing that online platforms did not directly incite global activist events, but they allowed mass mobilization to thrive in a relatively sustainable manner. These multiple studies suggest that an optimistic view of social media's political

utility must be tempered with realism about various communities' unique adoption of the wide range of available tools.

Computer Activism and Open Source Politics

Returning to the politics of the Global North, Activists and social justice practitioners are employing new technologies to create participatory open access and consensus based organizations, with varying degrees of success. Free and open source software movements are a driving force behind much of the current activism in technology politics (Chopra & Dexter, 2008). Kreiss, Finn, & Turner (2011) explore the design and self-governance of digital peer production processes, which build upon the open source software philosophy to provide structure for media dissemination and visibility. The authors point out that it was difficult for many of these grassroots movements to sustain a long term consensus model.

Lakhani & Wolf (2005) found that in contrast to the traditional economic model of motivation, the open source community is more driven by intrinsic factors of satisfaction and community contribution, rather than extrinsic sources of pay or concrete reward systems. This finding is supported by political scholarship on the foundational values of open source communities reaching back to the beginning of computer programming (Sullivan, 2010; Schweik & English, 2012). Flanagin, Flanagin & Flanagin (2010) suggest the strong social cohesion

and shared values within the open source community, coupled with collaborative technical expertise, ensure the success of sustainable large-scale development projects. McCormick (2004) reaches similar conclusions, arguing that the culture of professional programming would greatly benefit from incorporating some of these cooperative and creative practices. Powell (2012) acknowledges that there are both strengths and weaknesses to the informal, peer-driven movement of open source communities. She suggests that open source communities and private sector corporations could both benefit from emulating elements of each other's methods.

Löblich & Wendelin (2011) emphasize that ICT activism cannot be reduced to a single movement, presenting examples of varied motivations for this activism in German civil society. These include the protection of user privacy, the freedom to access information, the promotion of copyright reform and open source software, and the pursuit of gender equality within the ICT field. The authors analyze these activist groups' methods of organizing and mobilizing resources in the information age, when networks are shifting governance from centralized control to more diffuse transnational powers. Though all four of these causes pursue concepts of social justice, the pursuit of gender equality is notably absent under the umbrella of ICT activism. One of the greatest limitations of these activist pursuits is the danger of falling into an echo chamber, in which the

group's message is only received and circulated among populations with similar values.

Söderberg (2013) focuses on the way that hackers collectively frame the possibilities and challenges of ICT activism. He highlights the tension between technological determinism and optimism about technology's emancipatory potential. The former perspective identifies the dangers of corporate control over ICT tools, further reinforcing the economic and political stratification of neoliberal capitalism. In contrast, the latter perspective perceives computers and the internet as forces for resistance and democratization. In both cases, hackers intend to overcome the oppressive impact of global corporations. The deterministic approach to this leads to largely subversive tactics of resistance, while the optimistic perspective encourages more traditional organization and resource mobilization processes.

Though activist principles have been embedded in many hacker communities since their origins, the term 'hacktivism' came into popular parlance in 1998, and has gained online recognition since then (Thomas, 2005).

'*Hacktivism*' involves utilizing computing and programming skills to perform acts parallel to civil disobedience on the Internet and related networks, affecting targeted governments and corporations (Karatzogianni, 2004). There are some strong parallels between the values that drive the majority of hacktivist

movements and the core values of the Free & Open Source Software community (Taylor, 2005). In the end, McInerney (2009) points out, progressive free source activism movements work to encourage online participation driven by empowerment, and in the process “seemingly apolitical technologies become politicized” (p. 206). The effects of this politicization can extend to the mass base of users via ‘trending’ visibility on social networking and media-sharing platforms, and expose the values of the F/OSS and hacking communities to the wider online sphere.

The Complexity of the Digital Divide

Graham (2011) identifies the shift from the initial concept in the 1990s of a digital divide as lack of access to computers, to the contemporary concept of exclusion from the skills and opportunities necessary to participate in the information age. The digital divide has always, however, referred to a presumed lack of individuals' capacities that must be overcome through informational assimilation. In addition to its over-simplification of issues of access, the traditional concept of the digital divide is anchored in Western individualism, potentially displaying ignorance of the context and realities of global inequity (Clark, Demont-Heinrich & Webber, 2004; Richards, 2004; Graham, 2011; Srinivasan, 2012). Graham suggests that the term 'digital divide' is still useful, as long as it refers to the more fluid spectrum of “shared co-presence” in cyberspace

(i.e., passive versus participatory engagement, and contributing original content in lieu of merely consuming existing media), rather than the basic skills to use ICT devices (p. 215). He re-frames this divide as a cultural and ontological issue, rather than a mere matter of resources and technical computer literacy.

As these authors illustrate, the flat concept of a 'digital divide' between privileged and oppressed populations oversimplifies the challenges facing globally disadvantaged communities. Additionally, a further distinction is crucial when discussing the specific stratification of computer skill and training. There are users who primarily create information and content, users who primarily consume information and content, in addition to those who are excluded altogether (Bell, 2001). This points to the importance of users possessing “the skills needed to participate in the emerging global conversation,” instead of merely being able to listen to this conversation passively (Vaidhyathan, 2011, p. 138).

Another relevant factor in the cyclical interaction between physical and digital locations is the effect of local settings on access to ICT resources. Residents of urban communities are much more likely than rural denizens to have consistent access to the Internet (Richards, 2004; Crang, Crosbie & Graham, 2006). However, neighborhood location is intertwined with socioeconomic status, and the latter categorization impacts internet access opportunities more

than any other factor (Hampton, Lee & Her, 2011; Mossberger et al., 2012).

Current ICT training practices risk a cyclical reinforcement of socio-economic disenfranchisement, in which students and citizens in rich communities receive excellent computer literacy training, whereas those in poorer areas are denied even basic technological education (Bruce & Hogan, 1998; Smith, Bellaby & Lindsay, 2010). In terms of the increasing impact of digital space and the flow of information on conditions and opportunities in the real world, this disparate access may further marginalize disadvantaged communities (Slack, 2000).

However, the importance of basic access to technological devices and data connections cannot be understated, as it is foundational to more complex issues of digital literacy. Even in terms of direct Internet access, though, the issue is not cut-and-dried. Vaidhyanathan (2011) points out that while privileged citizens of the Global North have become accustomed to rapid and high-capacity Internet access, the majority of the global population is often restricted to shallow and inconsistent access to these electronic networks. Many scholars incorrectly assume that “the majority of the world’s population that has simply been closed out of communication technologies, except as passive receivers, merely need to receive technological devices and brief training in how to utilize them” (Carlsson, 1995, pp. 242-243). This must be taken into account when discussing critical computer literacy and the capacity to participate meaningfully in the global sphere

of the Internet. This pessimistic discussion of the limitations to ICT access should not undermine the fact that computer hardware is becoming increasingly more affordable, and thus more widely available globally (Lovink, 2002; O'Hara & Stevens, 2006).

Some promising studies have found that local community development can productively adapt ICT tools to mobilize grassroots campaigns and increase the public visibility of inadequate neighborhood resources and political marginalization (Srinivasan, 2004; Smith, Bellaby & Lindsay, 2010; Amirtham & Joseph, 2011). Additionally, other authors emphasize that the new digital sphere of the internet allows connections within diasporic populations that are already spatially alienated, such as migrant communities who are now able to keep in better contact with their communities of origin (Panagokos & Horst, 2006; Davis, 2010). This is in contrast to the above criticisms of the potentially polarizing effects of the informational shift on already-existing marginalization. In order to induce long-lasting change, the digital divide debate must extend to how people can utilize technology, not just whether or not they have basic access to it. Future attempts to integrate ICT tools within disadvantaged communities would therefore benefit from a collaborative and participatory approach, incorporating the population's self-reported needs and visible strengths (Srinivasan, 2012).

Education and Critical Computer Literacy

Technological literacy is often conceptualized as the basic ability to use computers and connect to the Internet (Stanley, 2003). This definition overlooks the crucial component of critical reflection on the origin and reliability of results (Vaidhyanathan, 2011). Boehme (2002) suggests that computer literacy is a new cultural competence necessary for success within the educational system and society at large. Many authors agree, and emphasize that critical computer literacy is increasingly necessary (Bruce & Hogan, 1998; Bell, 2001; Rosenau & Johnson, 2002). In terms of using computers and ICT hardware, critical literacy allows users to take on a more active and empowered role, rather than just following rote commands (Challoner, 2008).

When navigating the Internet, critical thinking is even more vital, as the World Wide Web is increasingly dominated by advertising, untrustworthy downloads, and unreliable information (Lessig, 2006; Brunton, 2013). Since there is no such thing as a neutral technological system, users must exercise caution rather than blind trust, in order to “grasp the nature of biases and adjust expectations to accommodate or correct for them” (Vaidhyanathan, 2011, p. 62). Users of the Internet no longer simply search for information, suggestions are actively and independently presented to them based upon a growing predictive profile shaped by their previous searches and actions (Vaidhyanathan, 2011).

Additionally, the popularity of Wikipedia must be tempered by critical analysis of cited sources, and even the site administrators encourage users to use Wikipedia as a first step in research, rather than an authoritative primary source (Baron, 2009). Maintaining vigilance and continually checking for verifiability and transparency helps balance the potential dangers of both intentional manipulation and imperfect automation (Brown & Marsden, 2013; Brunton, 2013).

In modern classrooms, teachers are increasingly attempting to incorporate new technology with varying degrees of success. A pilot study utilizing Twitter as an informal group discussion platform outside of class succeeded in increasing participation, but seemed less effective in encouraging students' critical self-reflection (Kassens-Noor, 2012). A more successful approach involved developing an independent classroom application to bring multimedia-focused social networking into the classroom itself, engaging the next generation within the familiar territory of the SNS structure (Lewis, Pea & Rosen, 2010). Indeed, students have expressed a desire to utilize the familiar and immediate tools of the SNS model in place of what they see as more archaic technological tools (Lichy, 2012). Zhao & Frank (2003) add that computer literacy education is much more effective when teachers have explored ICT tools outside of the classroom and integrated them into their own lives, therefore presenting a more holistic understanding of their effective application. Above all else, it is crucial that

scholarly engagement with digital tools avoids replicating the flaws of the commercialized sector of information technology, which often prioritizes easy access to information over thorough investigation of its origins (Prescott, 2011).

A limiting factor in widespread technological literacy is that computer science is primarily taught in rote and mechanical fashion (Baron, 2009). School programs that merely train students in basic data entry skills increasingly “control the thinking of humans [... and] shape students into workers” (Neill, 1995, p. 190). By addressing the parallels between the values of academic inquiry and the free and open source software movement, schools could help their students innovate the tools for the next generation. Rather than just accepting the most effectively advertised machines and programs at face value, students who have been trained in deeper-level computer science will approach technology with critical reflection (Chopra & Dexter, 2008). Additionally, as students increasingly turn to online search engines instead of primary library sources, it is necessary for educational programs to lay the groundwork on evaluating online sources and conducting thorough, rather than narrow or shallow, investigations of available information (Vaidhyanathan, 2011). Increasingly, students self-report that Google is their primary resource for academic research, and often they limit their investigations to the first page of results returned by this search engine (van Dijck, 2010). Ultimately, students must learn to evaluate sources not only based upon

traditional measures of academic legitimacy, but also within the context of their retrieval and return when using proprietary search engines.

Search Engines and Google's Market Dominance

For most users of all skill levels, search engines serve as the primary entrance point for navigating the World Wide Web. The first major search engine, 'Archie,' was designed in the late 1980s, and operated by downloading a database of available files to search them locally (Segev, 2005). From there, search engines developed toward a model of 'crawlers,' which "use robots to crawl the web, organise and prioritise online information, and to systematically include 'desirable' and exclude 'undesirable' content" (Segev, 2005, p. 51). The content on the web which is not indexed by search engine crawlers is sometimes referred to as the deep web, the dark web, or the invisible web (Curran, 2009). This deep web has some purposefully hidden content maintained by highly skilled computer users, but the majority of it consists of dynamic databases that may be password-protected or simply closed off to external search indexing (Segev, 2005). Due to the growing complexity of media on the Internet, search engines must operate along sophisticated algorithms which allow them to parse as much of this content as possible.

Google, the current dominating search engine, was initially founded as a company in November 1998 (Lahlou, 2008). However, the Google search engine

project began in 1996 at Stanford University, when Larry Page and Sergey Brin used their PhD dissertation project to devise PageRank, a radically new method of indexing the World Wide Web (Page et al., 1998; Vaidhyanathan, 2011). Whereas previous search engines had counted how many times a page was searched, PageRank built upon the academic citation model, and instead counted how many times a page was referenced by other pages [via 'back-links'], thus taking advantage of the World Wide Web's hypertext qualities (Gerlitz & Helmond, 2013). Over time, PageRank's functions have become more complex, tailoring results to the locations from which they were searched, and even to users themselves, based on their past search history (Segev, 2005). As Google's PageRank becomes more hyper-specific, the concept of 'relevant' search results becomes more fragmented across the range of end users (Vaidhyanathan, 2011).

Google's officially declared mission statement is "'To organize the world's information and make it universally accessible'" (Vaidhyanathan, 2011; Sanz & Stancik, 2013). Though most of Google's services are provided to users for free, it makes a significant profit through ad revenue (Segev, 2005). Still, this source of income supports a large material infrastructure, with a massive range of "research labs, server farms, data networks, and sales offices" (Vaidhyanathan, 2011, p. 19). This infrastructure allows for the incredibly fast and thorough process of Google Search to operate globally, in which a single search query fires

up hundreds of data server computers, which scan the entire index of available information in fractions of a second. This complicated process is unseen by end users, creating an illusion of simplicity that Google reinforces in order to keep its proprietary search algorithms and methods a secret (Vaidhyathan, 2011).

In its ascent to market dominance, Google has continually acquired the rights to new services and cutting edge technologies, expanding its reach beyond a mere search engine to media hosting, software development, and hardware innovation (Vaidhyathan, 2011). This rapid and steady growth has reinforced Google's place as a central, even monopolizing search engine, and because smaller search engines cannot compete based on user numbers, they must generally specialize in their focus or technique (Segev, 2005). Additionally, Google's widespread popularity has created a "community layer" of user-contributed data over its services and platforms, including photos, video, commentary, and reviews (Segev, 2005, p. 159). This interactivity between collaborative community submissions and automated algorithms may be the key to Google's rise to unprecedented success, in that the search engine and its associated services are "designed to absorb and respond to culture as much as [...they] influence culture" (Vaidhyathan, 2011, p. 70). However, the directional impact Google's carefully designed services has on Internet culture cannot be ignored, as Google's search algorithms directly shape the type of information its

users uncover (Sanz & Stancik, 2013).

Though Google presents itself as a democratic and neutral, it is significantly influencing the way users see the world and framing the retrieval of knowledge (Vaidhyanathan, 2011). All search engines present questions around validity and reliability, as they generally obscure the ‘inner workings’ of their algorithms from users. No matter what search methods are used, links do not merely lead from one page to the next, they provide information by their very existence, mapping traces of the web (Bell, 2001). Searches based on popularity, whether of searches or links, can reinforce mainstream resources’ prominence and obscure other relevant, but lesser known, sources (van Dijck, 2010b; Sanz & Stancik, 2013). Additionally, the constant re-indexing of the searchable World Wide Web means that “the internet past is constantly overwritten,” further restricting the search results that are likely to be returned (Hellsten, Leydesdorff, & Wouters, 2009).

When this is the case, Internet search services reinforce the top-down structures of traditional information dissemination from major institutional sources (Gerhards & Shafer, 2010). In the case of Google in particular, the design of PageRank carries new potential pitfalls alongside the new strengths which led it to topple previous search engine models. Vaidhyanathan (2011) succinctly lists the potential biases in its specific approach to ranking search results: “valuing

popularity over accuracy, established sites over new, and rough rankings over more fluid or multidimensional models of presentation (p. 7).” He further points out that these circular biases subtly insinuate themselves into users’ perspectives. This leaves the responsibility for critical reflection and source evaluation to the crowd as a whole, which can be seen in action in crowdsourced information resources.

Technologies Restructuring Individuals’ Daily Lives

The ubiquity of technological devices in the Global North has noticeable effects on individuals' lives and daily routines. Technological devices and practices are so ingrained in the infrastructure of society that a refusal to at least engage the periphery of technology would be akin to a refusal to participate in the larger community (Aronowitz, 1994; Vaidhyanathan, 2011). As patterns of face-to-face interaction have been subsumed by ICT connections, people have adjusted their social behaviors and cultural expectations. Castells’ (2004) theory of the network society highlights the cultural effects of this shift, in which the “explosion of portable machines that provide ubiquitous wireless communication and computing capacity [...transcend] barriers of time and space” (p. 6). Daily lives are conducted along new schedules, and for many people, physical spaces now overlap with virtual spheres.

In particular, the critical mass usage of cellphones has intensified the

impact of technological progress on individuals' daily lives. Ling (2012) compares the changes incurred by widespread mobile telecommunications to the significant and long-lasting effects of clocks and automobiles in past epochs. He designates the adoption of watches, cars and cell phones as various examples of social mediation technologies, “governed by group-based reciprocal expectations that enable, but also set conditions for, the maintenance of our social sphere” (Ling, 2012, p. 7). Rizzo (2008) describes the ‘technological nannying’ which is become more common in the Global North, wherein parents use cell phones as means to stay in constant contact with their children. Access to advanced technological devices is more readily available to citizens who already bear a comparatively significant amount of financial capital (Bruce & Hogan, 1998; Hampton, Lee & Her, 2011). Privileged users who are completely immersed in these technologies find their daily lives restructured by devices, which can lead to a more narrow and regimented experience of time and place (Crang, Crosbie & Graham, 2006).

Even before the internet gained widespread popularity, Winner (1994) identified that the rise of telecommunications imposes increasing expectations of constant accessibility. This produces both benefits and pitfalls (Marvin, 2013). Whereas one could be expected to miss a call in the early days of direct telecommunications, the traces of messages create a responsibility for the

recipient to respond, even if it is at their own supposed leisure (Bruce & Hogan, 1998; Crang, Crosbie & Graham, 2006; Moshe, 2012). This expands the territory of stress and pressure, while collapsing personal spaces of recuperation "in the vicinity of those fabulous chips, circuits, tubes, and cables, one finds an astonishing deterioration of individual abilities, social spaces, and political practices" (Winner, 1994, p. 196). The informational age has made connectivity easier, but it has simultaneously made it more difficult, and often impossible, to be truly alone (Marvin, 2013). Device users' complicity and participation in this process of technological restructuring can be seen as an embrace of 'real virtuality,' in contrast to 'virtual reality' (Zerzan, 2008).

This reinforces the importance of network structures, in which the connections between nodes and the flow of information is more significant to individuals' lifestyles than their physical locations and the progression of traditional 'clock time' (Castells, 2004). Mediating technologies may increase opportunities for connectivity despite distance and conflicting schedules, but they can also reduce the depth of human communication, from the original proliferation of detached speech over telephones to the even flatter medium of pure text-based interaction in ubiquitous emails (Zerzan, 2008; Baron, 2009). When mediating technologies become the norms of communication, rather than supplementing tools for in-person interaction, the risk of alienation grows for

community members (Bakardjieva, 2005). As in all aspects of technological growth, these tools are accompanied by positive and negative possibilities, which can be more accurately delineated by a thorough analysis of ICT's various effects on experiences of time and space (Slack, 2000).

Shifts in Time

The progress of technological innovation has consistently shaped culture's structural organization of dimensions of time and space. Mumford (1967) proclaimed that "the clock, not the steam-engine, is the key-machine of the modern industrial age" (p. 14). In traditional ways of life, day to day routines were grounded in the natural cycles of the sun, and grounded in localities and cultural traditions (Hassan, 2003). Following the widespread adaptation of clocks, the industrial construction of linear time became widespread (Hellsten, Leydesdorff, & Wouters, 2009). The invisible progression of time that was once taken for granted became an instrumental quantity which could be measured, classified, and manipulated (Hassan, 2003; Castells, 2004). The gradual movement toward a uniform global standard of time, especially the establishment of international time zones in 1883, ensured that these measurements were universalized as a rigid structure (MacGillivray, 2006; Ling, 2012). This global standardization is even more crucial with the consistent connectivity of modern communication technologies (Lovink, 2002).

Currently, the ‘world clock’ is often automatically updated on consumer ICT devices via data networks, but the relevance of this standardized time structure has shifted in individuals’ lives, as uniform, seemingly linear, synchronicity has decreased in societal relations. The experience of ‘timeless time’ has become increasingly common amongst those who maintain constant online connectivity (Castells, 2004). Hassan (2003) summarizes this ubiquitous ‘timeless time’ as “a non-time where everything happens simultaneously” (p. 232). In this timeless time, the synchronicity and rhythms of biological life are even more divorced from subjective experience (Lovink, 2002; Terranova, 2004; Gehl, 2011). Additionally, the constant availability of media content, social networking services, and information leads to a parallel but contrasting ‘squeezing’ of consumers’ experience of personal time (Moshe, 2012).

Franklin (1990) similarly addresses the asynchronicity of a reality which relies more and more on deferred and detached interactions via voice mails, text messages and email, and in which the timing of our responses can be manipulated and based upon our own constructed schedules. This highlights the continuous navigation between the “‘continuous present’” we experience while online, and the “‘eternal memory’” of timeless time as it is stored in the ever-growing database of internet data archives (van Dijck, 2010a, p. 404). The ever-changing presentation of the Internet’s interface leaves users with “a multiplicity of partly-

conflicting presents” rather than a singular experience of present time (Hellsten, Leydesdorff, & Wouters, 2009, p. 920). Communication which is based in Castells’ ‘space of flows,’ in which information is transmitted immediately but can also be stored for later reference, leads to a more abstract and malleable experience of social interaction (Hughes, 2004).

However, even as this shift to the ‘space of flows’ in the information age may increase the convenience of interpersonal communication, it also binds users to the time-based restrictions of these new devices. Users are held in temporary stasis when their computers crash, or when they attempt to send an email only to find that connectivity to the Internet has briefly cut out (Bakardjieva, 2005). The strange malleability of time that this reliance creates can be connected to ‘network time,’ in which subjective experiences of time exist on a spectrum and “time *duration* is limited only by technical capacities” (Hassan, 2003, p. 233). As those technical capacities grow, the experience of time becomes even more pliant.

The availability of instantaneous communication allows positive community-building, as seen in the ability of Arab Spring protesters to immediately communicate meeting spaces in real time over Twitter (AlSayyad & Guvenc, 2013). However, it is equally likely to result in the pressing desire for instant gratification, and forms of socializing that are both rapid and shallow (Passini, 2013). This may have unpredictably negative psychological and cultural

effects, as the fragmentation of our communications can result in the fragmentation of our social connections. The threat of individuals becoming “socially and morally disconnected [...is dependent upon] whether the asynchronous processes supplement [...traditional] synchronous practices or are a substitute for them” (Franklin, 1990, p. 178). This returns to the necessity of disruptive innovations as accumulative contributions to existing technologies, rather than radical replacements for familiar methods of cultural interaction. The relationship of new communications to individuals' experience of spatial location and connectedness is a crucial component of the functional shift from older to newer forms of social cohesion.

Shifts in Space

Franklin (1990) warns that the communications technologies that are intended to bring the global community closer together may, in fact, alienate individuals from their local communities. She points to the experience of viewing television as a “shared experience carried out in private,” and a form of unidirectional communication in which the viewer cannot respond or engage with the message (Franklin, 1990, p. 39, author's emphasis). Thus, Franklin connects technology users' suspension in asynchronic communication with their potential isolation in physical space. Boal (1995) makes a similar argument, but focuses on the overall realm of modern technologies, referring back to the rise of

automobiles as an early example of the spatially isolating effects of technological devices. He constructs a picture of the modern driver stuck in a traffic jam, utilizing the vehicle as a means to access the world of work, surrounded by similar individuals with similar aims, but isolated in an enclosed space, leaving the mass group of drivers “all together alone” (Boal, 1995, p. 12). The shift in meaningful relationships to physical location is further reinforced by the fact that, whereas households used to be the defining location in individuals’ lives, patterns of movement are now more identifying than home addresses (Barreneche, 2012).

