YORK UNIVERSITY
Faculty of Liberal Arts & Professional Studies
SOSC 3702 3.0 *Urban Analysis II: Research Project*
Winter 2020

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Class meetings:	**Thurs 11:30am - 2:30pm**
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Introduction

This course provides students the opportunity to carry out their own individualized research projects, write manuscripts, and present their findings under the supervision of the course director. Students will be expected to implement their research plans based on their proposals submitted in the Fall term in SOSC 3701. Students will become experienced with diverse methodologies and research methods as they carry out their own empirical investigations in the City of Toronto. Students will learn how to collect, manage, sort, organize, code, and interpret data findings in both qualitative and quantitative research. These empirical investigations will be contextualized and analyzed within the broader literature in urban studies. Through these research projects, students will be building on and/or challenging existing theoretical and scholarly conversations. This course will allow students to gain first-hand experience with some of the logistical, ethical, and intellectual challenges conducting research while also experiencing the rewarding and inspiring moments of producing innovative research.

The course is divided into three sections:

Fieldwork: Students begin their fieldwork based on the proposals they submitted in the Fall term in SOSC 3701. Students will implement their research plans and conduct research.

Post-Fieldwork: Midway through the course we will deal with the tasks facing researchers returning from the field: confronting the mass of data accumulated, crafting a coherent account from it, structuring and writing a research paper, the review process, and finally, presenting findings to the community (in this case, of class colleagues).

Presentations: In the last six weeks of the Winter semester each student will give an oral presentation of their research project of approximately 15 minutes and answer questions about their presentation.

Research project (40%). Your essay will be based on your original research and will fulfill the objective outlined in your proposal. The essay must be prepared in a scholarly manner (consult a writing guide) with appropriate references properly cited. The paper should be between 3,500 – 4,000 words and will be taken through at least one formal round of editing and redrafting. The grade given will reflect whether comments on the first draft were addressed in the final draft. Again, this is a misleadingly short assignment—production of a paper based on primary research takes a great deal of planning and preparation.

Due April 9th. Bring hard copy to my office.

The Negative Space of Communication – A Cartographic, Postcolonial, and Neo-Marxist Analysis of Internet Connectivity in Canada

Course: SOSC 3702 Urban Analysis II

Table of Contents

Ist of Figures and Tables

Abstract: Through this research project, I seek to identify the *Negative Spaces* of communication that exist in Toronto, and how immigrant populations' social, political and economic mobility is stifled by a lack of internet connection/mobile-data. With consideration to the current neoliberal political framework, I analyze the ways in which *laissez-faire* market regulation has led to an increase in prices of internet access and mobile data. I analyze the harm that comes from such market mechanics, both providing a cartographic resource to illustrate my claims, and employing the frameworks of postcolonial urban studies and critical urban studies in order to examine such claims. The map that I have created was done so with painstaking attention to detail, providing accurate representations of scale regarding the distance a given Wi-fi signal projects, thereby producing a counter-map based in quantitative data Further, I have combined two Lefebvrian theoretical frameworks (Rhythmanalysis and The Production of Space) to illustrate that digital inequality is cyclical rather than linear, worsening with furthering of technological development. Through this research, I have found that there is a marked lack of publicly available Wi-fi, which might be ameliorated through several different solutions; these solutions allowing either (or both) public-private partnerships or the further utilization of existing networks of care (libraries).

1 . Introduction

The internet, since my earliest memories, has played a major role in my life; however, I had always been able to go without it. Growing up in a socioeconomically diverse neighbourhood, computers were not a commonality amongst households in the Coxwell and Danforth Ave. area; therefore, I was neither socially enticed nor required by necessity to engage with the internet. Rather, I had done so of my own volition out of an innocent curiosity of the world - researching accounts of alien abductions, pirating the theme-songs for my favourite animes, looking up easter-eggs for my favourite video games (secret content hidden in a video game by developers to reward exploration). All of these activities were superfluous and served no purpose other than satisfying my curiosity. However, I remember one specific instance wherein I found that the internet (and more importantly, *mobile data*) had transcended from a banal novelty or luxury into a necessary utility for daily urban living.

I was attending Humber College's Film and Television Production program, and I was told that I had to go to a specific film production equipment distributor, Whites Digital.

The only storefront for the company was located deeply in an industrial/employment district that I had never visited before. I loaded a map of the space on my phone as I commuted there via bus. Getting off the bus, I was met with an intimidating, impermeable streetscape. The area was populated with both factories and office complexes, all similar in aesthetics and scale, making it very hard to find the storefront of White's Digital. After ~20 minutes of walking, I understood that I was lost and pulled out my phone to look at the map, once again only to find that the area that I was in was so remote that I could not get a cellphone signal, thereby stranding me. In both frustration and panic, I began to pace around the space looking for any sort of signal. At this point, I was stressed to the point of sweating as the completion of a major project was contingent on me obtaining this piece of equipment.

Thankfully and serendipitously, I ran into an individual walking down the street and got directions, that person notifying me that I had walked roughly a thirty-minute journey from the actual location of the storefront. I hurriedly ran over the storefront before it closed, and had asked the clerk at the desk to print me out a map of the area, which they thankfully did. I then made my way home, relieved to be done with the experience, and got to work on the project.

This experience had left an impression on me, but I had not critically reflected on it until recently with the advent of critical science in my life. Upon a recent recollection of this story, I thought of how my experience on that day might be the everyday experience for those who live in precarious socioeconomic conditions who might not have reliable, universal access to the internet as I had. The demographic that I had thought of immediately was that of immigrants, trying to navigate an unfamiliar city and find employment in it without access to the most versatile and effective means of doing so - through a smartphone with access to

mobile data. However, due to a lack of regulations with regard to the pricing of mobile data (and more broadly, cell phone plans), prices have been allowed to rise exorbitantly; therefore neoliberal (or *laissez-faire*) market ideologies are directly hindering the mobility of vulnerable demographics. Therefore, through this essay, I seek to identify the ways in which the socio-spatial mobility of immigrants are affected by predatory cell phone and mobile data pricing. I will do so through a multi-faceted theoretical and cartographic analysis, employing the frameworks of *critical cartography* through the creation of a *counter-map* which identifies the *Negative Space of Communication* that exists on Yonge St.; *post-colonial urban theory* to identify the tenets of colonialism which are being engendered onto vulnerable demographics through the exclusion of their voice in the hegemonic space of discourse (the internet) and; *critical urban theory*, utilizing and combining two Lefebvrian theories (*Rhythmanalysis* and *The Production of Space*) in order to illustrate the cyclical nature of the technological alienation that immigrant demographics experience in the current landscape of Toronto (lurching closer to becoming a technocracy [i.e. *Sidewalk Lab's* Queens Quay smart city development]). I believe that this paper adds valuable mixed-methods research (both primary and secondary) to the canon of human geography, and provides valuable perspective into issues of the *digital inequality* which exist in Toronto, and Canada as a whole.

2 . Hypothesis and Research Question (Mixed-methods study):

Is there adequate public Wi-fi (wireless internet) coverage in the city of Toronto to provide economically disadvantaged individuals with the mobility-related benefits of the internet (i.e. economically, socially, politically)? How does that availability or lack of availability determine the communicative mobility and socio-spatial organization of marginalized (racialized, gendered, classed; specifically, immigrant) populations?

2 Guiding research questions:

1. How much of Yonge Street is covered by corporately provided, 'free', accessible Wi-fi? Is there a way to map this? What are the conditions for access to this Wi-fi (i.e. businesses which require patronage in exchange for internet access)?
2. How do predatory mobile data rates affect people across the intersectional spectrum? Are immigrant populations disproportionately marginalized by these discrepancies?
3. Within the Torontonian context, how are communication networks imperative to the social well-being of immigrants? What are the detriments of exclusion from these networks? Do these detriments warrant the designation of the internet as a public utility?