The geographical effects of new communication technologies do not just connect distant spaces, they create new, abstract ‘common spaces’ online (Terranova, 2004). The common colloquial term ‘cyberspace’ indicates the popular conception of the Internet as a place of sorts. Scholars are still trying to identify what the ‘space’ in ‘cyberspace’ really is (Graham, 2011). However, the hyperlinked World Wide Web has no linearity by its very nature, and thus no beginning or end (Bell, 2001). In the formative years of the Internet, enthusiastic users discussed the distinction between the physical realm of ‘meat’ bodies and the online space of virtual communication (Bell, 2001; Lovink, 2002). Since the popularization of Internet access, the physical and virtual worlds have blended more thoroughly.

Thompson (2011) suggests that, in contrast to spatial alienation, the

Internet provides a realm for virtual interpersonal omnipresence, in the form of a “despatialized simultaneity” (p. 57). In this sense, the non-space of cyberspace can be seen as a realm for geographical connectedness. The relationships between global citizens of all social locations become more necessary and immediate in the present reality of “transnational flows and networks” (Castles, 2001, p. 21). Global mobility, migration, and recreational travel increase with the advance of transportation technology, and the very same advances can allow travelers and migrants to stay in closer contact after they relocate (Davis, 2010; Urry, 2010). This trend recalls the effects of globalization, and its simultaneous movement to create a global village (MacDonald, 2006).

Macgillivray (2006) argues that one of the earliest forces of globalization was enabled via map-making, which illustrated the diversity of populations but also drew distinctions across geographic spaces and delineated firm borders. Advances in technology have consistently enhanced human beings’ abilities to order and categorize their locations and surroundings. The widespread availability of video surveillance equipment makes monitoring large spaces easier and more efficient for both governmental and private entities (Koskella, 2000). The RFID chips discussed previously make it possible to cheaply and inconspicuously track individuals and objects (Hayles, 2009; van Dijck, 2010b; Brown & Marsden, 2013). The links between ICT hardware, programming code,

and human geography continues to grow, which results in circumstances where the “prime source of data is ourselves: our movements and our activities, which are fed back into algorithms that respond and anticipate” (Kinsley, 2013, p. 5). In some cases individuals voluntarily contribute such data in order to improve their own lives or build upon social connections, but in others, tracking and surveillance are increasingly taken for granted as a standard component of the cultural environment.

The availability of access to the Internet is significantly impacted by geographical location, from the financial stratification of city neighborhoods to the global stratification between privileged and marginalized nations (Crang, Crosbie & Graham, 2006; Graham, 2011; Mossberger et al., 2012). However, even global locations without widespread citizen access to ICT resources have been significantly impacted by the rise of informational capitalism. As technology has improved global transportation and communication, significant amounts of work have been outsourced to countries where workers will accept a lower wage, and diasporic migration has increased (Little, 2000). The instantaneous communicative capacity of platforms like Facebook and Twitter have allowed activists to immediately facilitate meetings in real life locations (AlSayyad & Guvenc, 2013). In both cases, ICT tools shift norms of interaction away from locally embodied traditions and practices. Still, at its base, even the

virtual sphere is firmly embedded in a material infrastructure, exemplified by the increasing ubiquity of mobile devices. The domestication framework of technological adaptation suggests that a holistic analysis of the cultural effects of these devices must be grounded in observations about the actual devices that individuals grow so familiar with as personal objects (Beer, 2012; Ling, 2012).

Material Ownership of Technological Devices

A discussion of the cultural context and personal effects of technology would be incomplete without an analysis of the material devices themselves. This returns to the interactive, symbiotic relationship between tools and the people who use them. Winner's (1994) statement that "as a person encounters a device or system [...] it is crucial [...] to ask what the form of this thing presupposes about the people who will use it" holds true twenty years later (p. 196). Technology is inevitably embedded with cultural expectations of how and why it will be used by the masses (Bruce & Hogan, 1998; Srinivasan, 2012). This reinforces the notion that "artifacts are congealed ideology" (Boal, 1995, p. 12). Hamilton (2012) points out the dual implications of this embedded meaning, in that the continual flow of new "products cut us off from authentic experience and trap us in a false reality of auto-gratification [...while simultaneously opening] up new frontiers of experience in which we can share and socialize with others" (Hamilton, 2012, p. 16). The indulgence in, and dependence on, ICT devices as material objects can

have both positive and negative consequences.

The mobile phone is an outstanding example of how technological devices become deeply integrated into people's personal lives (Rizzo, 2008; Beer, 2012). Ling (2012) addresses the intense degree of security people derive from the physical presence of these devices in their bags and pockets, and the commercial brand loyalty which develops among many owners. This, combined with marketing which emphasizes the appeal of new design features, encourages a social atmosphere of constant device upgrades and possession of the newest cutting-edge technology (Terranova, 2004). Hamilton (2012) addresses this form of brand loyalty, in which customers feel allegiance to the companies which produce the devices they become accustomed to owning. This is reinforced by the fact that while customers own cell phones and computers as material devices, the proprietary software and source code that makes them function is controlled and manipulated by the companies themselves (Hamilton, 2012). As long as mainstream technology companies maintain proprietary rights over their software and hardware, they have the clout to compete as strong contenders in the global ICT market.

When privileged consumers no longer struggle to meet their basic needs, they often turn their attention to secondary materialistic acquisition (Moshe, 2012). New computers and mobile devices are introduced at a rapid speed, and

many ICT users are drawn into the excitement of consumer advertising, reinforcing patterns of planned obsolescence (Terranova, 2004; boyd, 2008; Passini, 2013). Consumers feel pressure to keep up with media content and to own cutting-edge devices, though such devices often “prove fleeting as existing commodities are rendered unfashionable, obsolete and undesirable” when new ones are introduced (Smart, 2011, p. 135). Passini’s (2013) qualitative research suggests that such binge patterns of materialism lead to increased feelings of alienation from communities, and an overall reduction in personal satisfaction and contentment. As success becomes defined by material possessions, many people may take on excessive debt, paying for purchases with credit and living beyond their means (Evans & Schmalensee, 2005).

The Consumer and the Prosumer

As the factories of the Industrial Revolution transformed the production and distribution of goods in society, leading to a transition from largely rural agricultural communities to centralized urban centres, the availability of cheap, mass-produced goods led to the gradual rise of a consumer-based society (Smart, 2011). Franklin (1990) argues that the concept of the consumer was a necessary construction of this era, as the overwhelming volume of material production shifted popular focus from growth and development to accumulation. Collectively disseminated commodities replaced localized barter and trade, and

working class wages were necessarily applied to the accumulation of these goods (Wade, 2009). More recently, the representation of money in digital form, rather than material currency, enhances the reliance of consumers on credit transactions (Challoner, 2008). In addition to shifting the way money is transferred, global informational capitalism has rendered the role of the consumer more complex.

The theorist Alvin Toffler coined the term prosumption to describe the hybridization of production and consumption in recent economy and culture (Mattelart, 2002; Rey, 2012). Prosumption refers to the interactivity between the acquisition of goods and media, and the production and social sharing of relevant information and content (Srinivasan, 2012). Ritzer, Dean & Jurgenson (2012) argue that these two acts have always been interdependent, but modern informational capitalism is accelerating their fusion. The term 'prosumer' can be applied in either a utopian or pessimistic sense: the consumer is now capable of producing creative, self-expressive content, but this produces the by-product of exploitable data for advertising profiling (Challoner, 2008; Wood & Ball, 2013).

The core processes of algorithmic automation which structure the Internet allow companies to seamlessly track and profile personal consumption choices to a previously unseen degree (Brown & Marsden, 2013). Automated online advertising has been visible in the form of mass-produced 'spam' messages which promote commercial interests since the early bulletin board systems (Thomas,

2005; Brunton, 2013). However, as Internet use has approached critical mass adoption in the Global North, and the majority of companies have taken advantage of its resources to research and advertise, processes of automation have progressed from general 'spam' advertising to targeted profiling based on users' previous Internet activity (Terranova, 2004; Vaidhyanathan, 2011). By tracking the traces of metadata left behind by users' Internet browsing patterns, companies have greater success in targeting niche markets and promoting apparently relevant products and services to specific demographics (Baron, 2009; van Dijck, 2010b).

These profiling practices do not simply isolate online shopping habits, but rather compile all available data from email and social networking accounts as well. Such all-encompassing profiles of user activity are justified on the assumption that consumers' "passions, predilections, fancies and fetishes are what [...they] are likely to spend [...their] surplus cash on" (Vaidhyanathan, 2011, p. 112). In parallel to this, advertising grows more and more conspicuous on the Internet, with ads universally embedded in sites and services, popping up in intrusive windows, and preceding access to video content (Castells, 2004). As Beer (2009) identifies, these algorithmic interfaces are "spaces where capitalism acts on or with the user" (p. 995). These 'brandsapes' of advertising are attempts to imprint brand loyalty on a subconscious level through consistent affective bombardment, as well as appealing to viewers on a more affective level, linking

products and services to feelings and identity traits that the users seem to desire based on their consumer profiles (Wood & Ball, 2013).

The Worker and the Digital Economy

Franklin (1990) distinguishes between long-existing *holistic technologies*, which emphasized craft and the individualized product, and modern *prescriptive technologies*, which automate production with assembly line efficiency. Holistic technologies allow the worker control over the progress and direction of creative production, rooted in local and small-scale workmanship. In contrast, the accumulative development of industrialized prescriptive technologies fractures the connection between workers and their labor in many settings (Bookchin, 1971; Hamilton & Heflin, 2011). This can lead to a “culture of compliance,” undermining existing community practices of sustainable and cooperative labor (Franklin, 1990, p. 70).

Franklin's (1990) vision of the erosion of holistic technologies is supplemented by Winner's (1994) argument that the increasing automation of work processes renders the individual worker obsolete. Aronowitz (1994) agrees that under new conditions of automated labor, workers themselves are relegated as tools to support and serve the machine, "needed only to repair it during its infrequent breakdowns" (p. 23). Though somewhat extreme, this perspective reflects the concerns of many modern economists about the increasing alienation

of humans from the daily work they perform (Taylor, 2005; Hamilton & Heflin, 2011). A more utopian perspective of mechanized labour necessitates a reform of larger economic conditions, so that the mass production of goods would result in less hours but fairer wages for the most financially marginalized workers (Bookchin, 1971; Smart, 2011). However, the historical reality of industrial and informational labour shifts do not necessarily support such an optimistic view.

With the exponential development of new technologies, trends of global economic growth have become decoupled from employment rates, as automation has allowed mass production of goods with fewer workers (Chodos, Murphy & Hamovitch, 1997). Combined with a rise in globally outsourced labour, this has contributed to the destabilization of the working class (Bruce & Hogan, 1998; Halcli & Webster, 2000). The rise in informational technologies further altered the nature of available jobs, with downsizing and increasingly freelance and home-based self-employment (Little, 2000; Smart, 2011). The class divide grows between highly educated ‘informational workers’ and workers with less training, who struggle with this rising rate of unemployment and job insecurity (Bruce & Hogan, 1998). Categories of labor have further transformed in the information age, with the progress in white-collar jobs from “generic” to “self-programmable” labor, but this has not necessarily affected the blue-collar job industry (Castells, 2004). Under these shifting definitions of labour, the proliferation of ‘freelance’

work furthers job instability, due to the absence of financial regulations protecting the rights of independent contractors (D'Agostino, 2010; Rey, 2012). In the informational technology sector, this economic instability extends beyond the individual worker, as start-up companies run a high risk of failing, as was particularly clear during the 'dotcom boom' (Lovink, 2002). These trends are strengthened by industry deregulation, as corporate powers construct business models which depend on the free media production and data provision of end users (Chodos, Murphy & Hamovitch, 1997; Bell, 2001; Terranova, 2004).

This increasing exploitation of certain kinds of free 'creative labor' online fuels and reinforces central corporate ownership of users' data (Srinivasan, 2012). In their enthusiasm to gain visibility for their creative work, content creators often release control over the ways in which that content is released, and any potential profits that will result from its display (Vaidhyathan, 2011). The willingness of users to upload creative content for free reflects a significant cultural shift, in that this techno-social production "is performed for a social/psychological rather than monetary return, and during consumption/leisure time" (Schwarz, 2012, p. 80). The exploitation of this 'creative labour' does not negate its cultural and social value, as enthusiastic and interactive communities grow around informal media production on popular sharing platforms (Lingel & Naaman, 2011). By encouraging cultural and economic autonomy in the field of user production, the

negative effects of corporate cooptation could be ameliorated in favour of a sustainable culture of user creation (Terranova, 2004; Hamilton & Heflin, 2011). However, such a development would require a significant reform of outdated intellectual property rights, which determine the fair terms of use of media content and the structure of financial compensation that accompanies it (Litman, 2006).

Copyright Law and Intellectual Property

Copyright, or intellectual property rights, exist to protect intangible works and ideas from financial exploitation (Tian, 2009; D'Agostino, 2010). The concept of copyright originated early on in the Global North, most visibly traceable to an American law established in 1790 which protected artists' sole control over their work for a limited period of time (Garcelon, 2009). Throughout the history of copyright's development, these laws were "designed to balance the financial interests of authors with the interests of society at large, establishing a give-and-take" (Goldberg, 2010, p. 740). Thus, there has been a continual tension between freedom of public access to information as a resource for creation, and fair economic compensation to ensure the longevity of innovation for those creators (Vaidhyathan, 2001). Since the first copyright law precedent was set, there has been debate over the extent of works which copyright should cover, as well as the length of its allowance (Garcelon, 2009). The concept of 'public

domain' refers to the realm of content and ideas which are communally accessible for citizens to utilize in new creative endeavors (Vaidhyanathan, 2001). The public domain is losing strength as privatization and corporate-influenced reform continues, especially with the rise in mergers which seek to control wider ranges of copyright properties (Smiers, 2002).

Sharing and distributing media and informational content is built into the very infrastructure of the Internet, and it would be impossible for such a system to function without significant degrees of data replication. A prime example of this is the central function of search engines, which must create 'cached copies' of content in order to locate and return search results (Vaidhyanathan, 2011). The earliest iteration of the Internet, constructed by amateur dial-up connections, set the groundwork for the computer-to-computer networks that characterize its structure (McKinnon, 2012). As this tendency for 'peer-to-peer' file sharing was embraced by an increasingly large population of users, and higher bandwidth allowed for the upload and download of increasingly larger files, it became more difficult to enforce intellectual property rights (Segev, 2005). Peer-to-peer networks exemplify the way in which code and infrastructure shape the nature of action on the Internet. The peer-to-peer community structure sustains an "informational commons," regardless of the legality of its content (Terranova, 2004, p. 77).

In current practice, Internet service providers (ISPs) are usually held responsible for monitoring the activity of users and intervening when copyright violation is detected (Tian, 2009; Brown & Marsden, 2013). Web sharing platforms often avoid direct responsibility for illegal or pirated media content by informally engaging end users “to police its content” as a community and report suspicious material (Vaidhyanathan, 2011, p. 38). However, the decentralized nature of file-sharing processes, combined with the ease of relocating ‘hosting’ sites, ensures flexibility and relative anonymity within these systems (Brown & Marsden, 2013). This inhibits traditional prosecution of the majority of file-sharing participants, and leaves a small percentage of users to be made into legal ‘scapegoats’ without disturbing the processes of the larger file-trading community (Goldberg, 2010). Additionally, many attempts to regulate copyright infringement on peer-to-peer sharing networks has been limited by domestic jurisdictions, as extraterritorial reach is significantly limited (Austin, 2009).

To ameliorate this challenge, in addition to pursuing copyright infringement lawsuits, mainstream companies have made various attempts to alter or inhibit material access to so-called pirated media (Challoner, 2008). These efforts address the uncontrollable, decentralized nature of peer-to-peer file sharing by making it difficult to trade the files themselves. These approaches to ‘digital rights management’ involve altering the metadata of music and video files to

indicate their proprietary origin (Baruh, 2007). This preventative measure is accompanied by copy-protection software (Tian, 2009). This returns us to the central role of technical code in shaping the political and cultural sphere of the Internet: by embedding proprietary markers in media files themselves, copyright holders attempt to preempt the possibility of sharing those files, rather than policing them after the fact (Gillespie, 2006). The complexity of simultaneously restricting automated material processes and monitoring users' practices highlights the difficulty in regulating the Internet at large.

Regulating the Internet

From the rapid development of the early consumer Internet in the 1980s onward, legislators attempted to regulate technologies that they didn't yet understand based on the rules of more archaic corporate and technological practices (Thomas, 2005). As commercial competitors entered and began to dominate the realm of the Internet, this need for regulation was increased (Segev, 2005). In the United States, the 1996 Telecom Act was the first attempt to regulate telecommunications since the origin of the FCC in 1934 (Greenstein, 2008, p. 77). As the origin point of the mainstream internet, the United States has consistently claimed its intentions to promote a free flow of information on the global stage. In reality, "it [...has] conferred unmatched advantage on U.S. cultural industries," as few other nations could compete with the tools and content

available for dissemination (Schiller, 1995, p. 19). Within the United States, where many major online corporations and service providers are based, current politics control the growth of technology through public planning, tax and grant structures, and the organization of labor norms (Karatzogianni, 2004). In North America, the USA and Canada lean toward a 'watchdog' regulatory system to protect public interests against corporate ICT monopolies, though some argue that large infrastructure resources should be regarded and regulated as public utilities (Chodos, Murphy & Hamovitch, 1997).

Choucri & Clark (2013) delineate the complexity of regulating the Internet as the power of corporations and non-state entities grows exponentially in the new computer economy. The increasing centrality of computer hardware and data networks to the successful functioning of society “has augmented the techniques and technologies of calculation and governance that are employed to control, regulate and secure spaces” (Kinsley, 2013, p. 5). The absence of transparency regarding the regulation of information and communication technologies potentially allows for powerful interests to monopolize and manipulate these resources. In these terms, regulation that avoids economic monopolies within the informational field has the greatest chance of success, as “when [...] scarcity disappears [...] regulation becomes difficult or impossible” (Chodos, Murphy & Hamovitch, 1997, p. 87). Still, politics which are largely influenced by lobbyists

and campaign donations are not necessarily designed to honor these economic values (Greenstein, 2008).

While legal battles are waged over the content of speech and the parameters of legitimate interpersonal communication in the internet sphere, there is a simultaneous movement to define and regulate the World Wide Web's coded processes and infrastructure (Brown & Marsden, 2013). The foundation and continued growth of the Internet is dependent upon open standards which allow seamless interoperability (Rosenau & Johnson, 2002). Thus, concerns about technological freedom of speech must not be limited to the messages exchanged by end users online, but must take into account the structural foundations which allow those networks of speech to flow (Flanagin, Flanagin & Flanagin, 2009). The choice of the term 'regulation' helps legislators frame the battle around code in a superficial technical context, which risks overlooking the reality of computer code as a relatively new human language (Lessig, 2006; Hayles, 2009). This language of code, which propels operating systems and creates programs, is both a message from the programmer to the computer, and the source of the computer's immediate execution of the requested processes (Brown & Marsden, 2013). Peterson (2013) highlights the communicative nature of coding languages, which allows code to be depicted as a type of speech, entitling its users to protections under traditional free speech precedents.

In addition to its unique format as a language, computer code shares similarities with another usage of the term: it reflects qualities of “cultural, moral, ethical and legal codes of conduct” (Mackenzie & Vurdubakis, 2011, p. 4). Thus, the code which structures and powers contemporary technology carries the message and simultaneously delineates their potential meaning and consequences. It also constructs the very environment where these actions and their outcomes unfold (Mackenzie & Vurdubakis, 2011). The adaptability of code allows it to develop and change rapidly, at a speed which is closely followed by user adaptation, whereas public legislation lags behind significantly (Brown & Marsden, 2013). Government intelligence agencies have made strides to force restructuring of the Internet’s code and architecture to remove some of its defining elements of anonymity in data transfer, which would make it possible to observe and analyze the contents of transmitted content via “deep packet inspection” and to better trace senders and receivers (Brown & Marsden, 2013, p. 146). This is merely one example of the regulatory dilemma in which “the same computing power that was driving the system was being turned to police it” (Winston, 1998, p. 334). These attempts to control the Internet have slowly extended to the global level.

International attempts to regulate access to, and content on, the Internet are currently in continual negotiation. There are a few commonly articulated

justifications for global Internet regulation: protecting human rights (especially fighting sexual exploitation and promoting free speech), maintaining network security, assuring economic competitiveness and enforcing intellectual property rights (Brown & Marsden, 2013). These processes of regulation have often affected relations between countries, such as the requirements proposed for Turkey to achieve certain standards in order to be accepted into the European Union (Topak, 2013). Similarly, Cooke's (2007) ten year case study on the European Union's attempts to regulate the Internet suggest that such attempts are increasingly succeeding in laying the groundwork for larger control over the activity and content of the World Wide Web. There have been examples of attempts at censorship in various countries, including those that proclaim the importance of an open and democratic Internet, such as the USA (Karatzogianni, 2004; Segev, 2005). There have also been various examples of international cooperation to enforce the pursuit of 'cyber-criminals' and to curb illegal file-sharing operations (Brown & Marsden, 2013). Much of this cooperation depends upon collecting and sharing information about individuals' online activity.

Surveillance and Sousveillance

The roots of modern media surveillance began in the mid-nineteenth century, as written record-keeping became pervasive in industrial societies (Brown & Marsden, 2013). Within fifty years "it had become more difficult to be

left alone,” or to maintain privacy by withholding information about oneself (Lauer, 2011, p. 567). Thompson (2011) elaborates that the court battles over this ability to control one’s personal information resulted in the designation of privacy as a societal right. The careful shaping of this definition through legislative precedence established that “a transparent society, a society without privacy, would be a society deprived of meaningful social relations” (Roessler & Mokrosinka, 2013, p. 785).

Popularly hailed as a crucial element of fair and democratic governance, transparency can be seen as both a positive and negative quality in society (Birchall, 2014). However, it is the rise of progressively more asymmetrical forms of transparency which leaves the average citizen exposed, while the machinations of government and corporations remain opaque (Marvin, 2013). Even though surveillance and the invasion of privacy may not be a new societal phenomenon, the exponential growth of information and communications technology has accelerated the erosion of this perceived right (Vaidhyathan, 2011; Brown & Marsden, 2013; Marvin, 2013). Larger and more totalizing webs of institutional surveillance have been enabled by the increased capability to produce media-based artifacts as “new forms of evidence – texts, images, sounds, data – by which individuals might be identified, their motives and thoughts inferred, and future behavior predicted” (Lauer, 2011, p. 579). Additionally, the

Internet has provided a new forum in which individuals both intentionally and unwittingly provide large amounts of information about themselves (Woo, 2006).

The concept of '*sousveillance*', in which citizens actively and performatively project information about themselves to the larger society, has been proposed as an inverse complement to surveillance (Reilly, 2013). This forms a more holistic depiction of informational negotiation than a sole focus on privacy, as *sousveillance* emphasizes that "social power is not only premised on what is concealed, it is increasingly constituted in the act of revelation" (Bossewitch & Sinnreich, 2013, p. 225). Online culture and social networking practices have normalized the concept that all Internet users' data will be visible and accessible to some degree (boyd, 2012). Additionally, the widespread use of GPS satellite tracking technology to identify one's location and movements has brought *sousveillance* into users' concrete geographical reality (Barreneche, 2012).