3 . Literature review

Through this research, I will be covering a broad amount of literature, varying in subject and scope. Firstly, the epistemological framework that I will be employing throughout this paper is that of Critical Urban Theory (CUT) and post-Colonial Urban Theory. The former will be used to follow suit with "leftist or radical urban scholars during the post-1968 period"[1] (i.e. Henri Lefebvre, David Harvey, Peter Marcuse), whose views are consistent with or born from neo-Marxist thought. Viewing Toronto's disenfranchised and their relationship to telecom corporations through the lens of CUT, I seek to "emphasize the politically and ideologically mediated, socially contested and therefore malleable character of urban space."[2]

[1] Brenner, Neil. "What is critical urban theory?." *City* 13, no. 2-3 (2009): 198-207. Pp. 198
[2] *ibid*

Through the latter, I will be employing post-Colonial Urban Theory to identify the territorial processes that are employed by predatory telecom corporations who actively price-gouge customers. I believe this practice holds the tenets of several colonialist methods of territorial social control, as through market mechanics, vulnerable populations are being excluded from the hegemonic (socially) produced (social) space; with allowance made by laissez-faire governmental regulation with regard to telecom corporations and their pricing models, limiting the social, political and geographic power a low-income individual might hold. These lax regulations have allowed for the commodification of an *abstract* public-space, the internet, a space that is not material, yet is integral to social, economic and political agency. This space is being taken away from an economically marginalized population, who might rely on a cell-phone just as much as your average financier.

Telecom corporations in Canada make and spend *a lot* of money every year. In a report titled The Economics of Telecommunication in Canada: A Backgrounder, it was found that the industry generates over $50 billion dollars in gross revenue annually with the market having a mostly even split between household and business consumers.[3] The average amount Canadian households spent in 2015 on access to their cell-phone, internet, television and landline was ~$200.00 CAD per month,[4] [5] which might seem reasonable for the average middle-income consumer, but might be

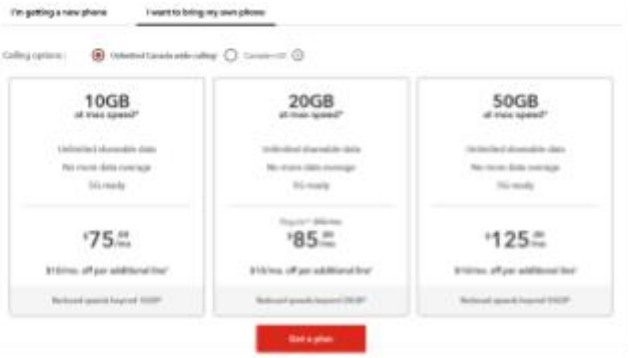

Figure 1: Mobile data plan pricing as per the Rogers Network (Source: rogers.com)

[3] Fellows, G. Kent, and Mukesh Khanal. "The Economics of Telecommunications in Canada: A Backgrounder." *The School of Public Policy Publications Research Paper* 11 (2018): 32. Pp. 1
[4] Middleton, Catherine. "An Introduction to Telecommunications Policy in Canada." *Australian Journal of Telecommunications and the Digital Economy* 5, no. 4 (2017): 97-124.
[5] Government of Canada, Canadian Radio-television and Telecommunications Commission, and Crtc. "Communications Monitoring Report 2017: Canada's Communication System: An Overview for Canadians." *CRTC*, 9 Nov. 2017, crtc.gc.ca/eng/publications/reports/policymonitoring/2017/cmr2.htm#s21.

prohibitive for someone in a compromised socioeconomic position. Further, the advent of *mobile data* on most phones adds extra costs (which would not necessarily be relevant in 2015 due to the early stage that mobile data's technological development was in at the time of the study). Observing data rates on the Rogers network today (accessed February 20, 2020 [referencing figure 1), we can see that the cheapest data plan advertised is $75.00 CAD (plus applicable taxes and fees), **not** including compounded fees (which could easily exceed ~200.00 CAD). This pricing speaks to mobile data's unaffordability, worsened by the neoliberalization of governance, adopting a more *laissez-faire* policy framework.