Sousveillance can also refer to the more empowered acts of media production seen in citizen journalism and grassroots activism (Birchall, 2011; Reilly, 2013). This is emphasized by the ability for anyone to capture and disseminate media online (Ganascia, 2010). However, it is inevitable that all actions taken by Internet users will leave traces that can be tracked and used by both commercial and government organizations (Best, 2010). The distinction

between surveillance and sousveillance lies in willing participation, and can be determined in the overall outcomes of such processes: surveillance is employed as a tool of control, whereas sousveillance is used in pursuit of recognition (Brighenti, 2007). The subtle asymmetry of power represented in this incongruity is indicative of the tension between the organized dominance of the surveyor who desires to collect information, and the voluntary participation of the subject who desires to be visible in the public sphere (van Dijck, 2011; Bucher, 2012).

User Profiling and Databases

As discussed above, it is increasingly common for online corporations to collect detailed information about their customers and service users, in order to produce tailored profiles for targeted advertising (Goldberg, 2010). The most problematic characteristic of these surveilling tactics is the subtlety with which they are conducted, and the vague terms surrounding companies' actual profiling practices (Brown & Marsden, 2013; Wood & Ball, 2013). The right to track user information and restrict terms of use is buried within the complex legal documentation of End User License Agreements, often with cryptic phrasing (Chopra & Dexter, 2008). Additionally, though companies like Google pay lip service to the importance of privacy as an abstract notion, they usually don't define what privacy means in terms of their concrete practices (Vaidhyanathan, 2011).

Marvin (2013) points out that these practices are eroding the societal belief that “we are in perfect control of our accessibility and transparency” (p. 155). When users are informed about the reality of commercial data tracking, the onus for opting out of such practices falls upon their shoulders, and often requires complicated and detailed actions to change default settings. This leaves those “who are not proficient, perhaps by choice but perhaps because of age, disability, or lack of means [...] much more vulnerable” to this data tracking (Vaidhyanathan, 2011, P. 106). The alternative choice, refusing to use a particular site or application, becomes more difficult with the “locking mechanism” which comes with long-term, personalized use of a particular online service (Segev, 2005, p. 68). Additionally, data which has already been committed to server databases will not necessarily be replaced after such a request is submitted, particularly if it has been shared or reposted by other users (Gehl, 2011).

This system of personalized profiling and long-term storage “is designed to favor maximum collection, maximum exposure, and the permanent availability of everything” (Vaidhyanathan, 2011, p. 84). This permanent availability is made possible by the high capacity of both processing and storage in modern computing, as well as its extremely organized structure. This is why the database, “an architecture that is designed to facilitate the sorting of individuals,” is central to both the Internet itself and modern governance (Ansoorge, 2011, p. 80). The

eternal memory capacity provided by advanced technology renders the fallibility of handwritten records and human recollection obsolete (Bossewitch & Sinnreich, 2013).

Surveillance and control of databases are crucial governmental operations in the information age. “The political geography of surveillance” involves dual control over citizens’ ability to gain entry to the state and to take action within its borders (Koskela, 2000, p. 245). Governments lean more and more on digital control of borders through a focus on long-term, flexible tracking of individuals’ movements “through continuous, mobile forms of surveillance” (Diken & Bagge Laustsen, 2002, p. 297). The information acquired is increasingly utilized by governments to create predictive profiles based on potential ‘risk factors,’ projected by statistical probability rather than based on concrete evidence of past actions (Schinkel, 2011). Therefore, the government no longer just monitors established criminal threats, but entire populations (Best, 2010). As previously discussed, RFID tags are now mandatory for US passports and the countries they have open travel visa agreements with, making these tracking processes easier and more sustainable for intelligence agencies (Hayles, 2009).

Complex databases allow for the collection not only of information about individuals’ locations and concrete attributes, but also meta-analysis of their patterns of behavior, inquiries, and media consumption (Baruh, 2007). The

construction of centralized databases to identify and categorize individuals is a key tool in establishing digital power for governments as well as commercial entities. “Mastering databases [...] constitutes the difference between formal-legal sovereignty and technical-actual sovereignty,” and such use of databases are increasingly employed by ‘world superpowers’ like the USA for military and informational espionage purposes (Ansorge, 2011, p. 73). This further highlights the structural shift in how global governance is conducted with the new resources of informational capitalism.

Governance in the Information Age

The term ‘governance’ came into political science parlance to describe the institutional processes of making rules and setting standards at a macro-level (Brown & Marsden, 2013). Whereas governments design and enforce policies, and plan and direct public infrastructure, ‘governance’ refers to the cooperative efforts of multiple governing bodies working together to forge mutually agreeable conditions for each to pursue their own interests (Siochru, Girard, & Mahan, 2002). Governance is about management of the macrosphere of global society, ideally driven by considerations of the larger population’s needs and well-being (Lipschutz, 2005). Structures of international governance are constructed to manage peace, human rights, and economic stability in the world economy (Wade, 2009). In broader terms, global governance is generally driven by dual

aims: “the avoidance of mutually destructive warfare and the enablement of mutually beneficial interaction” (Siochru, Girard & Mahan, 2002, p. 16). Such powerful and crucial goals drive home the need for multilateral cooperation in place of isolationist nationalism (Wade, 2009).

The rules of global governance, while imperfect, are “constructed [...] to ensure predictability and order within their designated space of jurisdiction and to ensure flows, transactions, and interactions that can be effected without friction and confusion” (Siochru, Girard & Mahan, 2002, p. 17). This requires a balance of diverse stakeholders, which increasingly includes non-governmental actors (Brown & Marsden, 2013). This leaves a tenuous balance between the private sphere of the global capitalist market and the public sphere of traditional governance bodies (Lipschutz, 2005). The shift of power in global governance also owes much of its turbulence to the parallel forces of globalization and neoliberalism, which lead to further struggles as local populations may resist the cultural shifts that accompany economic changes (Rosenau & Johnson, 2002).

Internet governance is a complex interplay of larger material and political infrastructure, networked social publics, and individual agents whose choices at the micro-level can contribute to governance outcomes in their own way (Ziewitz & Pentzhold, 2013). By its very nature, the Internet transcends boundaries and creates complex challenges for global processes of political negotiation (Goodwin

& Spittle, 2002). The mainstream conception of global internet governance is based upon simple regulatory bodies that may have more conceptual power than real world impact. Most of these governing bodies have been set up through the United Nations over the past twenty years, including the UN Working Group on Internet Governance and the Internet Governance Forum (van Eeten & Mueller, 2012). The United Nations is comprised of sovereign, voluntary participants who are not bound to follow the protocol shaped in committees, so often goals or recommendations exist as hypothetical ideals (Siochru, Girard, & Mahan, 2002). Still, there is precedent for these public international negotiations to interdependently shape domestic policies (Austin, 2009).

While these constructed committees aspire to govern the Internet within a centralized organizational structure, many of the actual effects on power and control over the World Wide Web are shaped through external forces (Brown & Marsden, 2013). These include telecommunications market regulation, the rapid development of public and private sector IT security, and the continual contestation of various nations' legislation about expression, ownership, and privacy (van Eeten & Mueller, 2012). It is much simpler to refer to a few constructed political councils as the sources of global ICT governance than to acknowledge the tangled intersectional influences on the policy-making process (Goodwin & Spittle, 2002). Rather than being shaped by appointed groups which

merely discuss aspirational ideals, “real governance is based on bargaining scenarios, where parties come together because they have something to gain by interacting” (van Eeten & Mueller, 2012, p. 728). The introduction of information and communication technologies “can enhance both the capabilities for cooperation and for conflict,” and has accordingly had a significant impact on these international bargaining scenarios (Rosenau & Johnson, 2002, p. 68).

Transnational Corporations and the Nation-State

Mirroring processes of globalization, neoliberal capitalism has opened new avenues of worldwide trade, communication and visibility, as “the market is the most widely used mechanism for the dispersion of information technologies” (Rosenau & Johnson, 2002, p. 61).⁵ As early as the second half of the 19th century, “the power of [...] corporations challenges the pre-eminence of the nation-state” and set the stage for mass production and consumption (Macgillivray, 2006, p. 108). Weakening borders under globalization further reduce nation state autonomy (Schiller, 1995; Chodos, Murphy & Hamovitch, 1997). The increasing domination of “multiple, deterritorialized authorities” further reinforces the shift in autonomy of the nation-state (Diken & Bagge Laustsen, 2002, p. 300). Castells (2004) didn't proclaim that network society necessarily meant the “death of” the nation-state; in his eyes, the state continues to be a powerful entity, but the ways in which it must demonstrate and enact that

power on the global scene have changed significantly.

The growing complexity of transnational governance parallels the development of instantaneous global communication networks, “traversed by multiple nodes of connectivity that influence societal institutions (such as media and politics) and the more subjective domains of the public and individuals” (Christensen & Christensen, 2013, p. 355). With the fast pace and scalable structure of the Internet, tiny companies can rapidly grow into powerful transnational forces, or previously powerful corporations can quickly fall out of favor (Brown & Marsden, 2013). At the other extreme, network technologies can be utilized to grant a mouthpiece to dissidents and extremist groups, increasing the volatility of conflict (Karatzogianni, 2004). The ease with which power can be gained or lost with ICT tools has irreversibly shifted the way global politics operate.

Perhaps one of the most crucial examples of the current transformation of global politics is embodied in Google's power struggles with established nation-states. The most prominent element of this change relates to global concepts of sovereignty, as there is currently no regulatory body in place to check the power of non-governmental institutions like Google (Segev, 2005). Kumar (2010) uses examples of multiple countries' attempts to challenge the 'Google Earth' project, which provides an extensive model of global geography through satellite imaging.

Various countries raised potential concerns about national security, as well as about the representation of contested national borders (Segev, 2005). When they tried to pursue these complaints, they found that the United Nations has no jurisdiction over non-state entities, and though Google is based in the United States, present American policies privilege corporate sovereignty and free market practices. Eventually, Google agreed to compromise, adjusting border depictions and blurring satellite imagery of sensitive sites, but it ultimately appears that the business made these choices in order to gain further trust in commercial markets rather than to obey national jurisdiction (Kumar, 2010). This illustrates the ease with which “information giants can safely ignore nation-states with only a few million customers, whose national regulators impose restrictions unacceptable to those businesses” (Brown & Marsden, 2013, p. 192). Further representation is needed for the diverse range of stakeholders in international policymaking, and it is particularly crucial to ensure that traditionally marginalized nations in the Global South have such opportunities (Mudhai, 2006; Wade, 2009).

Promoting Global Access to ICT Resources

Lingus (2005) describes the many ways in which oppressive financial entities have utilized new technologies to more effectively exploit the poor, suggesting that social stereotypes and tendencies for in-group preferences have increased in the modern network society. Mattelart (2002) agrees, emphasizing

that economically stratified resources have resulted in a “techno-apartheid’ global economy” (p. 607). Different countries have different technical levels of Internet access, often owing to different economic states and stratified access to resources. However, it is certainly not only Global Northern nations that have a significant saturation of cell phone use-- Estonia, Panama and Dominica are some of the countries with highest phone subscription density (Ling, 2012, p. 89). Network neutrality and widespread access are crucial to equal access opportunities in the Global South, particularly in terms of mobile network capacity, the primary source for most citizens’ Internet access (Brown & Marsden, 2013). In the consumer cell phone industry, countries in the Global South are referred to as ‘emerging markets’ rather than ‘developing countries’ due to this rapid pattern of growth (Challoner, 2008). As populations in the Global South rapidly adopt cell phone technologies, they are being used for novel strategic purposes in pursuit of political change, local economic growth, and empowerment (Mudhai, 2006).

Still, the political climates of nations are as relevant to the structure of services as their financial capital, especially considering that “undemocratic regimes impose censorship and restrict access to certain websites for political, cultural and social reasons” (Segev, 2005, p. 81). Alternative news sources are redefining the spatiality of the ‘global village’ and allowing for more widespread international communication (Dencik, 2013). There is widespread, highly

politicized use of the Internet in places such as Brazil, especially in comparison to the proportion of passive media consumption seen in Global North nations (Segev, 2005). Additionally, the communicative possibilities opened in the sphere of Web 2.0 have allowed the development of political counter-spheres for vocal activism and protest. Networks like Indymedia Athens attempt to make deliberative democracy an online reality (Milioni, 2009; Dahlberg, 2011). There is also an emerging counterpublic of Muslim bloggers within Europe and the Middle East (Eckert & Chadha, 2013). Though most Arabic-language blogs center on the writers' own national politics, the online Arabic communicative sphere is united in vocal concerns over Palestine, reinforcing regional and cultural solidarity (Etling, Kelly, Faris & Palfrey, 2010).

Some research shows promising outcomes in applying ICT solutions to problems of global inequity, particularly via teaching computer skills and expanding knowledge access in rural villages (Amirtham & Joseph, 2011; Koanantakool, 2004; Migiro & Kwake, 2007; Richards, 2004; Srinivasan, 2004). ICT tools may help connect cultural groups that have been separated by postcolonial migration and resulting geographic distances (Barkardjieva, 2005). Burrell & Anderson (2008) investigated the use of technology within the Ghanaian migrant community in London, evaluating the contribution of ICT tools to maintaining ties within a transnational diaspora. Ghanaian immigrants self-

reported active online engagement both to stay connected to their homeland, and to carve paths to new cultural traditions and relationships in the UK.

When Davis (2010) observed the dynamics of a small group of Indian women who were united online after twenty years of diasporic separation, she found that they utilized the Internet to re-establish their deep personal ties. The participant's ethnographic narratives illustrated a shared online space ideal for nostalgic recollections, many of which were centered on the physical space and environment they shared twenty years prior. Thus, these communication technologies helped to support the unique element of migrant identity, bridging individuals with their homeland while simultaneously introducing new practices. These examples underline the opportunities provided by critical computer education programs which maintain respect for cultural practices and empower individuals to pursue their own unique needs and goals.

Amirtham & Joseph (2011) also observed positive effects of ICT training programs for rural farmers in India. When the participants were provided with self-directed and flexible ICT learning opportunities, their ability to negotiate financially and access greater opportunities was increased. The authors emphasized that the organic intelligence of these farmers, illustrated in their use of their limited land and resources, far exceeds that needed to utilize the computers effectively. Rather than implying that technology ameliorated a deficit

in the farmers' pre-existing capacity, these authors emphasized that the success of the program could be correlated to their creative use of limited land and resources.

Chapter 3: Method

This thesis employed an exploratory hermeneutics which utilizes pre-existing social artifacts as informal “units of analysis.” Hermeneutics is an unobtrusive method of research which involves no human participants, and instead applies “the principles of interpretation of a text’s meaning” (MacBurney & White, 2010, p. 222). Such hermeneutical methods focus on the functional interactions which sustain the complexity of systems, rather than attempting to identify micro-level causal relationships. In the hermeneutic perspective, the concept of objective or empirical truth is exchanged for the idea that all meaning is mediated by observers viewpoints, relationships, and experiences (Uggla, 2010). Theorists who employ hermeneutic methods aim to acknowledge and include the implications of the mediating process of interpretation (Gadamer, 1976). Rather than attempting to render the meaning of a text, or social artifacts, as transparent, hermeneutics embraces the multiplicity of possible readings, engaging in dialectical analysis rather than singular explanation. Gadamer’s (1976) influential writings on hermeneutics emphasized that, rather than a divergence from supposedly objective statistical research, this dialectical approach highlights the existing bias in all intellectual inquiry. Even the most rigorous application of the scientific method cannot eliminate all confounding variables or researchers’ subconscious influence upon the data they collect.

Therefore, hermeneutics enhances, rather than replaces, more traditional research by enriching the context for possible interpretations.

The pluralistic emphasis of hermeneutics is of particular value in the contemporary world, where global communication and rapidly developing technologies have led to a new level of communication and negotiation (Uggla, 2010). More radical hermeneutic perspectives focus upon embracing the inherent difficulty of defining and capturing elements of human life, ethics, and philosophy, rather than trying to move beyond them (Caputo, 1987). In the flux of the Internet age, where there are multiple and continuously shifting definitions for categories of being, for community membership, and for behavioural actions, a radical hermeneutics seems increasingly necessary. Following this methodological approach, the following macro-theoretical investigation treated the media produced through contemporary technologies as signifiers of the fluid text of the contemporary Information Age. The hermeneutic treatment of social artifacts such as online articles, academic speeches, and news media items shares some properties with the methodology of content analysis in that the latter is “the study of recorded human communications” (Babbie, 2005, p. 328). However, the artifacts investigated in this thesis were oriented as much as possible toward descriptions of practices, events, and material conditions, rather than discourse and language. This ensured that the radical hermeneutic approach can be applied

to the “text” of contemporary society, rather than to any specific writer’s opinion or perspective.

Chapter 4: Results (Thematic Essays)

*Thematic Essay 1:**I Can't Find My Cell Phone... I Can Hardly Breathe: Omnipresent Accessibility
and the Fear of Missing Out**Technology's Exponential Alteration of Our Lives*

Get on the subway, the skytrain, the metro: whatever it's called in your city or town. Get on the crowded bus or stand in line at the post office. Look around. How many people have their necks craned downward, vision at a 45 degree angle, hands raised slightly toward them-- enthralled by the screen of a tiny computer? How many people are encapsulated in a bubble, talking to friends, loved ones or colleagues who might be thousands of miles away? How quickly has this become the definitive norm, and the unquestioned reality of our shared public spaces?

Leaving the house, there's a quick inventory: keys, wallet, phone. Keys-- they literally unlock your home, car, workplace, all of the physical locations that define your movements. Wallet--it "unlocks" the range of potential actions available to you, both in terms of identifying yourself and paying for access to goods and experiences. And the cellphone--in particular, the smartphone-- nowadays, it unlocks almost everything else. We track down necessary information, plans, and directions. We search for love and inclusion (Mook,

2014). All the spaces, concrete and imaginary, that used to be inaccessible--places too distant or abstract to imagine “visiting”--now just require certain skills, a small amount of training, to access.

These collections of screens and circuit boards in our hands, they’ve changed the way we see ourselves, our connections to others, and most of all the range of possibilities that lie within our grasp. Of course, every individual user has a different relationship to the new technology, and experiences a different degree of immersion in these new practices, based on a spectrum from acceptance to rebellion of these overall shifts (Bruce & Hogan, 1998; Bakardjieva, 2005). It is undeniable, however, that in the Global North, the vast majority of citizens’ lives are deeply affected by modern computer devices and the Internet.

Cell Phones in My Pocket, Ringtone in My Ear

While people have various levels of commitment to their computers--some just check in on desktop PCs a few times a day, some carry laptops and tablets-- almost everyone who owns a cell phone travels with it on their person. Ling (2012) talks about the cycle of adoption of phones, tracing the progress from early adoption to their current “stable and taken-for-granted role in society” (p. 35). When we contrast the bulky phones of a few decades ago to the evolution of the tiny, sleek devices which slip into our pockets, there’s a clear correlation between the popular embrace of cell phones’ utility and the exponential

improvement of their physical form.

deGuzman's (2013) short online film, "I Forgot My Phone," perfectly encapsulates the way that these devices have permeated, and now dominate, our living environments. The film itself is perfect for the short-attention-spanned, visually-entranced modern age: two minutes long, with beautiful and vibrant imagery. More importantly, it is clearly something that speaks universally to the online population: as of this writing, it has more than 48 million views on Youtube, with a "like" ratio of over 80%. This means something. This is important.

As deGuzman illustrates, most of us now live with our cell phones close at hand, so much so that if we ourselves had Bluetooth built into our bodies, we'd always be linked. We slide them into our pockets, so we can feel the vibration of notifications. We ensure they're within hearing range, so we never miss those blips and bleeps, each person's set of tones deliberately chosen. Or we keep them on the table in front of us so we can see the screen flash, the little blinking light. The lifeline.

Because of this, many of us have come to love these omnipresent little gadgets. They become more than tools, they become extensions of ourselves which bring us a feeling of security and wholeness (Ling, 2012). They become visible indicators, intentionally or not, of our lifestyle preferences and

technological priorities. Hamilton (2012) points out how in our technological consumer culture, fierce brand loyalty begins to feel like a declaration of personal identity, immersing “us in a false reality of auto-gratification” (p. 16). This feeling of gratification swiftly becomes cyclical with the flow of planned obsolescence, as the “next big thing” always looms on the horizon (Terranova, 2004; boyd, 2008; Smart, 2011; Passini, 2013).

The comfortable, seemingly “harmless domesticity” of technology itself slowly contributes to the creep of consumer advertising into individuals’ senses of self-image (Franklin, 1990, p. 100). Cell phones have become such second nature in our lives that there is a widespread phenomenon of “phantom text syndrome,” where individuals misinterpret sounds or physical stimuli as indicators of an incoming text message (Heid, 2015). There is a deeper drive behind this frantic connectivity as well: our notifications no longer indicate the receipt of communication between individuals. The proliferation of social networking opens up a one-to-many platform, and so those notifications could mean that, rather than just one person, the whole crowd is calling upon you, sharing their experiences and responses to your own.

Obsession With Surface Appearances and the Fear of Missing Out

The way we engage with technology, both in terms of consumer ownership and online self-presentation, has an inescapable effect on our

membership within social communities. Within Community Psychology, communities are understood to be built upon cohesion and a shared sense of identity (Nelson & Prilleltensky, 2010). That's not to say, however, that they lack in-group conflict and strategic power relations of their own. Perhaps even more than in the past, communities hail and scrutinize one another as subjects by parsing the images we project. The person holding an outdated phone engenders pity or amusement, whereas the person with what appears to be an excessive or flashy device is "showing off." We demand something in the middle, something akin to conformity, but a conformity which fiercely proclaims its individuality.

What we look for in these omnipresent digital networks of interaction is no different than the needs that human beings have always pursued. We want our communities to reinforce our feelings of holism, of agency, and of liberation (Choules, 2007). Now that we can instantaneously connect across vast distances, and find groups who share even our most fringe outsider opinions and interests, we turn to the Internet for validation and inclusion (Bell, 2001; Rosenau & Johnson, 2002; Bakardjieva, 2005). We want "likes" on Facebook, and the approval of our carefully constructed profile information, our uploaded pictures, our inner thoughts and jokes. The boundaries between our internal lives and public personas continues to blur as we learn to broadcast everything about ourselves (boyd, 2004; Reilly, 2013).

Despite this increase in connectivity, some writers warn that people are actually growing more alienated from one another (Meltzer, 2010, Flanagin, 2015). Monbiot's (2014) eloquent opinion piece on what he called "the age of loneliness" underlined that we focus increasingly on the individual alone, constructing a sort of "post-social" reality. Being truly alone seems to erode into an experience of the past (Marvin, 2013). At the same time, being "all together alone" within the vast crowd seems to grow more common (Boal, 1995, p. 12). This also meshes with the observation that those who use the Internet in an attempt to escape their real world loneliness may end up even lonelier (Caplan, 2003; Griffin, 2010).

Loneliness is not the only negative emotion stirred up by the Internet and its social networking platforms, as qualitative studies continually report correlation between frequent use of Facebook and vanity or narcissism (Pearse, 2012; Turnbull, 2013). Additionally, one study identified that Facebook users self-reported feelings of lower well-being, while maintaining an experimental control by tracking their parallel, positive self-reports when engaging in face-to-face social activities and more neutral self-reports while doing neither (Kross et al., 2013). Perhaps some of this is propelled by the "flattening" of rich interactive communication in the absence of real life congregation (Zerzan, 2008; Baron, 2009). Or perhaps it relates to the assumption that we need to present our

absolute “best online selves,” which is as unachievable as any other expectation of perfection (Cover, 2012). When you see everyone’s projected selves, their Instagram pictures carefully cultivated with the best shot out of twenty takes, it’s easy to feel inadequate, so small, so uninteresting.

This focus on surface appearances has also increased the proliferation of the “fear of missing out,” a popular catchphrase that means exactly what it says. There are so many opportunities for engagement and participation in the modern age, but there is also a vast collection of visible gatherings and experiences that we are not invited to join (Miranda, 2011). Additionally, the range of possible actions can lead to a desperate second-guessing about the choices we do make, wondering if a different event would have been more fun, doubting that we are truly living our lives to the fullest (Mook, 2014). This can exacerbate people’s modern tendency to commit to a number of different invitations, and then barely show up to any of them--we are afraid to make these choices until we are absolutely forced to (Flanagin, 2015). The fear of missing out can leave us feeling inadequate and excluded, returning to the loneliness which keeps breaking through in the social media realm.

Am I More Than the Sum of My Data?

We are not just attached to these little gadgets, or the bigger ones stowed in our bags or sitting on our desks at home. We are fiercely, intensely attached to

the information and artifacts they hold about us, the traces of our online identities that we have uploaded and shared both consciously and unconsciously. Following the ideas of Foucault, Poster (1989) proposes that the “superpanopticon” of modern informational technology constructs another “self” for the individual, “one that may be as socially effective as the self that walks in the street” (p. 123). In addition to the mediated visibility of our social profiles, there is a rising trend toward the collection and analysis of biometric data about the patterns and activities of our daily lives.

This biometric data collection is usually accomplished through the use of wearable trackers which compute movement, heart rate, temperature, and other physical cues (Smolan, 2014). Currently, the collection of this biometric data is primarily applied to health statistics, attempting both to get a more holistic picture of individuals’ biological states. Those who buy and use the devices may aim to “gamify” their lives, trying to reach goals and benchmarks that can be recorded along these axes. People who experience fatigue or other amorphous physical issues may also apply this data to understand what works to ameliorate these problems, just as someone with potential food allergies might embark on an elimination diet (Singer, 2011). Though the sum total of our data is easily tracked and collected in corporations’ private databases, it is not as easy for us as individuals to gain access to the bigger picture of big data (Regalado, 2013). In

the current business model for the “wearables” that track biometrics, for example, the companies who produce and sell the devices are the ones who technically own the reserve of the resulting data (Singer, 2011).

In a TEDTalk, Jer Thorp (2012) points out how, for the individuals the data is culled from, intensely meaningful and personal within their context of origin. The traces of communication we leave, whether written, recorded in multimedia, or tracked by wearables, are all the little building blocks for massive, totalizing scrapbooks. After all, if we just think of them as scrapbooks, that’s less worrying than recognizing centralized databases for what they really are, and confronting their increasing power in the Internet age. However, successfully protecting your data, passwords, and general online life can have unforeseen consequences in the long term. When Michael Hamelin, a tech-savvy scientist, died tragically in a sudden accident, his wife was left with an impossible task: shutting down his accounts and accessing the data and files he had so carefully password-protected (Howell O’Neill, 2015). Though it may be surprising in this transitional period of technology, the new age of data requires a fallout plan, similar to traditional legacies and wills. The extension of data’s relevance even beyond the death of our bodies is a crucial indicator of how deeply these new networks permeate our practices and influence our choices.

Foucault’s attention to the concrete traces of epistemic shifts in the daily

behavior and practices of individuals is clearly adaptable to the way in which some computer users structure their daily lives and represent their identities (Sullivan, 2010). We are captivated by, and immersed in, these technologies in a way that replicates Foucault's (1990) conception of "docile bodies" which are produced by the effects of bio-power. Bio-power involves productive control and conditioning of individuals' actions and personal practices, rather than forcible, repressive power which controls individuals by restricting their options. The ideal outcome of bio-power, in its unique and complex functioning, is this "docile body" which is a useful body, whether in terms of performing labour or following structurally established societal norms (Shildrick, 2005). This docile body functions as "an object to be manipulated," so to speak, going through the motions that are cast as societal norms (Dreyfus & Rabinow, 1983, p. 134). As we all stare down at our phones, typing away, logging all of our information for corporations to track and analyze, we may be turning into the most docile bodies imaginable.

What Happens When We "Disconnect"?

Our relationships to the Internet fall along a scale from harmonious to disharmonious adaptation (Kelly, 2006). A unique issue within Internet culture, though, is that it is continuously shifting, updated by the very second, and it fluidly transcends totalizing boundaries. Without judging that as a good or a bad

thing, it's undeniably happening all around us in the current age. In terms of the positive, social networking services allow us to connect in ways that have never been possible before (Meltzer, 2010; Hamilton, 2012). We can track down old friends, communicate across great distances, and form new relationships. We can voice both our outrage and our joy, and we can share our passions and beliefs. The Internet is a tantalizing and fascinating realm, and like anything enjoyable, it's possible to fall in too far and lose ourselves.

For the entirety of its seventeen minutes, the short film "Noah" takes place solely on the computer screen of a teenage boy as he navigates social media and darts around the programs of his computer (Cederberg & Woodman, 2013). It sounds simple, but it certainly isn't-- it exposes the parallel heartwarming connections and heartbreaking emptiness these platforms place at our fingertips. The titular character orbits paranoia about his relationship, over-analysis of small online cues, and a bored but dedicated engagement with the familiarity of his environment. We can write articles and social theory about the ennui of social media all day long, but "Noah" illustrates it in praxis, leaving us wondering what would happen if we calmed our frenetic clicking and powered down for awhile.

The epistemic reshaping of our lives and identities by these devices and networks has occurred so swiftly but surely that for most people that stepping outside of cyberspace, even for a quick break, doesn't seem like an option.

Whether it is direct or not, there can be a significant degree of social pressure to use Facebook and stay omnipresently attached to our cell phones (Meltzer, 2010). This is no longer just a realm of games and instant messaging. For most of us, our jobs depend on these instantaneous communications to some degree, and our friendships and plans for socializing threaten to wither away in the absence of texting, social networking and sharing platforms (Bruce & Hogan, 1998; Crang, Crosbie & Graham, 2006; Moshe, 2012).

Paul Miller (2013) made the conscious choice to “log off” the Internet for a full year. He admitted that life without the Internet sometimes felt incredibly boring, but that was because he was stuck with the time to think, and was forced to entertain himself. Allan (2015) agreed, and shared that without being absorbed by technology, he realized that he actually has far more to think about than he assumed he did. Miller (2013) encouraged the audience to ask themselves how they use the Internet, and how, in turn, the Internet uses them. With mindfulness, it is entirely realistic to reap the benefits of the online sphere without caving to its detrimental effects (Lichy, 2012). Miller identified this healthy balance as using the Internet as a utility, rather than an all-encompassing reality.

Rejecting modern ICT is almost akin to rejecting modern society (Aronowitz, 1994; Vaidhyanathan, 2011). Currently, in the Global North, a human being without these forms of connectivity can feel left out in the cold,

hands up against the glass, looking in on the party. For some, the freedom from the demands to be “always-on” are worth this tradeoff. Both Miller (2013) and Allan (2015) endorsed the healthy idea of fully turning off devices once in awhile, going outside, and appreciating the beauty of the real world. Even “moot,” the infamous founder of the controversial forum site 4chan, discusses his need to take a break from social media (Poole, 2014b). Similarly, the well-known comedian Patton Oswalt, who has often caused ripple effects of viral conversation on Twitter, gave a well-worded description of his decision to do the same, and his hope that in the future, he will log off of Twitter for the duration of every summer (Oswalt, 2014). Those who endorse this movement to disconnect emphasize that the world can be more vibrant and present without our constant connectivity, and that devoting our full attention to our everyday lives makes them much richer and more fulfilling. Perhaps this isn’t true for everyone, but it certainly bears consideration.

*Thematic Essay 2:**Shapeshift Into Cyborgs: Embedded Technology and Automated Environments
Rapid Advances in Technology Appear Subtle*

There is a great deal of excitement about the crucial role of information and communication technologies in the present day. However, the development of new technological systems has been a central hub of culture and ideology throughout all civilizations (Franklin, 1990; Bakardjieva, 2005; Sieh, 2012; Srinivasan, 2012). Mumford (1962) gave an excellent history of the epistemic progress of technics, from the popular adaptation of clocks and codified time, to the societal transition into industrialized production. Following this evolutionary model, some writers determined that the most apt parallel to contemporary computing technology was the widespread adoption of mechanized transport, from the railroad system to personal automobiles, as an infrastructural transformation with wide-reaching consequences (Chodos, Murphy & Hamovitch, 1997; Hughes, 2004).

Though Foucault (Rabinow, 1984) did not often address geography and societal infrastructure, in a brief interview he pointed out that as long distance communication and transport improved, larger networks of social power began to permeate people's lives. The complexity of individuals' relationships to these new tools were enhanced by nested layers of cultural influence, from local, to

national, and eventually to global. As these systems of technology were widely adopted and integrated into society, they became taken for granted as part of the “landscape” of everyone’s daily lives (Ling, 2012). Widespread enthusiasm is a crucial factor in such forms of societal adoption. New technologies which are introduced must meet an existing near-universal need, or significantly improve some element of life (Winston, 1998; Lehman-Wilzig & Cohen-Avigdor, 2004; Lahlou, 2008).

Mobile cellular devices have cemented the ubiquitous embrace of contemporary technology, accelerating the trend seen since the rise of the personal computer. In contrast, the introduction of Google Glass, a wearable device which ventured into the new territory of augmented visual reality, was largely mocked as excessive and invasive by the larger population, and finally sank into relative obscurity (Metz, 2014). This does not necessarily indicate that “smart glasses” or other similar technologies will never be popularly embraced. Instead, it illustrates that until the crowd is enticed by a device’s form and function, that device will not be successfully integrated into the social order. Once it is, though, it begins to feel like part of the natural environment, sinking comfortably into the background.

The Technological Unconscious and the Internet of Things

Beers’ (2009) concept of the “technological unconscious” is an apt model

for understanding the way in which our increasing immersion in information technology-laden environments becomes invisible in its familiarity. Specifically, this term refers to the constructed technological surroundings which remain largely invisible to its “inhabitants,” but significantly shape and influence their choices and actions (Beers, 2009; van Dijck, 2010a). This is a natural response, as technologies are most effective when they are obscured from awareness. Lahlou (2008) outlined three operational layers of these cognitive technologies: the technical material layer (artifacts), the conceptual human layer (representations), and the social institutional layer (regulations). These layers can be viewed as a parallel to the general ecological structure of human life and culture itself.

Similarly, Bronfenbrenner’s ecological model of communities locate the individual at the center of a system of nested layers. These range from the microsystem where concrete daily interactions occur, to the macrosystem of cultural norms and institutions (Bronfenbrenner, 1977; Bronfenbrenner, 1994). The crucial element of this ecological model is the interdependence between its layers, and the manner in which an individual progresses through life without analyzing these layers as distinct elements. A similar ecological model in Community Psychology came from Kelly, who also emphasized the importance of environmental interdependence, but also focused more closely on the strategies

individuals adopted to cope with their environments (Kelly, 2006). Though these theorists were both firmly focused on the social sciences, just as their model of ecology was adapted from the hard science of biology, it is similarly applicable to the hard science of technology. Interdependence and adaptation are of central importance to the strategies which human beings take in inventing and utilizing tools.

Jer Thorp (2012) pointed out that early programmers would have been shocked to imagine that one day everyone would own a computer, but almost none of them would know how to code. In the early days of computing, the only way to interact with a computer was through the command line, in the machine's own language. However, the average end user has gotten further and further away from these inner workings, instead relying primarily on graphical interfaces and recently, environmental interactivity. First, computers moved from text-based commands to assortments of pictures and spatial representations that represented familiar human environments (Bell, 2001; Challoner, 2008). Now, computers are creeping further into our worlds, from our screens to our physical surroundings. We're moving from clicking and typing to speaking and swiping. Our devices grow smaller, we keep them closer to hand, and as a result, we may forget what our lives were like without them (boyd, 2008; Kinsley, 2013).

The "Internet of Things" is a popular buzz-phrase, which may sound to

some like a science fiction vision. All it actually refers to is the near future of automated environments, primarily in the home, filled with digitized features which fluidly blend the interactivity of our various devices. Currently, this most frequently takes the form of centralized control of thermostats, lighting, and sound systems on owners' cell phones and computers. The importance of this concept lies with the interdependence created by increasing automation, leading technological devices to "communicate" within larger webs of devices without human intervention (Barrett, 2012). This is made possible by the development of "cloud computing."

"Cloud computing," like the Internet of Things, is a somewhat nebulous term which can frustrate industry insiders, but it is an apt visual metaphor for the transition from local hardware-based data storage to a common remote infrastructure (Regalado, 2011). In another clear example of the technological unconscious, cloud computing has become seamlessly integrated into our use of our devices over time, especially with the rise of mobile communications (Griffith, 2015). If you take a picture on your phone, it's probably automatically uploaded to iCloud, Dropbox, or your Google account. The Internet of Things takes this connectivity much further than the mere transfer of existing files, though. As digitized devices gain 'senses,' they are able to detect and analyze input, combine that input with information received via the cloud, and make

choices based on precedents and programmed preferences (Hougland, 2015).

Following this trend, our worlds will continue to adjust to us, rather than us merely adapting to them.

Though the majority of computer users may not find it necessary to build a home which can send you a text message when a light bulb needs changing, the effects of increasingly embedded technological environments will have universal effects. John Barrett (2012) warned that no matter how we feel about the Internet of Things, it's already well on its way, with companies and governments all over the globe advancing heavily in research and development. Since the Internet of Things' range of hardware requires parallel software in order to function, it opens opportunities for independent developers to participate actively (Regalado, 2014). This widespread collaboration will be crucial to ensure that the technology of the future is both sensible and beautiful, instead of an amalgamation of inventions just for the sake of invention (Fardost, 2015; Vanhemert, 2015). Perhaps the most urgent progress will derive from potential emergency and medical applications which would allow environments to detect health problems or life-threatening situations and trigger appropriate alerts and responses (Nipper, 2012; Barrett, 2012). This may seem like a distant future, but it's approaching rapidly-- and part of that is because our experience of time is changing, too.

Shifts in Our Experience of Time and Space

Since the invention of clocks and their accompanying universal system of time, technology has forced individuals' relative experiences of synchronicity to a regimented schedule. Time used to be something that just happened. Now it's a quantity and benchmark which we check, measure, and project. This has been further cemented in the Internet age, particularly when it comes to the satellite updates which maintain universal accuracy on people's computers and cell phones. We plot out our lives on calendars, which used to be mostly for business, but now serve as the backbone for many people's entire worlds.

However, the Internet also unhinges time from the clock in certain ways. The asynchronicity of email and similar communication methods presents a unique contrast: you can immediately access your messages at any time, but you can also defer your response for as long as you want to (Franklin, 1990). There is no longer a forced window of opportunity for bidirectional communication, and it leaves us with more agency over our time. This has become even more true with the gradual "death of the phone call"-- each year, people dial one another up less and less, instead choosing to send text messages and emails (Thompson, 2010).

Additionally, the Internet provides such an effective, even hypnotizing, source of semi-passive entertainment, that time sometimes seems to slip through our fingers. I know I am not alone in having passed an entire night wasting time on Youtube, Facebook or Wikipedia, only realizing my folly as the first rays of

sunlight struck my window. The ability to click from hyperlink, to hyperlink, to hyperlink, or even more captivating, to scroll down a single, endlessly-respawning page, can plunge us into a “timeless time” (Hassan, 2003; Castells, 2004). Additionally, the timespan of our attention is now a focus of advertisers and content providers, as they collect data on the duration of time users spend visiting a site or viewing a video, rather than just the fact that they “clicked through” to it (Greenberg, 2015). The more that companies can analyze and understand what users get absorbed by online, the more they can attempt to design even more hypnotizing media in the future. This is reinforced by the fact that the time it takes for technological innovation to completely “change the game” again and again is, itself, exponentially accelerating (Kurzweil, 2014; Fardost, 2015).

Foundational Code Automates Our Available Choices

Underlying all of the changes we experience in our daily use of computer technology, the deceptively simple but complexly aggregated layer of code persists universally. While we interact with flashy images and shiny surfaces, something solid and architectural lies below the graphical interface. The underlying binary building blocks of code are binary in nature: “1” and “0” are like a primitive “yes” and “no.” However complex programming may become, at the end of the day everything can be deconstructed into raw binary, just as all matter can be broken down to electrons (Winston, 1998; Challoner, 2008).

Ultimately, the binary origins of computer programming remain central to modern devices, no matter how far we advance. This universal simplicity is what makes the Internet itself possible, as data can be broken down for faster transmission and then seamlessly reconstructed by its recipient machine (Banks, 2008; Brunton, 2013). This transmission is also based on the concrete, multilayered material and informational infrastructure of the Internet, which is completely invisible and unknown to most users (Choucri & Clark, 2013).

The science fiction author Arthur C. Clarke famously declared that “any sufficiently advanced technology is indistinguishable from magic,” and if we take this amusing quip at its face value, we could imagine code to be like a set of spells (Yáñez, 2014). Code is not just a collection of text-based instructions, it is a catalyst to execute those instructions-- whereas traditional language is largely about communication and expression, code is about action (Mackenzie & Vurdubakis, 2011). It is constantly shifting, growing, being adjusted and improved by the intelligence of the crowd, both to encourage and adapt to the rapid growth of hardware and the online user base (Somers, 2015). It is both concrete and fluid, as what has been built up in one programming language can be tweaked and improved by the next one. There’s always a movement, not toward perfection, but toward complexity and a greater range of possibilities.

Beer’s (2009) description of the technological unconscious as a set of

“generative rules,” rather than fixed restrictions, perfectly encapsulates the unique productive power of programming code (p. 994). This brings to mind Foucault’s notion of social power as a productive, rather than a repressive, force (Shiner, 1982). Power suggests possible actions, and rewards obedient performance, rather than just restricting possibilities and punishing transgressions. If we see the commands set forth in code as a source of power, the establishment of precedents around “freedom of speech” in coding will be crucial in determining the balance of power in the near future (Lessig 2006; Hayles, 2009; Peterson, 2013).

Automation, and the functioning of “bots” which are designed to execute repetitive tasks on a large scale, are also crucial to the existence of the ever-expanding Internet (van Dijck, 2010; Niederer & van Dijck, 2010). However, bots can “make mistakes” too. One small error in code can lead to an avalanche of larger errors, because while algorithms and machines may be efficient, they lack the human quality of “common sense.” Werbin (2011) points out that when databases are dependent upon a mixture of user-contributed information and automated tagging and categorization, the resulting reliance “on a widely dispersed and uncoordinated assemblage of people and machines to accurately input data means that each keystroke and tag contains the possibilities for errors to bleed across digital enclosures” (p. 1259). Perhaps the continued integration of automation with human beings’ common sense, however, will overcome some of

the bugs we see in this “beta version” of informational society.

Will We “Turn Into Cyborgs”?

Castells (2004) used the adjective “*informational*” in regards to contemporary capitalism to indicate a reliance not just on technologies, but on microtechnologies, the increasingly smaller and more embedded mechanisms powering our world. Franklin (1990) outlined a relevant division between the biosphere of human environments and the bitsphere of technological developments. At the time of her writing, these spheres were beginning to blend together, but there was still a distinction, one which may be gradually eroding with the accelerated integration of technology and biology. Scientists are already deeply involved in the first steps toward manipulating the biomedical properties of human cells in order to allow for accelerated regenerative healing (Stone, 2015). Engineers are already looking to design more complex smartphone processors which are modelled upon the flexible, creative capabilities of human neurons (Lewis, 2013).

These developments suggest a near future that is filled not just with functional artificial intelligence, but perhaps even with creative machines (Schmidhuber, 2012). Ray Kurzweil (2014) compared the current extension of human cognition into our environments to the general history of cerebral evolution. Kurzweil perceived the expansive capabilities of supplemental

technologies as the next big cognitive shift, where devices and cloud-based data will act as a sort of neo-neocortex. The next wave of technological innovation will combine intelligent integration, continually shrinking components, and the vast expansion of cloud data storage (Milojicic, 2014). Amber Case (2010), who identified herself as a “cyborg anthropologist,” pointed out that we now store many of our thoughts and feelings outside of ourselves, within our devices and data connection. Whether this cognitive externalization is a positive or negative step depends largely on the collective norms our society establishes around these practices.

When Bookchin (1971) contrasted tools with machines, he emphasized that the former serve only to enhance the existing skills of human beings, whereas the latter contain the potential to completely replace them. Technological optimists may envision a world where humanity is freed from menial labour, and thus able to pursue higher-level achievements and personal fulfillment (Rosenau & Johnson, 2002; Fuchs, 2012). Technological pessimists may instead fear an impending reality in which our humanity is eclipsed and eroded by the increasing integration of totalizing machinery into our lives (Hamilton & Heflin, 2011; Söderberg, 2013). For example, the rise of wearable technologies presents contrasting possibilities: these devices could augment our abilities and improve our daily lives, or they could split our attention and hopelessly distract us

(Norman, 2013). Companies like Occipital are already strategizing how to compensate for the overlay of virtual reality in users' visual fields, designing interfaces which will alert users before they stumble into a wall while browsing the Internet on a pair of smart glasses (Metz, 2015).

Google is currently devoted to designing driverless cars, with the aim of debuting them on the public market by 2020 (Priddle, 2015). However, some are still skeptical about the wisdom of trusting vehicles to entirely automated processes, warning that there are still some situations that are better handled with common sense than machine intelligence (Knight, 2013). Foucault (1984) eloquently opined that "men have dreamed of liberating machines. But there are no machines of freedom, by definition" (p. 247). He goes on to temper this with the statement that automated technologies, structures of architecture, and other man-made advances can provide the infrastructure for what we call liberation, but that it is ultimately human actions which can carry through either productive or repressive realities in these frameworks.

We are left with these complex layers of both natural and constructed reality. Even if we ourselves are not cyborgs, our environments are embedded and thickened with technologies that are easy to overlook but impossible to escape. Baudrillard's (2007) commentary on Foucault explores "the real" as the underlying realm which all of human society attempts to move beyond, the level

at which death and finitude are laid bare. Perhaps the so-called Internet of Things, and its promise to automate our access to comfort, joy, and distraction, is just the next step in humanity's attempt to progress beyond "the real." The real is inescapable, though-- even machines break down, and so far, none of our advances can keep us from death.

The enthusiastic push for constant progress in the hard sciences embodies "the notion that you can always invent something to solve the problem that the last invention created" (Vaidhyathan, 2011, p. 76). We have not gotten to the end of this problem-solving chain, and it's not likely that we ever can. In the earnest hope to do so, we may soon render ourselves as entirely new beings, self-designed *Übermensch* who can control the world around us with the blink of an eye. Or, perhaps more likely, engineering will continue to alter our environments in the smallest, subtlest ways, with society pushing on, business as usual, the water heating up around us without ever quite coming to a full boil.

*Thematic Essay 3:**All Hail Google: The Construction of Knowledge on the Internet**An Indispensable Resource: The World Wide Web Frames Our World*

You're headed to the store to buy a new toothbrush. Or you need an air conditioner. You need the exact address of that new Chinese restaurant where you're supposed to meet some friends. You vaguely recall that it's possible to cook a potato in the microwave, but you have no idea how.

You open your search engine. Or, increasingly, you pull up an app on your phone, or a new browser tab, and immediately input the beginnings of your query. You're likely to get a list of suggested search terms even before you finish typing the words in. You hit enter, and within split seconds you have pages of possible results before you. How often do you really feel the need to click beyond the first, or maybe second, page of results? How much do you bank on the convenience and presumed relevance of the first few links? How deeply do you take for granted that you're getting the whole picture?

Google's original search algorithm represented an attempt to automate a complex and wide-reaching process of peer review. The history of the Internet already depended on various replications of the process of peer review (Akerman, 2006; Editors of the New Atlantis, 2006). Still, when Larry Page and Sergey Brin designed a centralized tool that could easily handle the ever-growing data of the

World Wide Web, it was rapidly adopted, as users with very little computer experience could now track down information through a relatively simple and straightforward interface (Segev, 2005). This classic need to sort and classify information grew more and more crucial as the reserve of sources and contributors to the Internet grew larger. The “sea of information” that the World Wide Web had become was now navigable from a seemingly central point (Roberts, 1999). The Google search engine creates a continually updated “picture” of the content of the World Wide Web, mapping out content behind the scenes and returning links based on their relevance to the search terms and on how often they’re linked by other sites on the Web (Vaidhyanathan, 2011).