In 2006, the government (through Industry Minister Maxime Bernier's policies) issued "a policy direction to the Canadian Radio-Television and Telecommunications Commission (CRTC) to adopt a hands-off regulatory approach for telecommunications even as consumer prices for Internet and wireless services were increasing.[6]" This is a nod towards Canada's (and its provinces) neoliberal model of governance, which has historically limited the economic, social and political mobility of marginalized populations under the philosophical guise of liberal enlightenment figures such as Rousseau (i.e. *The Social Contract*[7]) in order to continue the post-Keynesian status-quo, allowing businesses to thrive while vulnerable populations languish within unmaintained urban environments. Thankfully, post-Bernier, the CRTC has "moved the consumer perspective to the forefront of its policymaking and priorities," monitoring "broadband speeds, and the choice of Internet service providers available to Canadians, as well as the prices paid for telephone services."[8] One issue with the evolution in this relationship between consumers and the CRTC is that

[6] Geist, Michael. "The policy battle over information and digital policy regulation: a Canadian perspective." *Theoretical Inquiries in Law* 17, no. 2 (2016): 415-449.
[7] Rousseau, Jean-Jacques, and Gita May. *The social contract: And, the first and second discourses*. Yale University Press, 2002.
[8] Geist, Michael. "The policy battle over information and digital policy regulation: a Canadian perspective." *Theoretical Inquiries in Law* 17, no. 2 (2016): 415-449.

mobile data is not considered in this conversation as it is still considered a luxury good. However, "once an entire society is built around these tools, they can no longer be considered simply as luxury goods.[9]" Further, when observing usage trends of a *mesh network* (fig. **'X'** [a city distributed Wi-fi network in Luxembourg[10]), it was found that smartphone usage displayed a high amount of data usage while conversely having a very short session time (referring to figure 2 found in Afanasyev *et al*'s study). This study reinforces my argument that data has become an integral part of one's functioning within an urban environment with consideration of the patterns of mobility found in figure 2, indicating a variety of usage patterns, with a disproportionate number of those engaging with the network using it for a minimal amount of time (~>1 hour [fig. 2]).

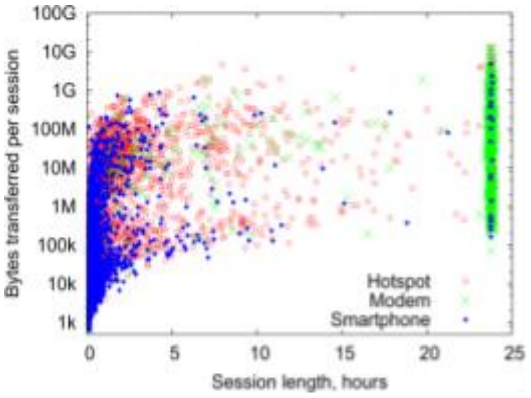

Figure 2, *Bytes transferred as a function of session length during a typical 24-h period.* Retrieved from Afanasyev, Mikhail, Tsuwei Chen, Geoffrey M. Voelker, and Alex C. Snoeren. "Usage patterns in an urban WiFi network." *IEEE/ACM Transactions on Networking* 18, no. 5 (2010): 1359-1372.

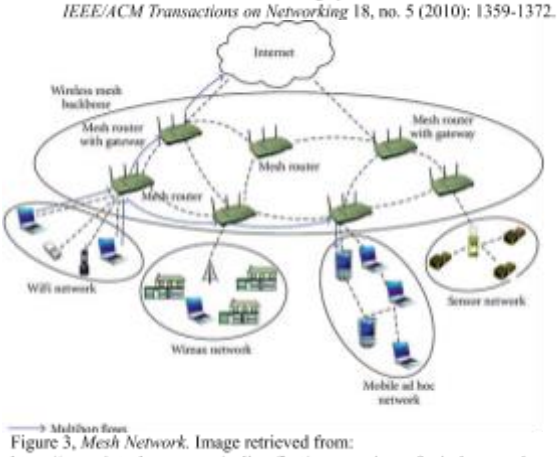

Figure 3, *Mesh Network.* Image retrieved from: https://www.intechopen.com/online-first/an-overview-of-wireless-mesh-networks