Page and Brin’s proposed algorithm looked like a simple tweak from the outside at first, but one that would subtly contribute to an entirely different way of navigating the repository of information that we call the World Wide Web. However, that targeted arrow of the ranking algorithm, which legitimizes some sources over others, might make too much “sense” of the Internet. Now, it might be so narrowly focused that it is eroding the very promise of the World Wide Web, to provide anyone who has online access the potential platform to have their voice heard. Particularly with the monetization of search engine results, in which Google prominently displays paid advertising, the scope begins to narrow and results pages become repetitious and representative of significant source biases

(Goldman, 2006).

When the PageRank algorithm was still young, it operated on a relatively new frontier, and there were thus many opportunities for sites and sources to gain increasing recognition through back-linking and communal promotion. As its methodology has grown stronger and more entrenched, Google's indirect endorsement of certain sources over others becomes a self-fulfilling prophecy: sites are heavily linked to because they are the first results that come up on Google. van Dijck (2010) uses the specific example of Google Scholar, which focuses on academic articles, to emphasize that a search engine exists as "a nodal point of power, while the mechanism of knowledge production is effectively hidden in the coded mechanisms of the engine" (p. 579). With the contemporary World Wide Web's scale of operation, narratives have become solidified in much the same way as any dominant societal narrative of truth.

Wikipedia as a Rising Source of Presumed Authority

Consistently, the top search result in Google search is the Wikipedia entry for that term or topic (Metz, 2009). For many day-to-day inquiries, this is incredibly convenient, and has fueled a sort of synergy between the two sites. This arrangement becomes problematic, though, if users begin to equate Wikipedia with "the truth" on any given subject. Since a landmark study in 2005, Wikipedia has consistently surprised researchers with its standard of accuracy compared to

traditional academic encyclopedias (Terdiman, 2005). In fact, it's irresistible to cite Wikipedia's own thorough and well-rounded page addressing the wide range of research that has been done on its accuracy (Reliability of Wikipedia, 2015). However, even the site itself warns visitors that Wikipedia pages should be used as the first step in research, and not the end destination (Baron, 2009). By learning to follow the hyperlinks to Wikipedia's cited sources, readers can continue to exercise critical literacy in tracking users' edits to their origin points (Rosenzweig, 2006).

Like much of the Internet, Wikipedia's primary pool of vocal contributors consists of a majority of white males, which can create an unconscious, but self-replicating, racial and gender bias (Lapowsky, 2015). If a single demographic is largely responsible for composing articles on issues of identity politics, racism, and sexism, there could be a troubling outcome in which the voices of those affected by these topics are functionally erased. If those who are privileged enough to escape the effects of racism and sexism are left to explain the topics, it could be assumed that these issues do not exist at all, or at least not to the insidious degree which is often experienced by insiders to these communities. In 2013, 90% of Wikipedia's active editors self-reported as male, but since then, the Wikimedia Foundation has been pushing tirelessly to invite a wider demographic to participate, so that the reserve of editors more accurately reflects the

distribution of the general population (Meyer, 2013). This gender bias reflects even at the more casual level of Wikipedia content contribution, as content and topics traditionally targeted towards men are significantly more likely to have coverage on the site than those that are targeted toward women (Cohen, 2011; Pappas, 2013). Still, it is not as though diverse groups have been explicitly excluded from Wikipedia – rather, there seems to be a self-selection participation bias that is further reinforced by communicative norms on the site's “Talk” pages that may feel hostile to those outside its usual demographics (Ciffolilli, 2003).

On Wikipedia, anyone with Internet access can literally rewrite history – or at least attempt to. Most recently, with uproars about racially charged police brutality in the United States, it was uncovered that IP addresses traceable to the NYPD precinct had been used, consistently and anonymously, to remove information from Wikipedia about violent police incidents (Cheney-Rice, 2015). One of Wikipedia's greatest battles is the fight to monitor and reduce contributor bias, while maintaining a minimal framework of rules and granting a certain degree of near-anonymity (Rosenzweig, 2006). Still, the site's ability to combat bias is undermined by the dwindling participation in direct edits and content contribution, even as the site's readership grows drastically (Simonite, 2013b). The greatest hope for Wikipedia is the emphasis on the “peer” in peer review, combined with the expectation that readers will parse the site's content with a

critical eye (Anderson, 2006).

Conscientization and Online Sources: 'Feeling Lucky' or 'Citation Needed'?

If we accept the premise that search engines provide one of the central paths to uncovering and accepting narratives of truth in modern society, it follows that individuals must learn to learn to critically evaluate the results of their search inquiries. Community Psychology owes a great debt to the theorist and practitioner Paolo Freire, and in particular his concept of conscientization, in which oppressed communities come to recognize the ways in which they are oppressed, in order to fight back and pursue liberation (Freire, 1974; Findlay, 1994). The general division of the stages of conscientization includes magical consciousness, in which circumstances of oppression are taken for granted as the status quo; naive consciousness, in which suspicion begins to arise regarding how and why resources and power are distributed the way they are; and critical consciousness, in which communities strategize and actively pursue liberation from these oppressive structures (Freire, 1974). Critical consciousness is not a stage which is arrived at, but a reflexive process which must be continually worked through (Roberts, 2000).

Freire's concept of conscientization specifically applies to recognizing our positions within the concrete material systems of oppression and privilege that affect post-colonial societies (Roberts, 2000). However, as layers of technology

become increasingly instrumental in shaping and sustaining those systems, it could be suggested that conscientizing ourselves about the unseen mechanisms of the technologies we use every day would be an equally crucial step toward empowered action. Unfortunately, it is somewhat disingenuous to divorce Freire's powerful concept from its context in these anti-oppressive, post-colonial settings. Since the expanding commercial coercion of what appears as "true" or legitimate on the Internet affects the entire global population, I hope the appropriation of this term can be forgiven.

Granted the caveat of appropriating Freire's term, conscientization is an ideal lens for an awareness of the influence of these pre-determined algorithms on the conclusions we are led to reach in our searches. When we fail to acknowledge the inner workings of computers, cell phones, and other devices we use daily, we perpetuate a new kind of "magical consciousness." What's more, just as the magical consciousness described by Freire made it easier for oppressive powers to enact subtle control and make large populations feel powerless, the magical consciousness of search engine users who fail to consider the steps between hitting enter and clicking the top result allows corporations like Google to seamlessly manipulate what we call the truth. As Foucault emphasized, the "truth" is merely a powerful narrative projected to the masses, whether it is dictated by the King, the Spanish Inquisition, or the most widely endorsed voices

of the Internet.

The magical consciousness of a Google user is epitomized by their clever placement of the “I’m feeling lucky” button next to the “search” button on their home page. Selecting “I’m feeling lucky” will auto-direct the user to the first search result link. This option entirely eradicates the process of evaluating the excerpts Google returns from its range of search results. Naive consciousness could perhaps be encompassed in the first stages of suspicion regarding how Google reaches the conclusions it does: users may ask themselves “how is it that Google always seems to read my mind?” Or, alternately, “why does Google always point me toward the same databases and mega-sites for every inquiry?” Finally, critical consciousness of search algorithms would involve not only the evaluation of search results, but vigilance regarding the data that Google collects from its users in order to lead to those collections of search results. If the power is in the algorithms, and the algorithms are kept secret, the end user can, at best, maintain awareness that there is a formula below the surface, and that it is based entirely on profiling and even manipulating the activity of users.

Who's Aware and Who's in Charge?

Technological literacy is not just about the ability to turn on the computer and type a query into a search engine. Critical computer literacy looms as the crucial cultural competency in the current age (Boehme, 2002). Critical computer

literacy allows users to identify the difference between targeted ads and legitimate search results, to avoid potentially harmful downloads and viruses, and to fact-check suspicious information and sources (Lessig, 2006). Advocating for the free software movement, Stallman (2002) emphasized that engaging with the underlying layer of technology helps empower users, and overcomes the narrative disseminated by mainstream companies like Windows and Apple which imply computers are, at their core, confusing and difficult. Popular operating systems continue to grow more simplistic, and deny the user the ability to personalize their computer's interface or adjust its default settings.

Companies like Google design their terms and conditions around the assumption that most users won't be aware of, or interested in, the intensive level of tracking and data collection the company engages in. In the end, Google doesn't just tell you what the Internet says, it tells you what it thinks you want to hear. A recent study showed that, after searching for information online, people were more likely to mistakenly identify that they themselves had already known that information (Fisher, Goddu, & Keil, 2015). A popular media source colloquialized this report as "Google makes people think they are smarter than they are," but perhaps that's not quite the right phrasing (Knapton, 2015). A more apt summary might instead be "Google makes people think its ideas are their own thoughts." The circular bias created by Google's increasingly personalized results

leads to a “filter bubble” effect, in which we see exactly what we want to see on the Internet, and lose touch with other points of view and other realities (Pariser, 2011). As this happens, it may be comforting, but it also undermines the original vision of the World Wide Web as a radically free and open platform to share information and transcend the boundaries of our fixed locations on this planet.

Wikipedia puts a different spin on this vision, and it is possible to see this site as an enactment of this dream of free and egalitarian communication.

Wikipedia's rise has been linked to “the death of the expert,” and the domination of crowdsourced knowledge has opened the ranks of academia to a wide chorus of new voices (Bustillos, 2011). However, it also leads to a crisis of trust, in which readers must carefully trace and examine the original sources cited by Wikipedia editors if they want to ensure that the entries' content reflects traditionally held views (Arms, 2006). This shows that even the crowdsourced realm of Wikipedia still relies on classically hierarchical academic proof in order to legitimize its content.

Communities in the Wake of the Web: Who Owns Knowledge?

The Internet is largely dominated by the English language and its accompanying Global Northern ideologies, thus we can see it as the newest iteration of intellectual colonization, which must be treated in a similar fashion to the manipulation of any other sort of resource. A single example lies in the fact

that English language searches for the term “Africa” produce multiple pages of results about Africa which originate from websites in North America and Europe, before finally returning primary sites located on the continent of Africa itself (Srinivasan, 2012). Additionally, Google’s narrow news stream serves to further “intensify US and Western perceptions of the world” (Segev, 2005, p. 168). This may not be a huge change from the already existent biases of previous mainstream media sources, but Internet search engines and crowdsourced news often make claims to a more neutral or diverse representation of global circumstances.

For Foucault, “ideal truth does not liberate discourse from power, but tightens power’s control” (Lemert & Gillan, 1982, p. 65). In other words, truth is not some sort of revelation to confront and topple authority; instead, truth is labelled as such because of the illusion of authority it possesses, no matter how revolutionary it may seem on the surface. If we equate Google’s “truth” with Foucault’s epistemic “truth,” we see that it is actually a hypnotizing tale about meaning, not the end-all be-all of meaning itself. Google’s top results construct its dominant narrative, both about what is relevant to the search terms and to what is accurate in the world. Google has succeeded so widely, in part, because of its ability to garner user trust regarding these results (Sanz & Stancik, 2013). For Google’s search engine, convenience and speed tighten the control of their

“version” of the Internet, and reduce the impetus to debate or reflect critically on these results. Similarly, the “feedback loop” created between Google and Wikipedia reinforces this centralized control, intentional or not (Metz, 2009).

Significant strides have already been made in establishing transparent and open source indexing of the vast World Wide Web, such as the nonprofit project Common Crawl (Simonite, 2013). The algorithms used for undertakings like these are completely accessible, and participation is open for any interested users. Ultimately, free and open source search projects prioritize “transparency, community, quality, [...and] privacy,” while still pursuing the scalable functionality that proprietary search engines achieve (Segev, 2005, p. 42). Of course, there is no such thing as neutral technology, and the data available through Common Crawl must be parsed with the same critical literacy as any other search engine. The crucial difference is that transparency allows users to attempt to trace the way those results were culled from the larger Web. It’s similar to showing your work on a math test: you may be able to do the problem in your head, but the teacher would much prefer to make sure you got the “right” answer for the “right” reason.

Speaking of showing your work at school, the Internet is opening many avenues for new pathways to learning outside of the traditional classroom. For example, DuoLingo is a highly successful online program which provides users

free foreign language lessons in exchange for their labour in manually translating web pages (von Ahn, 2011). This is just one of many Massive Open Online Courses, new sites of education that combine lectures, interactive exercises, and many other strategies for students all over the world to engage in self-directed study (Pappano, 2012). These courses are somewhat controversial, having been both lauded as the alternative to overpriced schooling, and criticized as overly reductive and pedestrian (Rees, 2013). Still, resources like these are clearly promising to the future of the Internet, as long as users apply the same level of critical literacy that they would in any other setting.

It's not the end of the world if we take "how to microwave a potato" at face value. It will certainly be unfortunate if the information is wrong, and the potato explodes, but it's a pretty straightforward experiment. However, if we choose to click "I'm feeling lucky" when it comes to current events, or to understanding new ideologies and perspectives, that decision might in fact trigger the end of a certain type of world. It will be the end of a possible world where debates involve listening and responding thoughtfully, instead of just waiting for your turn to speak. It will be the end of a world where we feel we always have more to learn. It will be the end of a world where we're willing to admit that sometimes we, and even Google, can be wrong.

*Thematic Essay 4:**A Dirty Shame: Labelling, Deviance, and the New Media Spotlight**Rapid Cycling Viral News in the Internet Age*

The progress of “new media,” and the ubiquity of crowd-sourced coverage and social media discourse, have shifted the way cultural norms are enforced and the way that individuals are identified and categorized. From the rise of written literacy, to the development of the printing press, on to the broadcast of radio and television, the development of new media has inevitably altered the way we communicate and disseminate news (Carlsson, 1995; Peters, 2009; Lauer, 2011; Thompson, 2011). With the advent of globalization, the concept of communication has shifted from local, bi-directional transmission to a worldwide spotlight, creating new opportunities for both positive fame and shameful infamy.

The news cycle of social media refreshes itself rapidly, meaning that a story can rocket into the spotlight in mere minutes, and drop from public interest just as quickly (Meyers, 2012). It still remains true that “the medium is the message” (McLuhan & Fiore, 1967). In the fickle and fast-moving online sphere, another element of this phrase has become clearer: the mood is the meaning. Whatever light a news item or event is originally presented in when it “breaks” on the Internet, that tone and perspective is likely to shape the public opinion from that point onward, no matter what new information is introduced after the fact.

Outrage is immediate and instinctual, and the immediacy of online communication reduces the likelihood of rational consideration before firing off a response.

In the Information Age, individuals face contrasting extremes. They have access to a potential platform to voice their beliefs on a global stage: when everyone and anyone can be a reporter, we now comprise the media, and we can present the news as informed by our own perspectives and social locations (Damman, 2012). However, at the same time, they face the threat of being misrepresented and cast as a target of shame under the all-seeing media spotlight. When people upload their thoughts, videos, and photos, they cannot predict the way they will be used or interpreted from that point on (Lauer, 2011; Reilly, 2013). In parallel, when local news goes “viral” in the online sphere, the original subjects of coverage have even less of a say in how they are represented than they have under traditional media coverage. The balance between the disruptive effects of crowdsourced social media, and the more hegemonic traditions of traditional news coverage, blend in a transitional hybridization (Peters, 2009; Wright, 2011; Palmer, 2012). In this shifting realm, individuals may crave attention, but they should be careful what they wish for.

Attention and Sousveillance: “Like My Status”

The traditional definition of “community” denotes an in-group in which

people share significant ties and characteristics (Nelson & Prilleltensky, 2010). In contrast, online communities seem amorphous, shifting, and many times, temporary. Attention is the new currency, as many individuals salivate at the thought of achieving “microcelebrity” status and impressing vast social networks (Tufekci, 2013). The fast pace and wide reach of the new age of media seems to whet users’ appetites for recognition and appreciation considerably more.

The structures of social media encourage a calculating engagement with “mediated visibility,” which blurs the line between self-expression and self-promotion (Thompson, 2011). The concept of mediated visibility denotes an attempt to broadcast a widespread, usually positive, image of ourselves and our lives (Lester & Hutchins, 2012). This concerted effort to appear a certain way to the world at large is marked by a deliberate and sometimes calculated performativity which can be correlated to increased narcissism and social media usage (Buffardi & Campbell, 2008; Pearse, 2012; Passini, 2013; Turnbull, 2013). The pursuit of visibility and recognition on sites like Facebook becomes an actual competition, as users wrangle to master algorithms which subtly determine their perceived popularity and promote their recognition accordingly (Bucher, 2012).

Similarly, the concept of “scopophilia” traditionally refers to the desire to look at or watch something, but Humphreys (2006) extended the term to include the continually amplified desire in modern society to be seen. She explored the

primacy of visibility as an affirmation of our successful fulfilment of our roles as “good” consumers of both culture and products. This connects seamlessly to the idea of “sousveillance,” a complementary term to surveillance, which represents individuals’ active and willing projection of their information to the larger society (Birchall, 2011; Reilly, 2013). Whereas surveillance is generally a top-down, external culling of data through observation, sousveillance is a participatory act in pursuit of recognition (Brighenti, 2007). This is reminiscent of Foucault’s (1990) identification of the confessional as a central pillar of modern practices of sexuality. For Foucault, ours is “a society obsessed not only with knowing but also with telling,” and the act of confessing our transgressions is imbued with a strange and powerful excitement itself (Sauter, 2013, p. 10). YouTube videos, blogs, social network profiles: these are our new confessionals. We want so desperately to be heard, to be recognized, and thus to be vindicated.

15 Seconds of Fame, 15 Archived Pages of Infamy

Society’s fascination with the failure or humiliation of others is nothing new, but the Internet has created a nearly frenetic news-cycle turnover, as well as a realm where members of the larger population can attempt to gain visibility that they wouldn’t have had in the era of television news. The cliché is true: the local is global now, and the effortless navigation of space allows us to watch Youtube compilations where dashcam footage of car crashes in Russia seamlessly

transition into Go-Cam captures of bungee jumping in South America. When something exciting happens, people pull out their phones, and they can upload the videos immediately. If the online populace finds the video interesting, too, it can spread virally in a matter of minutes.

The feeling of shame results as a consequence of falling short of social expectations or breaking collectively accepted rules or taboos (Brighenti, 2007; Madianou, 2011). Jacquet (2012) discussed the multiple categories which define the form that shame takes: there is the contrast between state-enforced and crowd-enforced shame, shame which is enacted in public or in private, shaming individuals or groups (such as corporations), and whether the original offense was itself public or private in nature. Monica Lewinsky (2015) poetically referred to herself as “Patient Zero” of online shame, having been the recipient of the global spotlight when her affair with the US president Bill Clinton was revealed in the 1990s. She described how she felt reduced to a label, with her essential humanity overlooked in favour of swift condemnation. No one ever asked for her side of the story: she was merely shoved into the public eye and forced to deal with the fallout.

The recent past is full of examples of rapid cycles of public shaming on the Internet, but one that stands out in particular is the “Has Justine Landed Yet” incident. A young woman tweeted a thoughtless and racist “joke” just before

boarding a lengthy international flight. Someone noticed, shared it, and it rapidly went viral, outraging the majority of Twitter users. While she was still in the air, the online sphere blew up, and the hashtag “Has Justine Landed Yet” trended across the site and sparking widespread news coverage (Brown, 2014). The cornerstone of this viral uproar was the fact that she was employed as a prominent public relations manager, making her blind misstep even more shocking (Withnall, 2013). Although Sacco’s original “joke” was crass, unfunny, and offensive, the mob mentality displayed in this backlash was aggressive beyond the point of productivity. What could have been a teaching moment turned into a seething mass of rage, as people all over the Internet waited impatiently for her to land and respond. She landed, she caught wind of what was going on, she shut down her Twitter account and got fired shortly afterwards (Hill, 2013).

Though the frenzied mob reaction to Sacco’s misstep was worrisome, there was one notably creative response. Someone bought the domain name <http://www.justinesacco.com>, and set it up to redirect to the donation site for the “Aid for Africa” charity site (Withnall, 2013). A productive step like this motivates people to translate their anger into positive action. This can undermine the ingrained effects of social privilege, which makes someone like Sacco feel comfortable “to act without consequences and as if one had the right to set the rules” (Choules, 2007, p. 472). As everyone incited an angry swarm, the

underlying reason for this fury was not discussed in the public forum: the fact that, even if it was intended to be sarcastic, her statement was callous and dismissive of the systemic health problems which she was insulated from as an American citizen. Taking the path of opening conversation, and encouraging contributions to a relevant charity, is certainly more in the spirit of Community Psychology than tearing someone down on the public stage.

However instrumental shame may seem as a social tool, we see it abused again and again on the Internet. With one tweet, Justine Sacco lost her job, shamed her family, and became a pariah everywhere she went (Ronson, 2015). The outrage that arises as a scandal breaks may be wholly justified, but in the current climate online, the public response almost always veers wildly out of control. The mob mentality which drives crowds to overreact and even incite violence is more likely to happen in larger groups whose members can maintain relative anonymity and escape repercussions for their words or actions (Donley, 2011). Quite obviously, these conditions describe the realm of the open Internet very accurately.

Mob Mentality, Trolls, and the Erosion of the Social Contract

Trolls are people who deliberately provoke other Internet users, aiming to cause chaos and anger (Lessig, 2008; Shachaf & Hara, 2010). Jonathan Zittrain suggested that trolls approach the Internet as a source of entertainment, not as a

source of community activity, and thus they continue to treat it as a game even when they escalate into very dark and dangerous territory (Big Think, 2015). D’addario (2013) was more skeptical about the widespread condemnation of trolling, as he argued that the term has been so generically overused that it’s lost its original meaning. Whereas the word “troll” was once reserved for those who clearly sought conflict through spouting extreme, offensive opinions, now that the larger population has learned the label, it is utilized functionally to describe “a person who disagrees with me.” D’addario may well be correct about the term’s imprecise use, but that doesn’t discount the importance of identifying and understanding Internet users who genuinely aim to violate, and even decimate, the unwritten social contract.

One of the most dangerous and direct ways that Internet drama can cross over into the real world is through the act of “doxxing.” Doxxing, or investigating the traces of a user’s online activity in order to uncover their real-life identity (their “documents”), is not a joke (Quodling, 2015). When someone takes the effort to truly doxx someone, there is an inherent threat in that action, not just of blackmail but of potential genuine harm. Posting someone’s address, phone number, workplace and personal history online renders them helpless against the vast hordes of Internet users. The doxxed individual is the only one fully exposed, while all of their attackers are still shielded by their relative

anonymity. Combine this with the ubiquitously reactionary mob mentality of momentary outrage, and you have a truly dangerous situation on your hands.

Tom Scott (2010) described a metaphorical chain of events that is, sadly, entirely within the realm of possibility in the current age. His short and captivating speech detailed the viral dissemination of a video of a girl singing, taken without her knowledge, followed by swift doxxing which reveals her street address, and ending in a chaotic and riotous ‘flash mob’ gone wrong. This story is extreme, and it’s fictional, but it’s not that far off from reality. Doxxing has already escalated into “swatting,” in which trolls report an emergency at the target’s address to the police, resulting in their sudden, and potentially violent, entrance to those premises (Quodling, 2015). When the crowd thirsts for blood, and the mob mentality reigns supreme, this danger is even more intense. The larger the group is that has access to someone’s real identity, the more likely it is that one of the group members will take a rash and violent action against that person (White, 2006).

Monica Lewinsky (2015) identified the Internet’s apparent tendency for desensitization as the source of a permissive environment for invading individuals’ privacy and humiliating them. We see a consistent, disproportionate crowd response in this mob mentality, inciting what Weigert (2015) called a “shame-storm.” This seems to fly in the face of the original vision of a free and

open Internet that still maintained reasonable community standards for respectful behaviour. In the early years of the Internet, though anonymity was the norm, there was an unspoken social contract revolving around “netiquette” and the various expectations within the realms of chat rooms, forums, and comment sections (Gerhards & Schafer, 2010). Now, despite the existence of paths to report or “flag” abusive behaviour on many sites, and the gradual movement to associate online profiles with real life identities, we still see anonymity enabling outright cruelty in many cases.

It appears that with many of the recent outrages resulting from cyberbullying and hate speech campaigns, the public majority is taking a somewhat united stance: anonymity is not unequivocally earned, and should be revoked when someone begin to use it to abuse others (Swash, 2012). This idea, that the right to anonymity on the World Wide Web only goes so far, can be a dangerous one, and there is still a wide chasm between government regulation and grassroots vigilantism in enforcing it. However, as Brown (2014) emphasizes in an eloquent blog post, freedom of speech is not the same as freedom from its consequences, and the concept of free speech becomes irrelevant altogether once that speech begins to encourage hatred and violence.

The Fallout: What Happens When the Spotlight Leaves?

It’s a simple and inescapable fact of modern public relations strategizing

that if you try to cover up scandal or embarrassment, whether by attempting to delete existing information about it or even threatening lawsuits against those who discuss it, it will become infinitely more visible as a result of those efforts. In popular Internet parlance, this is called the “Streisand Effect,” a tongue-in-cheek term coined by the blogger Mike Masnick (Cacciottolo, 2012). This phrase refers to the viral aftermath of Barbra Streisand’s futile 2003 lawsuit, which demanded that a public photo archive remove pictures of her estate taken from the sky (“What,” 2013). The lawsuit, which intended to protect the actress’s privacy, was publicly perceived as an attack on the open values of the Internet, and thus garnered far more attention and publicity than the pictures would ever have received if she had left them alone (Parkinson, 2014). The related practice of “reputation management,” the process of cleaning up the messy traces of one’s online presence, is well-established (Bilton, 2011). This service is arguably necessary because at this point, employers almost universally “cybervet” potential hires by searching their names online (Dalgord, 2012). Even those who are already gainfully employed can lose their jobs from a single social media misstep, a judgment call that is entirely relative and difficult to predict (Garone, 2013).

The comedian John Oliver provides a snarky take on a recent attempt to set legislative precedent in the European Union, in which a citizen attempted to establish “The Right to Be Forgotten,” forcing Google to take down undesirable

search results. Oliver's reflection upon this man's battle brings the Streisand effect to mind: the only thing we now know about him is what he is fighting in court to keep the world from knowing. Oliver proposes the humorous concept of a global online amnesty, "#mutuallyassuredhumiliation," in which all Internet users cut to the chase and post the most humiliating pictures of themselves in solidarity. It's a goofy take on the issue, true, but it solidly covers the facts at hand. It is impossible to hide things from the Internet, in an era when search engines can maintain a 'cache' of deleted data indefinitely (Segev, 2005). However, we are also all in this together as a sort of community, whether we get along or not.

When discussing the collaborative methods of modern international intelligence communities, Werbin (2011) eloquently described that "social media does not forget. Not only is its memory persistent and difficult to correct, but it is also parsed and distributed and thus open to recombinant logics and endless accumulations in endless forms across indefinite platforms" (p. 1260). The Internet which we access is like an all encompassing collection of "present states," from the first moments of the World Wide Web to the current day. Though search engines may primarily pull from the most recent history, all the track changes are still traceable (Hellsten, Leydesdorff, & Wouters, 2009; van Dijck, 2010a). Like almost all issues revolving around the Internet age, this

storage of infinite iterations and “versions” of the World Wide Web and its databases can be used for good or bad purposes. You may be elated to stumble across that old high school picture on your forgotten MySpace page, but you may also be terrified to be stalked or viciously pursued by someone who has tracked you down through careless traces you’ve left behind over the years.

We might never eradicate cruelty and mob mentality from human nature. What we can do, however, is try to maintain vigilance about where we are directing our norms of public communication in the social media age, how and why these boundaries are shifting. Without falling into the camp of blind optimism or dark pessimism, we can try to maintain community conversations about what is working, what is toxic, and how we might be able to strike a balance (Siapera, 2014). As Monica Lewinsky (2015) strongly and succinctly stated in her TEDTalk, “shame cannot survive empathy.” Perhaps in this age of snap judgment, reactive crowds, and anonymous bickering, we can take her words to heart and employ a bit of empathy when we hear about the next big scandal.

*Thematic Essay 5:**Transmit or Get Off the Net: Apathy Versus Collaboration in the Internet Age
Communication, Collaboration, and Participation in Online Communities*

Julian Rappaport, a founder of the field of Community Psychology, echoed a central tenet of activism when he urged practitioners to “know the system before you try to change it” (1977, p. 154). Progress toward social change inevitably depends upon communities’ ability to band together, collaborate, and engage in determined activism. In Community Psychology, social power is seen as an intersection of the ability to enact change and of access to opportunities to do so (Nelson & Prilleltensky, 2010). Ability, in this case, does not refer to an assumed innate strength, but to a degree of agency within the larger societal structure. Opportunities to enact change can arise from shifts in a society’s political climate, or result from communities’ deliberate efforts to forge such opportunities for themselves through activism.

Norms of communication and collaboration have changed drastically in the age of the Internet and computer technology. In order to effectively engage the new tools for digital activism, it is crucial to identify the strengths and weaknesses of these available strategies and platforms. The way individuals construct concepts of their own identities, and the way the larger online population “crowdsources” information, have changed the game for community-

building (Lagos, Coopman, & Tomhave, 2013). After all, data transmission itself has always relied upon interpersonal collaboration, since the origin of Internet peer-to-peer sharing networks (O'Hara & Stevens, 2006; Austin, 2009; McKinnon, 2012). Now, there are a wealth of web sites which rely upon the collaborative production of media and information, including a navigation of open-ended peer review for content submission and site philosophy (Deuze, 2006; Baron, 2009).

Respect for cultural diversity is a central value in Community Psychology, and is also prioritized in most activist movements (Nelson & Prilleltensky, 2010). Optimistic perspectives on the Internet's potential, especially those espoused in its infancy, have declared it to be an ideal realm for open dialogue and inclusivity which transcends demographic and ideological differences (Slack & Williams, 2000; Lindgrem & Lundström, 2011). However, much of the qualitative research that has focused on Internet users suggests that in-group preferences still dominate most people's activities and community membership online (Lingus, 2005; Simran Sethi, 2012). This reality runs the risk that supposedly collaborative projects will become splintered and sequestered into echo chambers which reflect the opinions of self-segregated communities. A conscious effort to infuse activism with solidarity and inclusivity may prevent this from happening.

Community Psychology is deeply anchored in traditional social activism

organizing principles, tied to local settings and hands-on, grassroots techniques (Trickett, 2011). These principles generally emphasize the maximization of activists' time and resources to gain media visibility, raise public awareness, and to raise the potential societal costs (both literal and figurative) for not changing unjust policies (Tatarchevskiy, 2010). One of the strengths of the sort of activism that prevailed before the age of the Internet is its tendency to form strong community bonds and relationships, since showing up in person and working side by side seems to forge more permanent social connections (Mattelart, 2002; Smith, Bellaby & Lindsay, 2010). Additionally, traditional activist strategies often work within, or parallel to, existing civic and political structures, and thus may have a greater impact on traditional legislative processes.

While the Internet has opened new avenues of visibility for activist causes, it has also ushered in an age of passive participation, sometimes referred to as "slacktivism" (Dixon, 2011; Fisher, 2015). Critics of this contemporary trend, which is rampant on social media, suggest that it can actually undercut participation in traditional activist movements. However, there are some serious weaknesses in the tactics of traditional activism itself, which may be leading it into incongruity with the digital age. One of the biggest issues is that it's hard to get people to show up for real life events, protests, and meetings anymore, and many people will commit to participation in voice alone (Petray, 2011). As far as

organizing strategies themselves, traditional activism moves painfully slowly in comparison to the swift trends and media cycle of the online world (Rosenau & Johnson, 2002; Pickard, 2006). In terms of societal visibility, it is easy for mainstream media to provide selective coverage of activist events, or to provide an incomplete or biased account of the protesters' message and vision (Dunbar-Hester, 2009; Lester & Hutchins, 2012). The Internet age has undermined some of these roadblocks, while creating entirely new ones in their stead.

Slacktivism and Surface Participation in Online Movements

Slacktivism revolves around the notion that clicking "like" or vocalizing support online will have an impact on real life problems, and it employs the virility of social media networks to increase awareness of political causes (Fisher, 2015). Though some denigrate this online activity as useless, others argue that it is a crucial component of awareness-raising, and a vital first step toward true social change (Sutter, 2013; Fisher, 2015). In 2012, research illustrated that individuals who were active online participated more frequently in local community politics such as contacting their political representatives (Xie, 2013). Indeed, a Georgetown University study showed that Internet users who participated in slacktivist actions were also twice as likely as the average citizen to become involved with real-world activism (Dixon, 2011). However, there is a significant economic class gap in slacktivism participation, which is traceable to

apparent disparities in technological literacy (Xie, 2013).

It is crucial to maintain vigilance regarding the motives and machinations of the platforms upon which we establish these networks of action and communication. Facebook continually presents as the largest online social media gathering space (D'onfro, 2015). Therefore, Facebook increasingly dominates users' interactions with the Internet, and it is becoming one of the largest origin points of traffic for external news sites (Lafrance, 2015). In fact, recently the site has started the process of internally hosting various news sources, providing the original publishers a portion of ad revenue in exchange (Fitts, 2015). When users never have to leave the platform of Facebook to access the news, the site gains more and more control over what they read. The site has gotten exponentially better each year at enticing its users to get more deeply absorbed in its platform, to freely provide all their information and thoughts, and to trust Facebook's interface and perceived political neutrality.

In reality, Facebook is a for-profit company, not a public town square. Given the available information about Facebook's manipulation of its user platform, the appearance of neutrality which some users take for granted is a misconception. Facebook consistently and purposefully promotes specific content from general pages that users have "liked" in the past, presenting the false impression that the users are specifically endorsing those announcements or posts

(Bott, 2012). The site also consistently bows to government requests to block user posts and contents that may be seen as offensive or dissident in their country of origin, although Facebook claims to follow a strict set of guidelines when making these decisions (Roth & Herszenhorn, 2014). Additionally, Facebook's censorship guidelines are enforced by automated filters, and when information is incorrectly censored, it can be incredibly difficult to have it restored (Rowland, 2013). Although the site's monitoring and removal of content currently seems to be limited to incredibly controversial global issues, their opacity about both their guiding algorithms and internal policies ensures that this censorship could shift or extend at any point. Another reason for concern is that the decision-makers behind the scenes belong to a largely homogenous and privileged demographic group, which may subtly guide judgments on content censorship and exclusion.

Diversity and Inclusion in the Internet Age

Information technology companies have come under fire for a perceived lack of diversity in their hires and workforces. For example, Facebook's internal review reported a workforce that was overwhelming white and Asian males, particularly in technical and administrative roles, and Google and Yahoo have reported similar statistics (Johnston, 2014; Machkovech, 2014). Fan (2014) suggested that those who argue that Silicon Valley has no hiring bias often emphasize the field's significant representation of Asian males, overlooking the

fact that a two-factor monoculture is still basically a monoculture. Though the progress beyond an entirely Caucasian male workforce is a positive thing, the majority of participants still represent a self-replicating “cultural fit.”

Significantly, within the comment sections of the news articles cited above, self-reported white males bemoaned what they consider “affirmative action” hiring, claiming that the existing demographic statistics likely reflect the pool of qualified candidates for these jobs.

This inequity represents a pervasive misunderstanding in Silicon Valley of how unconscious and systemic biases about race and gender can pervade corporate culture (Mitchell, 2014; Nocera, 2014). During the hiring process, this implicit bias often takes the form of a focus on “culture fit,” which leads to hiring workers who look and behave like the majority of a company’s existing employees (Williams, 2014). A 2013 study showed that even when potential employers only had information about candidates’ appearances, both men and women were twice as likely to hire a male candidate over a female for a math-based task (Reuben, Sapienza, & Zingales, 2014). The effects of unconscious bias do not end with the hiring process: women and people of colour report experiences of alienation and judgment within the workplace, from being vocally stereotyped to having their ideas discounted or co-opted by other employees (Diallo, 2015; Sandberg & Grant, 2015).

When Eric Schmidt, the Executive Chairman of Google, continuously interrupted his female colleague during a public panel on diversity, it shone a spotlight on this tendency to discount the contributions of women and people of colour in Silicon Valley (McDonough, 2015). Eric Schmidt's unconscious misstep had a positive outcome: when his mistake was pointed out, he apologized. This was a crucial public message sent by a powerful player in the industry, and contrasted significantly with the statement by Linus Torvalds, founder of Linux, that efforts to increase diversity in the field amount to nothing but a quest for "niceness" (Machkovech, 2014). Although there is certainly no expectation that Torvalds, who has deeply committed his life to maintaining and improving the technical core of Linux OS, should devote his own time to fighting against industry discrimination, his expression of apparent disdain for those who do highlights the uphill battle for workplace diversity.

There are efforts to combat the deep-seated nature of these diversity issues, though, such as Intel's recent pledge of \$300 million which will primarily be applied to support more women and people of colour in the pursuit of technology-related degrees (Cunningham, 2015). Significant effort has been put forth to ensure that women have a fair chance to access education and employment opportunities in this sector. Additionally, Google has devoted significant efforts to building an internal culture which is more aware of

unconscious gender bias (Baer, 2014; Manjoo, 2014). When viewed pragmatically, these efforts to increase diversity are not merely an attempt at social justice, as companies with a more diverse workforce consistently demonstrate greater equity and profits (Surowiecki, 2014).

“Intersectionality” refers to the complexity of our social locations, embodied by the combination of ways in which we are each privileged and those in which we are each marginalized (Lutz, Vivar & Supik, 2011). In relational terms, no single person holds complete social power, just as no individual is completely powerless in every social context (McIntosh & Hobson, 2013). Acknowledging this reality creates new opportunities to build allies across categories of difference, and invite people with relative privilege to explore what they share in common with marginalized people. This fosters an attitude of inclusive diversity, and overcomes the misconception that campaigns for increased diversity represent a focus on liability rather than strength (Lykke, 2010).

They Who Build the Stage Choose the Speakers

Individuals' roles shift in the informational age, as their opportunities for work, education and self-expression become increasingly self-directed (Webster, 2007). Once, an individual would have to go through many levels of authority to get a headline carried in the newspaper; with the internet, formerly unheard

perspectives can spread across the world (Lipschutz, 2005; Lester & Hutchins, 2012). These public negotiations of individual identity and ideology have moved from abstract functions to literal, concrete interaction within computer networks. However, this new source of agency has a learning curve, and requires people to understand how to wield technology to accomplish their own aims. Kevin Kelly (2007) pointed out a more ephemeral aspect of the existing digital divide, explaining that “there are those alive for which we haven't invented their technology of self-expression.” In other words, some of the people who would benefit most from online communication may not yet have access to desirable platforms for such opportunities.

Why are the representative demographics of Silicon Valley relevant to the aims of activism in online communities? It would be easy to try to draw a line and claim that the business world is its own, separate realm, insulated from the morality and aims of the grassroots crowd. However, it is not necessarily the corporate status within companies like Google, Yahoo, and Facebook that are crucial to structuring a fairer future for all Internet users. It is the technological aptitude and influence upon shaping the online landscape which is crucial to social change.

Kimberly Bryant (2013) explained that black women comprise 3% of the information technology industry, while Latina women represent less than 1% of

that workforce. She also shared the fact that across the board, women's involvement in IT has plummeted since the earliest days of the Internet. As discussed above, the subtle emphasis on "cultural fit" within corporations encourages a mirror effect, in which the demographics of the company are replicated in their hires. However, this is not the only issue hindering the participation of diverse demographics. Bryant (2013) agrees that the supposed "pipeline" problem of diversity in hiring, the claim that there is a limited pool of applicants for these jobs who are female or people of colour, is a reality.

Therefore, in order to enable equal representation in the digital age, it is necessary to redefine discussions of race, gender, and their intersectionality in terms of the digital divide (Bryant, 2013). A focus on empowerment through self-determined participation would pave the way for underrepresented communities to make their mark on the Internet. An excellent example of the utilization of different spaces and platforms by traditionally marginalized groups is the phenomenon of "Black Twitter." This colloquial phrase refers to the comparatively large, and politically vocal, African American community on the social networking site Twitter (Smith, 2014; Ramsey, 2015). This phenomenon may indicate that for the African American community, the interface and functionality of Twitter may feel more accessible and empowering than other platforms. This community's widespread participation on Twitter has led to the

successful establishment of activist campaigns which challenge systemic racism and highlight the distressing levels of violence against people of colour in the United States (Ramsey, 2015). With this successful utilization of Twitter as a tool for activist visibility and communal solidarity, we can only imagine what will happen when there is a higher representation of people of colour in the programming and technology startup industry, designing the next platforms for social communication.

Memes, Social Networks, Hyperlinks: Balancing Entertainment With Action

There are useful things about the tactics that make up slacktivism: it takes advantage of the fast-paced transmission of memetic concepts, and the Internet's ability to cross barriers of space and demographics. There is also a stunning amount of collective time spent online, often on sites like Facebook or social media. Additionally, activist movements do not often acknowledge the vast reserve of online gamers who utilize problem solving skills in their daily leisure and collaborate in massive group efforts (McGonigal, 2010; Schaaf, 2014). The greatest flaw of slacktivism is literally encapsulated in its name: it seems to represent a pattern of passivity in which people want to exchange minimal participation for a feeling of instant gratification. Social media is also notorious for its short attention span, and the constant turnover of the "next big scandal" which is often rooted in shock tactics and a superficial analysis of what has

occurred (Sicha, 2014). Therefore, like many activists before them, online slacktivists need to learn how to organize infrastructure to pursue meaningful and lasting social change, rather than relying on short-term and reactionary campaigns (Xie, 2013).

Foucault's (1970) *The Order of Things* postulates that from the sixteenth through the nineteenth century, Western society transitioned from primarily utilizing representations based on analogy, to using representations based on analysis (p. 55). Perhaps in many ways, the shifts we see in the norms of Internet communication are now further transforming those representations based on analysis into representations based on memetic networks. In the context of the Internet, "memes" are usually image-based, often humorous, little snippets that are easy to post and spread widely across the Internet (Gleick, 2011; Jurgenson, 2012). With online communities' fluid colloquial communication, as well as the speed and widespread range at which things "go viral," it makes sense that we could engage these trends to involve the larger population in activist movements.

There are strengths in the hypnotizing, memetic speed of what we call slacktivism. Yes, we love watching exciting videos, playing games, and devoting huge amounts of time to social media, and there's no reason to feel guilty about that. The next important frontier in social change will rely upon who is making those videos and games, and who is designing and controlling the growth of those

social media platforms where we devote so much of our time. Malcolm Bell (2013) suggested that we can translate our desire to share things about ourselves and indulge in entertainment to make a real impact in the world, and leave behind a lasting legacy. So, the big question around slacktivism remains: can we save both the element of gratification and the desire to make a difference, while compensating for the “slack?” Can we engineer and orchestrate efficient infrastructures for viral activism that requires low levels of commitment but yields effective returns on a global scale? That will depend entirely on who designs these networks, sites and services in the near future, and where their values and priorities lie.

*Thematic Essay 6:**Discipline & Index: The Tension Between Control and Freedom on the Internet**The Roots of Power, Control and Resistance in the Information Age*

Community Psychology analyzes macrosystems, as found in the interaction of larger institutions and forces in society (Bronfenbrenner, 1994). Similarly, Michel Foucault's work was a study of such social systems at various points in history, with a particular focus on their effect on individuals' behavioural practices (Gillan & Lemert, 1982). Approaching history with the larger picture in mind creates an ideal opportunity to track the larger tension between top-down institutions and the grassroots communities which may either support or resist those institutional forces. Community Psychology also accounts for the "dynamic equilibrium" of these systems, which is particularly vital to understanding the influence of contested ground between state-led powers and activist communities (Rappaport, 1977, p. 155).

There has been a push and pull between government funding and academic pioneering since the very origin of computer technology. During the World Wars of the early twentieth century, dominant nations engaged in conflict raced to advance their mechanical capabilities for encryption, decryption, and surveillance (Winston, 1998). Following these wars, the rapid development of ever-faster and ever-smaller computer hardware components continued for

decades. As the Cold War intensified, the US Department of Defense shifted its attention to the possibility of implementing a decentralized communication system in case of nuclear combat. As a result, the venture of a data transmission network called “ARPANET” was funded, with the development largely delegated to secondary academic institutions where research into local area networks had already started (Curran, 2009; Brunton, 2013).

Some of the researchers who helped create ARPANET went on to work at major technology corporations, bringing their experience and thus triggering the first steps toward private development of network capabilities (Hughes, 2004; Terry, 2014). As these efforts became more visible, enthusiasm spread amongst computer hobbyists and early adopters, so that by the 1980s, the progress of these transfer networks was largely in the hands of the earliest “hackers,” or dedicated programming enthusiasts (Thomas, 2005; Brunton, 2013). The grassroots utilization of dial-up modems over telephone connections, and the establishment of collaborative bulletin board systems, cemented the independent establishment of an open network infrastructure that spread like wildfire (McKinnon, 2012).

In 1995, at the CERN research facility, Tim-Berners Lee produced the prototype for what would become the World Wide Web that we use today (Chodos, Murphy & Hamovitch, 1997; Terry, 2014). The possibilities of the Internet were continuing to expand beyond the purview of centralized government

design. The rich tradition of user-led development, in which products are tweaked by individuals to suit their needs and overcome limitations, has consistently led movements in the larger industry and shaped the progress of the information technology field (von Hippel, 2011). The evolution of the Internet illustrated a push-and-pull between the governmental aims of its inception, and the vision of a free and open realm of “many-to-many communication” (Chodos, Murphy, & Hamovitch, 1997, p. 55).

Control: Internet Surveillance and Increasing Restrictions Upon Online Freedoms

Contrary to popular opinion, the recent upsurge in centralized surveillance is not the result of corporations or governments gaining more interest in tracking citizens. They have always been motivated to monitor populations as thoroughly as possible, but only recently have we developed the technical capabilities for the level of sophistication we see in GPS tracking, ubiquitous closed caption recording, and the establishment of ever-expanding databases (Soltani, 2013). The transition from explicit observation to “dataveillance,” in which complex profiles of each individual are compiled based on the data traces of their activity, has changed the game, as far as privacy and autonomy are concerned (Bady, 2011). A crucial component of surveillance and tracking lies with devices’ output of metadata, information attached to media which gives specific information

about the origin of those files (Vaidhyathan, 2011). The tracking of individuals' movements, the content of their telecommunications and correspondence, and databases of their physical appearances are all being utilized by governments under the guise of fighting crime and terrorism (Lauer, 2011).

The development of surveillance and location tracking technology is briskly evolving. For example, RFID chips, which are tiny microchips utilizing radio transmission signals to broadcast an object's location, are being gradually incorporated into passports and other forms of citizen identification (Hayles, 2009). Last year, the FBI launched a highly accurate facial recognition system in the United States, and they are compiling a massive database which will include cross-reference to identifying bodily marks and descriptors (Pagliery, 2014). Canada is not far behind, as the federal government continues to push for looser restrictions regarding the collection and use of biometric data (Mas, 2015). Major companies like Google and Microsoft have vocalized their opposition to NSA surveillance programs and other apparent transgressions against citizens' data privacy (Zetter, 2014). Interestingly enough, these technology corporations are less transparent about their own practices of dataveillance and customer profiling.

Most users might think they need to have the satellite setting turned on for their phone's location to be tracked. In reality, companies like Google have been perfecting "peer-to-peer" location finding for nearly two decades, in which device

locations are extrapolated and logged by triangulating their data connection and their proximity to area WiFi networks (Madduri, 1998). Rather than questioning these private corporations' surveillance strategies, the United States government has demonstrated its intention to follow their example and adapt these technologies, both to track users and to perform analyses of the larger population's online activities (Baron, 2009; Vaidhyanathan, 2011).