Justin Trudeau and the Liberal party have formally recognized that "we [Canadians] pay some of the highest prices in the world for cell phone services, while Canadian Telecom companies are among the most profitable in the developed [*sic*] world." Trudeau and his government have subsequently committed to cutting costs of cell phone bills

[9] Hargittai, Eszter. "The digital reproduction of inequality." In *The Inequality Reader*, pp. 660-670. Routledge, 2018. Pp. 937

[10] Afanasyev, Mikhail, Tsuwei Chen, Geoffrey M. Voelker, and Alex C. Snoeren. "Usage patterns in an urban WiFi network." *IEEE/ACM Transactions on Networking* 18, no. 5 (2010): 1359-1372.

by 25%.[11] This was a watershed moment for Canadian tech enthusiasts and critics of the increasingly corporatized nature of neoliberal governance, providing recognition that the current model of cellular service distribution from multi-billion dollar corporations is **not** working. This recognition, in conjunction with the increasing amount of public-services that need to be accessed through an online portal, brings the idea of the internet as a public utility to the forefront of any critical urban theorist/Marxist mind.

The demographic that I believe are most intimately affected by these predatory data rates are low-income immigrants as this group often relies "more heavily on their communities and social networks, and that this [*internet connectivity*] compensates for other disadvantages in their new home.[12]" As any community does, immigrant communities that concentrate in low-income neighbourhoods (often peripheralized) and attempt to create a healthy social sphere, experiencing less *precarity* and more *stability* in their lived experience. Neighbourhood health and reduction in depression is often achieved through the cultivation of social capital[13] [14] [15] [16] [17] (referring to "the individual's collection of social ties that provides access to resources, information or assistance and from which one can derive market and non-market benefits [better social status, better educational and professional achievement, more happiness.][18]). Further, it has been found that internet usage has been tied to the creation

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[11] Liberal Party of Canada. "Cell Phone Bills: Our Platform." *2019*, www2.liberal.ca/our-platform/cell-phone-bills/.
[12] Kazemipur, Abdolmohommad. "The market value of friendship: Social networks of immigrants." *Canadian Ethnic Studies* 38, no. 2 (2006): 47.
[13] Kawachi, Ichiro, and Lisa Berkman. "Social cohesion, social capital, and health." *Social epidemiology* 174, no. 7 (2000).
[14] Putnam, Robert D. *Bowling alone: The collapse and revival of American community*. Simon and schuster, 2000.
[15] Portes, Alejandro. "Social capital: Its origins and applications in modern sociology." *Annual review of sociology* 24, no. 1 (1998): 1-24.
[16] Coleman, James S. *Foundations of social theory*. Harvard university press, 1994.
[17] Bourdieu, Pierre. "The forms of capital." (1986): 258.
[18] Pénard, Thierry, and Nicolas Poussing. "Internet use and social capital: The strength of virtual ties." *Journal of Economic Issues* 44, no. 3 (2010): 569-595. (Pp. 570)

of social capital[19], and while a correlation cannot be explicitly made, it is clear that a *lack* of internet is not beneficial to an individual in any material way. Despite the connection that the internet has with the cultivation of social capital when analyzing *digital inequality*[20], it has been found that most people who are online (American study) are "men, younger people, whites, non-Hispanics, urban residents, the more highly educated and those with higher incomes."[21] [22] This displays a discrepancy in social capital creation between racialized and non-racialized communities, despite the fact that racialized communities are more reliant on social ties and social capital. Supporting this claim, Hargittai aptly states that "as ICT [Internet and Communications technology] becomes ever more central to our social infrastructure one can no longer participate meaningfully in our society without deep and ongoing usage of digital media,"[23]

Further, a study conducted by Zhang and Ta[24] found that an immigrant's (the Asian American demographic studied specifically) mental and physical health (self-rated) depends on a four-fold 'layered social connection' (family cohesion, relative support, friend support and neighbourhood cohesion).[25] Secondly, immigrants are reliant on the informal employment network wherein at least half of all jobs are found.[26] Lastly, speaking to the importance of ICT in the immigrant experience, an empirical study conducted by Daoud *et al.*