Werbin (2011) investigates the effects of the intelligence community's increasing use of data mining, and the way that these practices influence and shape the behavior of the profiled targets. As we grow more accustomed to sharing data about ourselves and our movements through social media interfaces, we begin to shape our behaviour to fit into the norms of those platforms. Once we decide to leave our satellite GPS tracking turned on and publically visible, it follows that we would "log" our travels, "checking in" at various locations and broadcasting our public movements and actions. Once we've internalized the concept that our memories belong on Instagram, posted a mere moment after we make them-- once we're used to parsing Facebook events to figure out what's going on in our communities and social groups-- once we automatically Google every question that pops into our heads, no matter how fleeting-- it becomes an effortless task for monitoring to compile all of this information into centralized databases.

Some of the most vocal critics of the US government's subtle but totalizing surveillance efforts are smaller companies that are at the forefront of developing independent security technologies. In particular, industry watchdogs have attempted to expose the FBI's potentially unconstitutional use of International Mobile Security Identity catchers [IMSI-catchers], which allow agents to eavesdrop on mobile devices remotely, while presenting the appearance of a functional cell phone tower (Soltani & Timberg, 2014). In California, an investigation showed that both the San Bernardino and the Sacramento Sheriff's Departments had used IMSI-catcher technology extensively without obtaining appropriate warrants, a circumstance about which they still refuse to release documented confirmation or denial (Farivar, 2015a; Farivar, 2015b). With the constant obfuscation of these behind-the-scenes practices, it is no wonder that many Internet activists have taken it into their own hands to uncover information and disrupt surveillance practices.

White Hat/Black Hat: Hacktivism, and Subversive Resistance

Since the origins of the Internet, some of its most skilled users have employed their computers not just as relays for communication, but as unique tools for disruptive action. "Hacktivism" is, in its simplest definition, civil disobedience utilizing technological platforms (Karatzogianni, 2004). In general, hacktivists aim to counterbalance or fully undermine what they see as the

oppressive impact of totalizing control enacted by governments and global corporations (Söderberg, 2013). Hacktivists pursue the radical disruption of centralized data systems and websites, and take advantage of tools to ensure their actions remain untraceable and anonymous (Kushner, 2013). Though there is often a great deal of solidarity for hacktivist movements online, by their very definition they are loose affiliations, with both blame and acclaim belonging to everyone and no one at once. Hacktivists can employ light-handed tactics that merely aim to gain the media's attention, or they can engage on a much more destructive front by penetrating security systems and wreaking havoc.

WikiLeaks began in 2006, set in motion by an ideologically motivated hacker named Julian Assange (Pontin, 2011; Birchall 2014). The project's intent was to track down information and documents about government and military operations which Assange saw as abuses of power or elements of authoritarian conspiracy (Assange, 2006). By 2010, WikiLeaks had gained widespread recognition. One of its better known releases was a video demonstrating a callous overuse of force in a Baghdad airstrike, which resulted in death and injury to innocent bystanders (Assange, 2010). Obviously, such leaks garnered extreme but mixed reactions from the general public (Lindgren & Lundström, 2011).

Pontin (2011) expressed a mixture of skepticism and grudging respect for the driving mission of WikiLeaks, leaning more toward criticism of its potential to

destabilize government operations, but endorsing the underlying vision of journalism as a force for transparency. For his part, Assange (2010) maintained that WikiLeaks was a legitimate media organization which produced crucial information in the modern, over-extended military state. He countered the popular criticism that WikiLeaks has tarnished foreign sentiments about the United States, as he pointed out that the global citizens most affected by the US military already see these abuses on a daily basis, and that it is the residents of the United States itself who have been oblivious to these war crimes perpetrated abroad.

Recently, multiple academic and government agencies collaborated to produce a study on the current state of cybercrime in the United States, finding that most organizations are woefully underprepared to deal with the skill and capacity of “black hat hackers” (Mickelberg, Schive, & Pollard, 2014). Black hat hackers utilize their extensive computer skills to penetrate and disrupt security systems, generally for the purposes of crime, pranks, or to make extreme political statements (Thomas, 2005). Numerous US police departments have fallen prey to “ransomware” attacks, in which black hat hackers encrypted all of their systems’ data and refused to release it until they were paid a fee in untraceable Bitcoin (Bray, 2015). Similarly, the US State Department was unable to exorcise a group of Russian hackers from their email system for three months, as every time they

resolved a security breach, another immediately popped up (Thomson, 2015). Internationally, a group of hackers of unknown origin managed to siphon millions of dollars from banks all over the world in what was clearly a complex and long-running attack, involving multiple layers of malware dissemination, identity impersonation, and alteration of digital records (Sanger & Perlroth, 2015).

On the other end of the spectrum, “white hat” hackers aim to expose security flaws in systems in order to help fix and strengthen them (Thomas, 2005). One white hat hacker recently uncovered a breach in Facebook that would have allowed him to delete every photo that had ever been uploaded to the site (Stockley, 2015). Luckily, rather than following through with this threat for laughs, he contacted Facebook and was able to secure a monetary reward through their “bug bounty” program (Muthiyah, 2015). Bug bounties are offered by most major online companies, as an incentive for hackers to come forward with system flaws instead of exploiting them. There is significant debate regarding whether this has actually made the Internet more secure, but it is generally agreed upon that it creates a more amiable climate between corporations and hobbyist hackers (Zetter, 2012). At the end of the day, cybersecurity experts are most likely to build successful protective measures by thinking like a hacker, and turning black hat tactics against their perpetrators (Bloomberg, 2014).

On the much more informal and immature side of the Internet is the long-

standing community of 4chan. 4chan is best known on the Internet for its combination of anonymous forums and its users' significant pooled resources of technological capital (Dibbell, 2010). In other words, 4chan has a higher-than-average population of skilled hackers. Collaborative actions originating on the site can range from white hat protest campaigns to black hat harassment and pranks. The site is raw and unfiltered, and its user base can be aggressive and combative to apparent newcomers, who they identify primarily by an inability to follow 4chan's intensive insider jargon (Poole, 2010). 4chan is just as well-known for being the origin point of classic Internet jokes as it is for being the home base of the radical hacktivist collective, Anonymous (Woolf, 2015).

When members of Anonymous intend to wage a new campaign, they launch a written message or voice-modified video, usually consisting of an ultimatum that must be met or a warning will be carried out. The organization prioritizes a non-hierarchical structure, and generally considers anyone who chooses to identify themselves or seek press attention to be self-congratulatory and egotistical (Kushner, 2014). Rather than recognition, Anonymous members claim to desire to see justice in the world, however they define it (Kushner, 2014). The collective does not rely upon leaders but instead is what Norton (2012) refers to as a "do-ocracy," in which any associated member feels complete freedom to take immediate action in the name of the larger group.

This amorphous structure inevitably leads to some silly operations, but it has also produced a few game-changing revelations. One of these was the collective's raising of the Steubenville Rape Case into national awareness: a young girl was raped by multiple football players in a small town in rural Ohio, and despite her attempts to seek justice, it was ignored by both the school and the police (Kushner, 2013). An Anonymous member stumbled across the obscure page of a Steubenville blogger who was trying to draw attention to this injustice, and soon enough, the entire country was watching, and justice was served. Unfortunately, heroic actions like these do not change the official perspective that groups like Anonymous border on terrorism.

Scapegoats and Criminals: Campaigns Against Anonymity

4chan's founder Poole (2010) pointed out that in the current age of social media, we are moving further and further towards ubiquitous persistent identity, or the fixed association of our online accounts with our legal identities. In a world where we are under the constant threat of surveillance, taking actions against perceived injustice can carry incredible risk. Anonymity is potentially the strongest tool an activist can have in the current age. As Poole himself explained, the social strength in complete anonymity is its erosion of judgment and hierarchy: "it's incredible what people can make when they're able to fail publicly without fear" (2014a). In terms of more radical politicized action, anonymity

instead determines the difference between freedom and incarceration.

For many decades, the United States government has instigated various periods of “moral panic” around the existence and activities of hackers, based upon the actions of the much smaller demographic of black hat hackers who use their skills to perpetrate crimes (Thomas, 2005). This has tarnished the word “hacker” itself, through continual association with misdeeds. However, members of the community often still cling proudly to the title, because they understand its functional meaning as an indicator of technical prowess. The castigation of hackers is just one in a long series of governmental “otherings,” in which a specific group is depicted as complete enemies of the state, and even misidentified as the primary threat to the safety of a nation’s population (Blain, 2009). By convincing the public that they are always on the verge of victimization by these clearly delineated “enemies,” the state can justify extreme and total eradication of any related campaigns of dissent.

When the possibility of anonymity is eroded, it becomes easy for institutions of power to cast a single transgressor as a scapegoat, to serve as an example of what can potentially happen to those who break established codes of behaviour (Coleman, 2014). One such scapegoat was the Internet activist Aaron Swartz, who was arrested for downloading a large amount of articles from an academic database, and was then faced with decades of potential prison time

(Collier, 2015). Swartz had a long history of mental illness, and the intense stress of the trial led him to kill himself (boyd, 2013). Similarly, Deric Lostutter, the driving force behind Anonymous' massive exposure of the Steubenville rape case, is now facing a potential jail sentence eight times the length of the one the convicted rapists received (Kushner, 2013). His supposed crime is hacking into social media accounts associated with the scandal, a charge he still denies. Like Swartz, he was a high-profile target for prosecuting agents who want to "send a message" to hackers. It seems to most members of the information technology community that the real offenses these young men committed were their challenges towards an archaic and broken system, in which information is locked away behind expensive doors and rape reports are never filed.

Willcocks (2006) points out Deleuze's effective adaptation of Foucault's disciplinary society to the concept of a control society, which relies more on material technology than physical confinement to corral and influence its population. Poster (1989) agrees that this is the most useful contemporary adaptation of Foucault, as he conceptualizes a "superpanopticon [... in which] contemporary surveillance is a product of new methods of *information* processing, not brute force" (p. 123). Poster depicts this as an inevitable extension of modern capitalism's mechanization of labour and production, as well as the increasing computerization of leisure and daily life. The omnipresence of

cameras, metadata, and tracking devices exacerbates the power of centralized databases, and reinforces that “every conceivable aspect of ordinary activity leaves a trace in the memory banks of machines, and these traces are available instantaneously should the occasion arise” (Poster, 1989, p. 122). The more thoroughly we examine the possibilities available for centralized surveillance and control, the more obvious it becomes that checks and balances will be vital in this age of technology.

Finding a Balance Between Regulation and Liberation

The Community Psychology concept of “psychopolitical validity” requires practitioners to evaluate and acknowledge the complex outcomes their actions might produce within social systems (Nelson & Prilleltensky, 2010). For subversive political activism, psychopolitical validity is equally important, as hacktivists who aim to incite true social change must be wary of the ripple effects of their actions. Striking out against the structures of surveillance may sometimes result in even more stringent restrictions and laws put upon the general public. In order to truly maintain a free and open Internet, activists must carefully evaluate whether or not their actions are likely to have a net benefit, or negative consequences, for society as a whole. The organization tactics of the Arab Spring protests may be an ideal model for walking this balance effectively: tools like Twitter were employed for rapid and straightforward communication of meetings

and demonstrations, and pictures and videos were uploaded to demonstrate abuses of power as they happened, but protesters did not make the mistake of identifying themselves or their specific plans via social media (AlSayyad & Guvenc, 2013). This allowed participants in the protests to utilize the best elements of the Internet without unnecessarily exposing themselves to potential surveillance.

One of the central incongruities between the current American legislative battles over Internet freedom and its actual functionality is the fact that the existing Supreme Court justices have been conditioned, in legal training, to rule by analogous equivalency, and thus they are establishing precedents around new technology which are rooted in archaic notions of censorship, communication, and creation (MacLaren, 2015). Many of those who are responsible for shaping law in the digital age don't even use these technologies in their own lives. This recalls Lahlou's (2008) point that too often, the material layer of technological devices advances rapidly, while our institutional governance of those innovations lags behind.

Guattari (2000) warned that if citizens place "blind faith in the technocrats of the State apparatuses," computer technology is likely to be wielded to control populations, rather than to liberate them (p. 28). Of course, in order to stay one step ahead of the stifling effects of centralized control, we need the technological innovators of the current age to devote their time to solving meaningful problems.

With the overvaluation of largely superficial mobile app startups, there may be too much incentive in Silicon Valley to produce flashy, rather than useful, ideas (Malone, 2015). If we encourage the innovators of the next generation to continually disrupt, rather than sustain, the current norms of technology, we can avoid the pitfalls of merely prescriptive practices that keep us stuck in a rut which is continually co-opted by institutions and corporations (Franklin, 1990; Latzer, 2009).

Gilbert & Powell (2010) explained that Foucault's concept of possible resistance is embodied in all of the small choices an individual makes in his or her daily life. These seemingly innocuous, constantly present decisions are influenced by our notions of knowledge, our feelings of agency or powerlessness, and our response to the dominant narrative of truth in our society. Foucault himself, in an unusually cheerful interview, proclaimed that "aside from torture and execution, which preclude any resistance, no matter how terrifying a given system may be, there always remain the possibilities of resistance, disobedience, and oppositional groupings" (1980, p. 45). The issue, as it always has been in society, is finding a balance between standing up against oppression and becoming an unintentional martyr.

*Thematic Essay 7:**The Sharing Economy: From Each According to Their Need, To Each According to Their Ability**Economics in the Information Age*

Modern capitalism is alternately celebrated and castigated. Some see this economic model as a wellspring of growth and innovation which leads to the gradual but widespread improvement of quality of life (Greenstein, 2008; Smart, 2011). Others warn that contemporary capitalism has spiralled into an increasing stratification of wealth and labour, in which the rich get richer and the poor get nothing (Aronowitz, 1994; Winner, 1994; Halcli & Webster, 2000; Lauer, 2011). Either way, the evolution of capitalism through the 20th century is inextricable from the development of more complex technology and automation of labour (Mumford, 1962). Since the origins of industrialization, there have been utopian notions that the widespread mechanization of jobs would lead to greater labour equality, particularly fair wages for all and reduced work hours (Hughes, 2004). Automation has certainly improved the modern economy in many ways, but it has also destabilized employment security and rendered many jobs obsolete without creating new roles for those workers (Chodos, Murphy & Hamovitch, 1997).

In Community Psychology “power is a combination of ability and opportunity to influence a course of events” (Nelson & Prilleltensky, 2010, p.

108). This translates pragmatically to understanding capitalist markets and economics in general. The acquisition of resources and wealth generally grant a person or group both ability and opportunity in terms of traditional political lobbying, as well as allowing them to re-invest those resources in pursuit of greater returns. In the current age, the shift to informational capitalism privileges another source of ability: the knowledge and prowess to use computer technology to track down crucial opportunities (Halcli & Webster, 2000; Castells, 2004).

Not so long ago, it was necessary to establish a significant base of capital and a material infrastructure in order to get a business off the ground. Now, the proliferation of “startups” demonstrates a market in which a good idea and preliminary prototype can garner large commitments from investors who are looking to capitalize on the next big innovation in technology (Maney, 2014). However, this pattern of early-stage enthusiasm can lead to over-valuation, inciting a desperate scramble to fulfill the startup’s supposed worth (Casey 2014; Dougherty, 2015). This speculative risk becomes more worrisome when the startup in question have promised opportunities for the general public to make money or share their work with the world.

Who’s Sharing What in the ‘Sharing Economy’?

The online “sharing economy” adapts the term “sharing” to a wildly different context than its traditional use within communities. For Community

Psychologists and most social activists, the concept of sharing is based in the equitable distribution of resources across an entire population, ensuring collective well-being (Kelly, 2006; Nelson & Prilleltensky, 2010). In contrast, within the modern capitalist market, “sharing” refers to the facilitation of interpersonal exchange of goods or services within a self-contained network (Olma, 2014). Whereas companies that employ a traditional manufacturing process produce products and sell them to consumers, platform businesses depend upon facilitating exchanges between two or more external parties (Regalado, 2014). This can range from encouraging independent developers to design and sell software within a closed market, such as a mobile “App Store,” to connecting service providers to potential customer bases, as demonstrated by eBay, Uber, and AirBnB. Generally, the companies that construct and oversee these proprietary online exchange platforms levy a fee on one or both parties upon the completion of transactions (Carson, 2015).

One problem with the term “sharing economy” is its broad application to a variety of business models-- companies like Zipcar, which own and maintain the fleet of cars that members “share,” are lumped in with Uber, which merely facilitates connections between drivers and riders (Yglesias, 2013). However, these companies, which all depend upon the connectivity of the Internet age, have more in common with one another than they do with the brick and mortar stores

of the past. The most popular sectors for these platforms revolve around transport, sharing access to spaces and locations, and independent contracted labour (Wosscow, 2014). These sites erode the historical necessity to build infrastructure and individual recognition in order to participate actively in open markets, but they still act as “gatekeepers” in a new sense, by establishing their own fixed terms and conditions regarding interaction between customers and sellers (Olma, 2014).

In order to act as a driver for Uber, sell a mobile application on the Google Play Store, or rent out a property via AirBnB, individuals must play by those companies’ firmly established rules. They are designated as “customers” of the software, utilizing it in order to pursue their own aims, rather than “employees” of a business who should receive fair wages and benefits (Carson, 2015). On the other side of the equation, customers who wish to purchase goods or services must consent to some form of the “buyers beware” mantra, and agree not to hold the platform responsible beyond a stated level of accountability (Stein, 2014; Morozov, 2015). This is exacerbated by the reality that most platform sites provide limited customer service, and operate according to opaque arbitration procedures, continually reinforcing that they are not responsible for anything beyond their stated role in transactions (Lowry, 2014). This small infrastructure means less overhead, and a lower fee taken from the “sellers” and “buyers.”

However, it also means there's often nowhere to turn when things go wrong.

Platforms are disruptive and innovative, but so far, they are also unchecked by external regulations. Currently, there are innumerable legal battles going on in the attempt to set precedents regarding labour laws, the applicability of taxation, and preventing threats to traditional industry regulations (Eidelson, 2014; Schneider, 2014; Weinberger, 2015). TaskRabbit, a platform that connects individuals to contractors for odd jobs, originally followed the model of an open auction site, but chose to restructure its business through a more centralized interface after six years of operation (Somerville, 2014). Its new operations replace the customer-led negotiation of per-task fees to a regulated standard of hourly pay for its workers (Newton, 2014). This may serve as an example of the transition that will be necessary as the sharing economy negotiates legitimation in the larger labour market. A central element in the negotiation of this transition will be the degree upon which companies rely upon a positive public relations image and popular support within society.

The Illusion of Corporate Benevolence and the Erosion of Platform Responsibility

With the increasing importance of advertising and brand loyalty in the consumer sphere, it has become crucial for corporations to maintain the illusion of a conscience. Corporations' visible contributions to charities or participation in goodwill causes may not just improve their general image, but also lead to their

consumers valuing their products and services more favourably, possibly due to an unconscious bias (Chernev & Blair, 2015). Supposed corporate benevolence must be evaluated with a healthy degree of skepticism. Segev (2005) insists that Google's central promotion of "Don't be evil" as its driving vision statement is "more than anything else an exercise in public relations, and economic considerations often predominate over moral ones" (p. 53). In the fallout of public relations disasters questioning their dedication to "not being evil," as seen in their collusion with the Chinese government's censorship efforts, Google has taken visible steps to support human rights initiatives and grassroots activism (Liacas, 2015). The degree to which this is a genuine attempt to make amends, or merely an attempt to reform their image, is inconclusive. Supposed corporate benevolence must be evaluated with a healthy degree of skepticism.

Since sharing platforms are generally free for anyone to browse or access, making any user a potential seller or freelance worker, it is easy for them to project an air of corporate benevolence (Olma, 2014). However, without regulation or accountability, platforms can reap all of the benefits of a large workforce, and face none of the responsibility for accidents, oversights, or ensuring a livable wage for all (Gillespie, 2010; Eidelson, 2014; Kessler, 2014). Additionally, while these sharing platforms emphasize the options for independent entrepreneurship, and the potentially unlimited customer base, they often maintain

opacity about the hidden operating costs which the participating contractors are solely responsible for (Kessler, 2014). This ranges from the cost of shipping items, to the overhead of property maintenance and damage repair, to the cost of gas and transport (Weiner, 2015). Often, companies like AirBnB only exercise accountability for their lessors in cases of extreme abuse of the system, and even that can often be circumvented by the precise specifications of their terms and conditions (Bort, 2014; Stark, 2015).

Kessler (2014) points out that, especially in the “gig” economy, as opposed to the sharing market for secondary goods, the abstract potential for work availability does not translate to a guarantee. Many workers enthusiastically enter these roles with the assumption that they will be able to achieve the average estimated income level, only to find that they are making less than minimum wage (Smiley, 2015). For example, the ride-sharing site Uber centrally controls the price that customers pay drivers, and has recently discounted that price significantly in order to maintain a competitive edge, passing the profit loss down to its drivers (Kosoff, 2014). Additionally, Uber’s limited review of driver’s backgrounds can result in safety issues for riders. This is most dramatically illustrated in multiple prominent cases of driver-to-passenger sexual assault in the past few years (Schmadeke & Manchir, 2014; Yuen, 2015).

Community Psychology envisions “a world in which human beings and

their relationship with each other and the environment are the determining considerations behind our decisions, not profit” (Choules, 2007, p. 463). The apparent benevolence of sharing platforms presents the appearance of similar values, but the drive for profit will always be the foundational motivation for corporations (Sriskandarajah, 2015). This is not, in itself, evil, as profit is the source of their self-preservation, and “no company could exist if it did not do--or at least allow--some harm and impose some costs on other entities” (Vaidhyathan, 2011, p. 75). However, it becomes highly problematic when these supposedly freeing business models result in greater exploitation of workers than traditional employment models. A frontier where other Internet businesses are potentially crossing the line between goodwill and exploitation is in the collection and exploitation of user data and content.

Data Production as Labour, Media Content as Property

When wide collections of media and information are accessible online, the concept of ownership changes, but so does the concept of consumption as a relatively private activity. As we indulge in our favourite movies or shows on Amazon, their algorithms are tracking what we watch, and how long we watch for (Garfinkel, 2011). The trade-off for free, or membership-based, access to libraries of content is our open provision of every minute detail about our interests and preferences. Even outside of these opt-in services, all of our actions on the

Internet leave behind traces and data that is compiled and analyzed, which is used to “microtarget” advertising messages based on our presumed demographic traits (Auerbach, 2013). This is prominent in Google’s advertising model, in which an overall analysis of our searches and online activity leads to a comprehensive profile of the user. As Vaidhyathan described, “we are not Google's customers: we are its product” (2011, p. 3). Similarly, Amazon.com collects all-incompassing information not just on its shoppers’ purchases, but also their browsing and behaviour on the site (Humphreys, 2006).

Facebook consistently integrates paid advertisements into users’ experiences, and has even been caught misrepresenting users as “liking” ad content that they never explicitly endorsed (Hof, 2011; Bott, 2012). This brings exploitation of user behaviour and data production to an entirely new level, taking advantage of the existing social capital of friend networks to sidestep users’ tendency to ignore obvious paid ads. Facebook has combined this with practices of scaling content visibility as a paid service, allowing individuals or businesses to “promote” their pages for a certain fee (Fitts, 2015). If users engage Facebook without skepticism about these trends, they are likely to mistake paid content for organically popular content.

The actual terms of profiling, tracking, and data ownership for various sites are often buried in obscure End User License Agreements, which many users

skim or skip past entirely (Chopra & Dexter, 2008). Stallman (2002) extensively addressed the use of copyright restrictions to limit the distribution of software and operating systems, which has strong parallels with the coercive terms of service that are ubiquitous among online services. For Stallman, these restrictions must be circumvented by users creating their own crowdsourced alternatives. Such action is not necessarily realistic when it comes to the economic market and general consumer practices, however.