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[19] Pénard, Thierry, and Nicolas Poussing. "Internet use and social capital: The strength of virtual ties." *Journal of Economic Issues* 44, no. 3 (2010): 569-595.
[20] Hargittai, Eszter. "The digital reproduction of inequality." In *The Inequality Reader*, pp. 660-670. Routledge, 2018
[21] Hargittai, Eszter. "The digital reproduction of inequality." In *The Inequality Reader*, pp. 660-670. Routledge, 2018. (Pp. 937)
[22] Ono, Hiroshi, and Madeline Zavodny. "Gender and the Internet." *Social Science Quarterly* 84, no. 1 (2003): 111-121.
[23] Hargittai, Eszter. "The digital reproduction of inequality." In *The Inequality Reader*, pp. 660-670. Routledge, 2018. Pp. 943
[24] Zhang, Wei, and Van M. Ta. "Social connections, immigration-related factors, and self-rated physical and mental health among Asian Americans." *Social Science & Medicine* 68, no. 12 (2009): 2104-2112.
[25] *ibid* (pp. 2104)
[26] Goel, Deepti, and Kevin Lang. "Social ties and the job search of recent immigrants." *ILR Review* 72, no. 2 (2019): 355-381.

(on Toronto, Ontario) found that there is a marked reduction in depression levels and increase in social capital for immigrants who engage in political activism and who live in more 'ethnically, linguistically and socioeconomically mixed neighbourhoods.'[27] This last study could indicate a need for immigrant individuals to have a more varied social experience in order to feel less alienated (or depressed) after an 'initial stressful settlement period.' [28] [29] [30] [31]

Figure 4, Long-range Wi-fi Antenna on roof. Retrieved from: https://en.wikipedia.org/wiki/Long-range_Wi-Fi#/media/File:WIFI_Amp_Setup.JPG

The lived experience I have just reviewed identifies a contradiction with the current model of governance and its approach to immigrant settlement; if one is unable to connect to the internet, it will be more difficult to find employment as they do not have access to the informal social networks found online. This would limit an individual's opportunities 'by at least half.'[32] There are many barriers that low-income individuals face, and with the intersection of the low-income and immigrant demographics, as we have seen through the

[27] Daoud, Nihaya, Nasim Haque, Meiyin Gao, Rosane Nisenbaum, Carles Muntaner, and Patricia O'Campo. "Neighborhood settings, types of social capital and depression among immigrants in Toronto." *Social psychiatry and psychiatric epidemiology* 51, no. 4 (2016): 529-538. (pp. 537)

[28] Ng, Edward, and Walter Omariba. "IS THERE A HEALTHY IMMIGRANT EFFECT IN MENTAL HEALTH? EVIDENCES FROM POPULATION-BASED HEALTH SURVEYS IN CANADA." *Canadian Issues/Thèmes Canadiens* (2010).

[29] Subedi, Rajendra Prasad, and Mark Warren Rosenberg. "Determinants of the variations in self-reported health status among recent and more established immigrants in Canada." *Social Science & Medicine* 115 (2014): 103-110.

[30] Golding, Jacqueline M., and M. Audrey Burnam. "Immigration, stress, and depressive symptoms in a Mexican-American community." *Journal of Nervous and Mental Disease* (1990).

[31] Brisson, Daniel S., and Charles L. Usher. "Bonding social capital in low-income neighborhoods." *Family Relations* 54, no. 5 (2005): 644-653.

[32] Goel, Deepti, and Kevin Lang. "Social ties and the job search of recent immigrants." *ILR Review* 72, no. 2 (2019): 355-381.

referenced texts, there is an obvious need to mitigate these discrepancies in connectivity in order to improve the lived conditions of this 'vulnerable and growing subgroup.'[33] In order to do so, I will suggest that Toronto either employ a mesh network along walkable arterial roads similar to Luxembourg's pilot project[34]; or retrofit *long-range Wi-fi antennas* (figure 4) onto publically owned street fixtures. Further, I will suggest the expansion of the Toronto Public Libraries' Wi-fi hotspot program, providing limited internet connectivity through revered civil institutions. Such suggestions will be explored throughout the *Solutions* section.

4 . Context

The context of the communicative mobility of immigrant populations is a sensitive issue, beckoning a critical approach. Toronto, a city lauded for its multiculturalism has reinforced this reputation through the act of municipal *place-making*. However, due to the province going through an epoch of governmental austerity, we do not see an equitable distribution of social services and conversely, we see fundamental social programs being cut by the current Conservative government. Some of these cuts include funding related to housing (which has been downloaded to the fiscally strained municipality), specialty Autism Spectrum focused programs and the Ontario Student Assistance Program, all of which disproportionately harm people in a low-middle income bracket. This is done in conjunction with supporting vanity projects like a horse-racing track and developments in the ecologically sacred green zone. These examples highlight the discrepancies of social care being paid to those who are most vulnerable due to governmental austerity, furthering the neo-liberalization of Canada's neutered welfare state.

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[33] Daoud, Nihaya, Nasim Haque, Meiyin Gao, Rosane Nisenbaum, Carles Muntaner, and Patricia O'Campo. "Neighborhood settings, types of social capital and depression among immigrants in Toronto." *Social psychiatry and psychiatric epidemiology* 51, no. 4 (2016): 529-538. (pp. 530)

[34] Afanasyev, Mikhail, Tsuwei Chen, Geoffrey M. Voelker, and Alex C. Snoeren. "Usage patterns in an urban WiFi network." *IEEE/ACM Transactions on Networking* 18, no. 5 (2010): 1359-1372.

I would now like to go through the context of Toronto and its relationship with immigrant populations, and how improvements to this population's contextual socioeconomic condition is co-opted for piecemeal acts of place-making in order to make the city *appear* more supportive of multiculturalism than it actually is. My study was conducted in Toronto, a city synonymous with its multiculturalism, noting the slogan used for the city's failed 2008 Olympic bid and the city's official logo: 'Diversity is our strength!'[35] Such assertions have 'made a significant dent in the *explicitly* ethnocentric and white supremacist notions of Canadian*ness*...'"[36] This progress, critics have suggested, has resulted in processes of 'diversity management' in the amalgamated city[37]; including: "multicultural school boards, special support for 'minority' businesses, multi-lingual municipal communication strategies, etc..."[38] Further, the municipality's assertions that Toronto is a 'creative city' implies an ethnically diverse population (see: three T's, *Tolerance*), which has been criticized for a reduction to multiculturalism's "substance to a superficial - and therefore easily marketable - conception of cultural diversity... premised largely on the exotic pleasures of 'visible' or 'edible' ethnicity... more or less [a] neoliberal [scheme] engineered to 'sell diversity.'[39] I speak to these issues as the context and value of diversity and multiculturalism in Toronto is reliant on the city's ability to sell such diversity in the hopes of finally acquiring the label of a 'global city.'[40] This is to identify the fact that the acceptance of multiculturalism, and (on a micro-scale) immigrants has come with the increasing need for a city to be *entrepreneurial*[41]

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[35] Goonewardena, K. and Kipfer, S., 2005. Spaces of difference: Reflections from Toronto on multiculturalism, bourgeois urbanism and the possibility of radical urban politics. *International Journal of Urban and Regional Research*, *29*(3), pp.670-678. (pp. 671)
[36] *Ibid* pp. 672
[37] Ibid pp. 671
[38] Ibid
[39] *Ibid* pp. 762
[40] Sassen, S., 1994. *Global city* (p. 330). Princeton, NJ: Princeton University Press.
[41] Jessop, B., 2019. Entrepreneurial City. *The Wiley Blackwell Encyclopedia of Urban and Regional Studies*, pp.1-10.

in the face of measures of austerity. Therefore, when addressing issues regarding multiculturalism and immigrants, the municipality's priority is not necessarily based on the improvements of socioeconomic conditions for multicultural or immigrant populations, but rather the furthering of the agenda of the neo-liberalized, entrepreneurial city.