What can potentially take the place of building an entirely independent economic infrastructure is engaging in consumer activism, in which potential customers of a business or service boycott that company to demonstrate their disapproval of company practices (Brown & Marsden, 2013). In recent years, consumer activism has led to the creation of informal online pressure groups, which primarily utilize social media and blogs to raise awareness about controversial corporate practices (Kerr et al., 2012). Shame can be an effective tool to wield against groups and corporations, just as it is when employed against individuals within smaller social collectives (Wired UK, 2014). Just as there are new forms of marginalization in the Internet economy, there are new sources of agency as well.

Who Really Benefits In the New Age of Labour?

Roose (2014) suggested that the primary reason the sharing platform

model is thriving is because of the failure of the larger traditional economy, the growing disparity between wages and inflation, and the dwindling availability of many jobs in the digital age. Unlike businesses in the past, online companies do not usually require extensive infrastructures, so the proportion of available jobs in these companies has dwindled (Leslie, 2014). There are both positive and negative outcomes in the current shifts in the job market. It's currently estimated that around 34% of the US workforce is engaging in some form of freelance labour (Rogers, 2015). This widespread trend can give a greater sense of agency to independent contractors, but it can also deny them job security (Little, 2000; Smart, 2011). The heightened status granted to informational workers encourages the pursuit of higher education, but also puts people who can't afford such training and certification at an even greater disadvantage than they previously faced (Bruce & Hogan, 1998; Rotman, 2014). There is great promise in the sharing labour model, but appropriate safety nets must be designed to prevent exploitation of independent contractors in these arrangements (Stein, 2014; MacMillan, 2015).

Systems of reputation verification and "peer review" have been crucial to maintaining the communal trust necessary for sharing platforms to work (Wosscow, 2014). Platform interfaces utilize the crowdsourcing and fast pace of the Internet, allowing for immediate feedback on potential problems with

individual sellers or service providers (Morozov, 2015). The collaborative communities which form around these new platforms are in some ways reminiscent of the long history of the free and open source software movement. Within F/OSS communities, participants report high levels of satisfaction with the contribution experience, and strong feelings of social cohesion, even in the absence of financial compensation for their work (McCormick, 2004; Flanagin, Flanagin & Flanagin, 2010; Sullivan, 2010). Though sharing economy platforms exist for a different purpose, they create similar opportunities for communication and relationship-building.

Whereas previously, legal action and the hopes of mainstream media coverage were the only way to highlight unethical practices, peer review commentary allows for real time responses to perceived issues. On Airbnb, hosts can warn others of a traveller's unruly behavior, while customers can highlight potential misrepresentations of a host's accommodations. Indeed, users do choose sites and platform markets based on their quality and reputation, not just their size (Hagiu, 2011). This suggests that customer peer review results in an effective process of self-regulation, and can improve the general experience of consumers across all economic models. Even though the platform site's customer service resources may be lacking, this allows the crowd to attempt to sort out issues by itself.

Can we find something beautiful in the underlying philosophy which drives the sharing economy? Tanz (2014) emphasizes that the trust which propels these services, the relatively newfound faith which motivates people to share their homes and allow strangers into their cars, flies in the face of the societally enforced suspicion which has grown over the past century. It's true that this trust makes us vulnerable, and can lead to disturbing and dangerous incidents, but as a general trend it seems to be opening positive connections between people on a larger scale (Scholtz, 2014). Even if the financial model can be exploitative, the human relationships are built on an expectation of general goodwill amongst their participants. It's also crucial to emphasize that the financial model does not have to be exploitative, because the basic transactional model of the sharing economy is a fair one (Diab, 2015). If we bracket potential profiteering by the platform sites themselves, we can see the net benefit in these services. One person's excess fills another person's necessity, encouraging communal micro-transactions and ensuring that pooled resources are used to their full capability (Muneeb Mushtaq, TEDTalk). The theory of the sharing economy is an ideal one, which empowers people with both the ability and the opportunity for financial agency. It is primarily the adaptation of appropriate legislation that must be monitored vigilantly.

In this day and age, there is a privileged view in Silicon Valley that we

should choose jobs that we truly love to do (Tokumitsu, 2014). Though this eclipses the reality of most people's current employment status to a nearly insulting degree, it is certainly an ideal vision for the future, one that recalls the utopian perspectives of the earliest days of mechanized labour (Hughes, 2004). If through regulation and fair practices, we can build safety nets and fair practices to accompany the sharing economy, we could face a brighter future than was ever imagined under monopoly capitalism. The collaborative and accessible nature of the Internet could bring us to a congruence with Marx's borrowed idealistic slogan, "from each according to his ability, to each according to his needs" (Marx, 1875). The current state of capitalism seems to be inciting an unfortunate reversal of this concept, in which desperate workers will do anything for the promise of future compensation, but only those with highly privileged informational skills reap true benefits from their contributions. Still, we are in a obvious and sometimes turbulent transition, and we might still have the time to lobby for a more equitable distribution of resources in the new sharing economy.

*Thematic Essay 8:**Jugaad-a Be Kidding Me:**Re-learning Resourceful Innovation From the Global South**Globalization, Oppression, and Existing Resource Inequity*

Post-colonial nations face a rigged game. Stallman (2002) shared the metaphor that if the competitive tendency of capitalism were a race, its current global enactment would involve handicaps for some runners, and rampant cheating strategies employed by others. He also explained his perspective that so-called “free trade agreements” really undermine global opportunities for democracy, by transferring the power to make trade decisions from the citizens of individual countries to transnational corporations. The economic regulations that characterize globalization are cruelly reminiscent of colonization itself (MacGillivray, 2006). In the Global North, after a long history of colonizing and conquering, we are used to calling the shots. We like to take what we want and then leave.

We’re convinced that we created this globalized world, after all; as we controlled and tamed the face of nature, industrialized communities and built factories, and built up a seemingly inescapable consumer culture spurred forward by planned obsolescence. The ideological influence incited by colonial exploration impacted the directional change of the world, so we feel like we own

it. We forget that hubris is one of the most dangerous flaws, and we ignore the reality that our ever-complicating output of devices and infrastructures is unsustainable, even dangerous, for the natural environment (United Nations, 2010). We set ourselves up for catastrophe, and enjoy our immediate comforts without an eye to the future.

Despite rampant utopian declarations of the Internet's power to change the lives of all global citizens, the majority of citizens in so-called developing nations, or the Global South, still don't have any online access. Although the proportion of people with Internet or mobile data access in Africa and South America grows rapidly each year, it still lags far beyond access rates in the Global North (Kende, 2014). In 2015, there are twice as many Internet users from the "developing world" as those from the "developed world," but these statistics do not yet adequately represent the proportion of the actual global population: there are still twice as many people in "developing" countries who do not have access to the Internet (International, 2015). In general, people who already live in affluent regions are the ones who are most likely to have access to computers, cell phones, and data networks (Bruce & Hogan, 1998; Hampton, Lee & Her, 2011; Park, 2013). However, there are significant efforts underway to change this reality.

Free/Libre/Open Source Philosophy and Grassroots Innovation

True innovation has always asked "What is needed?" rather than "What

will sell?” “Prescriptive technologies” perpetuate automation and efficiency, undervaluing human needs, while “holistic technologies” focus on localized and creative production (Franklin, 1990). “Sustaining technologies” provide small and subtle improvements upon existing tools, whereas “disruptive technologies” completely reframe the context and possibilities of solving a given problem, whether for better or for worse (Latzer, 2009). Radical breakthroughs rarely come from formulaic processes. Rather than from board meetings with powerpoints and flip-charts, material innovations generally come from hands-on problem solving, with adaptation based in the resources and materials at hand. This is the origin of the term “hacking.” The inventors and “beta-testers” of any new technology, “boldly go where no one has gone before.” These enthusiasts “patch” the little problems that crop up, figuring out quick stop-gap fixes that will later be refined into universally compatible updates.

Stallman (2002) shared the opinion that the United States, in particular, is biased against the Free/Open Source Software movement, and he suggested that there might be more flexibility within the societal paradigms of the Global South to endorse and develop this philosophy. People are less likely to capitulate to restrictive End User License Agreements on software in areas where sharing with their neighbours is the norm, not an abstract ideal (Stallman, 2002). In many areas of the Global South, families and even communities may share one cell

phone among many people, reinforcing a more communal understanding of property (Fabricant, 2011).

According to Stallman (2002), it is wrong to withhold information that is useful to humanity as a whole. Before the term “open source” was popularized for software, the general designation for this movement was “free software.” Though Stallman (2002) acknowledged that the shift in terminology makes functional sense to highlight the distinction from “non-commercial,” he bemoaned the loss of the meaningful connection to the driving value of “freedom.” For Stallman, sharing and collaboration in the free software movement is about empowering individuals through access to tools of technology. Such an embrace of freedom and empowerment requires attention to what these communities and individuals actually need, and respecting their cultural ways of knowing and being in the world.

Jugaad and Resilience: What the Global North Needs to Learn from the Global South

Jugaad is a Hindi slang term which loosely translates to “frugal hack,” and which conceptually represents the ability to overcome adversity by using limited resources to create effective solutions for complex problems (Radjou, Prabhu, & Ahuja, 2012). *Jugaad* is a unique and many-layered concept, highlighting the cultural tendency in India to confront problems on a case-by-case

basis, rather than attempting to apply universal and standardized solutions (Giridharadas, 2010). As the mainstream capitalist markets of the world grow stagnant, and funding for research and development rises but returns diminish, this creative way of thinking may be what we need on a global scale (Prabhu, 2013). Jugaad creates accessible markets for new consumers, rather than merely designing cheaper goods for an already existent customer base. This opens the door for marginalized populations to obtain previously inaccessible resources, as the creative and frugal use of goods lowers cost barriers (Tiwari & Herstatt, 2012).

Currently, resource scarcity and volatile economic complexity characterize the global capitalist economy, and emerging markets in Brazil, China, and India are showing more significant growth than established markets (Radjou, Prabhu, & Ahuja, 2012). Corporations in these established markets devote continually increased funding to research and development, with diminished returns on these investments (Prabhu, 2013). The unique style of innovation embodied in jugaad seems necessary to revitalizing the nature of innovation in this economic climate. Jugaad's qualities of frugality, adaptability, and open collaboration are just what is needed in a stagnant global market (Radjou, Prabhu, & Ahuja, 2012). The spirit of jugaad aims to turn discarded or undervalued resources into something useful, which is particularly valuable in an age of environmental unsustainability (United

Nations, 2010). One example of such frugality is embodied in Embrace, a portable and low cost baby warmer which addresses the problem of premature birth in rural villages which struggle with poverty (Radjou, Prabhu, & Ahuja, 2012). This invention, which is a fraction of the cost of a traditional neonatal care unit, also weighs less than such machines, can be shipped flat, and sidesteps the need for a constant flow of electricity (Hicks, 2014). This single innovation allows for a great leap in combating infant mortality rates and promoting global health.

Gupta (2014) gave a detailed TEDxTalk on the strengths of jugaad, and went so far as to establish and explain an acronym of the term which summarizes its more subtle qualities. For Gupta, jugaad requires the ability to *juggle* a wide range of life experiences in an interdisciplinary fashion, *understand* the details of the problem at hand and the resources available on a deep level, and employ *guts* and courage in trying radically new approaches. Additionally, jugaad necessitates *adequate armour*, or the preparation of multiple adaptive backup plans, as well as *artistic manipulation* via the ability to “sell” the ideas and inspire enthusiasm in potential collaborators, and finally, a “*do-or-die spirit*” which leads the inventor to trailblaze with determination and commitment (Gupta, 2014). This creative approach to explaining jugaad, in itself, demonstrates all of the qualities which she describes, and subverts the traditional and formal academic structure of such

discussions. To Gupta (2014), jugaad is ultimately “creative, but unsophisticated... makeshift, but always good enough.”

Houle (2013) explored how the concept of place has changed drastically in the current age. Early civilizations separated by great distances were not even aware of one another, and the concrete idea of “place” began with the agricultural revolution when people first put down roots. Houle (2013) claimed that this fixed sense of space first began to shift starting two hundred years ago, as communication technologies from the telegraph onward began to “shrink” those spaces again. He pointed out that until wireless cellular connectivity, it was still necessary to plug in devices somewhere for data access, and that cell phones reshape the significance of “space” and “place” more than any other device has throughout history. This is further developed by the creative use of mobile technologies in Africa.

The Promise of Current Innovative Progress in Africa

Although Africa has a wealth of natural resources, and is considered by many to be the frontier for the newest wave of economic development, most Africans currently work in the informal economy without a safety net (Walla, 2014). Currently, more than half of the world population falls outside of the traditional economy, and much of this unstable economic existence is centered in rural African locations (Prabhu, 2013). However, an informal system of

microfinance has gradually risen to prominence in Africa. Participatory microfinance lending collectives enable villages and communities to collaboratively enable individual savings and financial stability, thereby ameliorating the vulnerability which so often accompanies poverty (Bornstein, 2014).

Though the concept of *jugaad* originated in India, this approach to innovation can be seen in many of the current initiatives for community and economic development on the continent of Africa. The relevance of cellular connectivity to the African way of life can be reflected in the fact that while mobile subscriptions grow every year, in many African nations less than one percent of the public maintains access to a landline phone subscription (Poushter, 2015). However, major telecommunications companies make decisions on network provision based on potential profit, and so many poor and rural areas are denied access to potential cellular connectivity. Rather than potentially futile efforts to lobby for change in these massive companies, an affordable solution to this is to construct affordable local infrastructure for cellular network provision (Heimerl et al., 2014). As Shapshak (2015) emphasized, the supposed “dark map” which represents Africa’s dearth of electricity is actually a positive thing for radical innovation, as it has led to the design of independent solutions that employ solar power and other sustainable energy sources.

Despite campaigns that aim to distribute advanced smartphones in the Global South, Fabricant (2011) pointed out that these will be impractical and inaccessible for much of the world's population for the foreseeable future. Instead, he proposed that working creatively with the available voice and text messaging capabilities of simpler cell phones produces, in the tradition of *jugaad*, more straightforward, innovative solutions to contemporary problems. Shapshak (2015) echoed this perspective, underscoring that Africa is a “*mobile-only*, not *mobile-first*” market. Rather than aiming to develop an African consumer market which mimics that of the Global North, local innovators are utilizing the near-universal embrace of SMS text messaging and pay-as-you-go airtime to provide new approaches to information and service access.

One of these initiatives is Ushahidi, a free open-source platform for the crowdsourced management of information during natural disasters, riots, and other social crises (Kobia, 2010). It has a map-based interface, and users can submit text-based tags to identify the degree of safety of various areas, plotting out the availability of resources, the extent of damages, and the locations in which help is needed (Mitchum, 2013). Such efforts to log people's movements through cell phone location statistics has been a useful way of understanding the spread of disease in Africa, as well as monitoring the fallout of natural disasters (Talbot, 2013). This serves as a reminder that the same tools which can be employed for

seemingly dystopian surveillance can also be used in pursuit of scientific advancement.

Mobile applications which aggregate and disseminate this crucial health information, particularly in relation to relevant medical crises on the continent, are quickly spreading throughout Africa (Talbot, 2011). Bright Simons of Ghana has addressed the serious problem of the sale of counterfeit medications throughout Africa, combining an SMS-based service with a commitment by all pharmaceutical companies to accompany their medications with a unique and non-replicable code of authenticity which can be checked by mobile phone (Pisani, 2012). Prakash (2012) and his colleagues developed a prototype microscope built from folded paper, solving the significant global health diagnostics problem caused by the high prices of equipment needed to identify various diseases in the field.

In addition to health promotion tactics, jugaad innovation is being utilized to solve crises of energy access in Africa. For the past two years, Henri Nyakarundi has run the African Renewable Energy Distributor (ARED) project, starting in Rwanda and currently scaling to the rest of Africa (van Vugt, 2015). ARED currently provides opportunities for people to franchise portable, solar-powered phone charging kiosks to operate their own community businesses, which benefits rural villagers by providing them with a cost-effective means to

charge their cell phones. Similarly, Evans Wadongo confronted the issue of his fellow Kenyans' dependence upon kerosene lamps, which were unsafe and required costly fuel, by designing and distributing solar powered LED lamps (Vesperini, 2011). These approaches to energy problems suggest potential solutions for the larger global issue of environmental sustainability, as modern technology rapidly drains traditional energy sources.

Psychopolitical Validity: Responsibility to Humanity and the Environment

Though he claimed his viewpoint was apolitical, Lemert & Gillan identify the inherently political nature of the "truth [in Foucault's texts, which...] is not their historical accuracy, but their confrontation of contemporary reality with its past" (1982, p. 86). Foucauldian genealogy engenders a constantly adapting and critically reflexive viewpoint on what societies identify as truth, and how that truth influences behaviour and norms. In many ways, this Foucauldian perspective parallels Community Psychologists' dedication to maintaining vigilance about psychopolitical validity in praxis. Such psychopolitical validity requires recognition of the complex history of power dynamics, especially in terms of political exploitation and the inequity of resource distribution (Prilleltensky & Fox, 2007; Christens & Perkins, 2008). Staying true to this awareness, any discussion about the global economy must confront the present state of affairs with its past origins in colonization and exploitation (MacGillivray,

2006). Community Psychology prioritizes letting oppressed groups, such as post-colonial populations, speak on their own behalf, rather than employing so-called experts to intervene in their stead (Nelson & Prilleltensky, 2010). At the global level, this necessitates rewriting dominant narratives of who is or isn't "deserving" of access to resources and opportunities (Kelly, 2006). Grammatis (2015) opined that we could consider Internet access a new human right, given its crucial power to connect us as part of a "global citizenship" in the contemporary age. Internet access may be the greatest tool to engage in innovation and social change as we move into the future.

Psychopolitical validity also necessitates an appreciation of the foundational interdependence of communities and their environments, including the natural world. Guattari's (2000) warning that the contemporary world faces a crisis of political and environmental disequilibrium proves to be even more relevant fifteen years after its release. The current economic production practices in the global consumer economy are unsustainable and detrimental to the environment, and global governance organizations are attempting to put regulations in place to ameliorate this reality (United Nations, 2010). It simply makes sense to turn to the populations that have historically survived via frugal, creative innovation with limited resources in order to reduce this current global waste of resources.

With the proliferation of computer and cellular technology, violent war crimes in the Congo were funded by mining practices to obtain tantalum, a metal used for the hardware of these devices (Hutcheon, 2009; Jamasmie, 2013). However, Mbubi (2012) pointed out that, simultaneously, the widespread introduction of these mobile phones in the Global South allowed for citizens in this area to expose these practices on the world stage. His discussion of this issue, and the relatively successful campaign to raise awareness and pursue more ethical mining in the Congo, highlights the polar possibilities of information and communication technology for post-colonial nations.

The rapid and wasteful “innovation” of the Global North continues to gut the world’s natural resources and produce significant pollution, but it also offers opportunities for truly creative innovation and adaptation of these technologies among marginalized people. As far as the continued production of devices, Mbubi (2012) proposed that the pursuit of fair trade design requires all consumers to ask straightforward questions before they purchase handsets: “Where does it come from? Who makes it? And for what?” Chhatpar (2013) discussed how true innovation “comes from the many,” and how it is the authenticity of human stories, experienced by connecting to localities and fostering relationships with insiders, that motivates great changes in society. If we can encourage all global citizens to maintain vigilance, empathy, and creativity when it comes to resources

and energy use in contemporary society, we may begin to compensate for unsustainable trends, embracing the best elements of *jugaad* and rejecting global exploitation.

Chapter 5: Discussion

The interactions between culture, information technology, and power produce a wide range of effects, but there are some central themes that consistently arise amidst the philosophical and ethical issues that arise in this transition. On a larger level, these themes relate to who is in control of technology, knowledge, and cultural norms, as well as the interdependence upon the tools we use in our daily lives and what we think about ourselves and others. Adopting Foucauldian theory as a foundational philosophy for these themes, and addressing the material reality of information technology as their contemporary context, it is possible to look to Community Psychology's values as potential avenues to strategize solutions to these ethical problems in praxis.

One of the ubiquitous and persistent issues in the contemporary informational age is the panoptic surveillance which is wielded by both governments and corporations to track and profile citizens. This is enabled by the extensive development of advanced computer databases, which can store seemingly infinite reserves of data, and parse and analyze that data at dizzying speeds. From personal use of email and social media, to movement with GPS and microchipped devices, to records of consumer activity, each citizen who is immersed in the Internet sphere is likely to have many concurrent database profiles being tallied about them by various institutions of power. In relation to

Foucauldian theory, this massive degree of progress in surveillance inevitably leads all Internet users to police their own behavior through inherent awareness that any and every action or communication could be watched. This is exacerbated by the rise of sousveillance in the social media age, in which the societal valuation of attention is prioritized and thus individuals freely broadcast information about themselves online. Community Psychologists would recommend a careful and reflexive process of conscientization regarding these structures of surveillance and our vulnerability to being monitored, labelled, and categorized.

This issue of omnipresent surveillance links to another larger theme: the fact that the technology we wield becomes less and less visible to us as we become accustomed to its presence in our daily lives. The adoption and integration of devices and online platforms into our social worlds can lead to our dependence upon them as a natural landscape, planning our entire lives around online infrastructures and feeling dependent upon the devices at hand. This can render us as dutiful subjects of the computer age who are like Foucault's docile bodies, successfully conditioned to search for both inclusion and pleasure by behaving according to certain established norms. In this case, the docility of our bodies has extended beyond interpersonal practices and spread to a literal meshing of our physical reality with the abstract realm of cyberspace.

Community Psychology would greet the rise of this technological unconscious, and the comfortable descent into rapt absorption in media played upon screens and superficial communications, with a crucial understanding of the ecological structure of society and culture. By acknowledging that technological hardware has infiltrated the macrosystem of our worlds, and prioritizing other layers of our lives and interactions on an equal level with our digital interfaces, we can maintain a healthier balance in our use of technology, instead of allowing it to “use” us.

Additionally, the rise of the Internet has changed patterns of behaviour and community interaction, eroding some elements of traditional activist participation while enhancing the rapid spread of information and the ability to expose both institutional corruption and individuals’ mistakes. It is easy to assume that computers and the Internet merely serve as a transparent platform for our communications, but in fact they shape the possibilities for what, and how, we communicate with one another. These new patterns of interaction reframe cultural norms, and thus the codes of community behaviour shift to accommodate the ever-changing codes of computer infrastructure. This relates to Foucault’s notion of epistemic truth within society, and the idea that the dominant narrative of truth is taken for granted as the normal order of things. Community Psychology would provide the suggestion that communities collaborate from the

ground up to decide what their priorities are, and how they would like to see the norms and platforms of the online world develop. Rather than merely accepting such realities as Facebook and Google's opacity about algorithmic control of user activity, and taking for granted the mob mentality displayed on social networking platforms, Internet users can open a dialogue about what's working, what's not, and how we can work towards an ideal version of cyberspace rather than just a tolerable one.

This relates to a final overarching theme: those who construct the technology determine the future. The larger global sphere of the Internet age is a site of great tension between those with privileged access and opportunities, and those who are still largely marginalized and lacking in resources. However, information technology provides an opportunity to level the playing field to a degree that has never been seen in history. The necessary investment to seek funding for ideas, to vocalize political opinions, or to share and popularize creative production has been reduced to almost nothing. The ability to innovate is the new social capital, and even though transnational corporations lead to the increasing stratification for wealth, platforms for vocal resistance and radically new organizing methods continue to pop up all over the place. Foucault would see these opportunities as examples of the fluidity of power at its micro-level, and the fact that each individual makes daily decisions which either enable or

challenge institutional structures. For Community Psychologists, the level playing field for innovation and technological influence create a pathway to the pursuit of collective liberation, allowing people to fulfill their potential on their own terms rather than attempting to fit into the status quo. This was, after all, the dream of the earliest hackers and idealists who helped shape the Internet as we know it, and even if that open freedom is under attack, there are still great opportunities to sustain it.

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