5 . Methodology

Through empirical research on the availability of free, public Wi-fi, I hope to illuminate the negative communicative space which exists within Toronto's densest streets - Yonge Street (from Bloor St. to King St.). While the scope of this project is meant to cover the whole of Toronto, mapping public Wi-fi throughout the city would be impossible (with a team of two). Acknowledging this, I plan to take the busiest street in Toronto (regarding retail traffic) which will act as a visual aid and a sample to conceptualize the mentioned negative space. I believe if one were to look at the data presented on this dense street, the individual would be able to scale it down to the context of their own neighbourhood with their own spatial knowledge of where they might be able to access Wi-fi. To illustrate this, I have mapped the collected data, indicating where there are public networks and networks which require patronage of a business.

My collection and analyses of this data required several different steps. Firstly, my research assistant and I walked on either side of Yonge St. and looked at every single permeable business interface[42], looking for Wi-fi Hotspot advertisements. We also included spaces which we knew colloquially to have Wi-fi, such as McDonald's or Starbucks (which do not explicitly advertise Wi-fi). We decided on this method as people are more likely to look for Wi-fi where it is advertised or where they know it is available, rather than walking around a space staring at their Wi-fi connection screen hoping for a connection. Specifically,

[42] Dovey, Kim, and Felicity Symons. "Density without intensity and what to do about it: Reassembling public/private interfaces in Melbourne's Southbank hinterland." *Australian Planner* 51, no. 1 (2014): 34-46.

we walked from Bloor St. E. down Yonge St. to King St. E, noting three different variables for each location: the unit that the Wi-fi is being projected from; the retail model of the Wi-fi provider (i.e. corporate, independent, franchise) and; the name of the institution that is projecting the Wi-fi.

We noted whether a location was corporately or independently owned with the assumption that internet strength (or *band-strength*) was dependent on that factor. However, with further research it was found that internet speed and band strength has largely been regulated. Therefore, the distance that a Wi-fi signal projects onto a streetscape will be fairly uniform. Strengthening that claim, it was found that a higher than average quality internet connection (*5G* or *802.11n Protocol*) as asserted by Actiontec.com[43], which states that "the higher data rate, the shorter the instance covered;" whereas, the average protocol connection (*802.11b*, 2.4 GHz) provides the "lowest speeds and throughput, but offers the best range.[44]" It should be noted that older *802.11a* connections are still used (covering ~1/3 of the distance [45]). However, almost every location we noted was either recently opened (likely owning a new modem) or a corporatized business, and a 802.11a connection would not be able to facilitate the volume of connections/bandwidth required to run an internet network like McDonald's or Starbucks. Therefore, I will be assuming the use of the 802.11b connection in order to provide a more conservative and realistic scalar estimation, sticking with my post-positivist ontology which asserts that I provide falsifiable research in order to subvert my own biases and maintain objectivity.

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[43] "How Far Can a WiFi Signal Travel?" Actiontec.com. December 18, 2019. https://www.actiontec.com/wifihelp/how-far-can-wifi-signal-travel-2/.

[44] *ibid*

[45] "How Far Will Your Wifi Signal Reach?" OpenWeb.co.za. October 07, 2018. https://openweb.co.za/how-far-will-your-wifi-signal-reach/.

To map this data, I needed first to determine the average distance that an 802.11b signal would project outwards onto the streetscape. According to OpenWeb.co.za[46] (a New Zealand internet service provider [ISP]), the general rule for 2.4 GHz Wi-fi distance is 46m on average. However, the built form of Yonge St., is largely comprised of brick units (these buildings protected by the *Yonge Street Heritage Conservation Board*[47]) which has a significant impact on connection speeds. Referring to signalbooster.com's blog post[48] (no academic sources [figure 5]) on how much brick impedes signal strength, the author (of the blog-post) introduced the decibel scale which is used to determine a signal's strength on a scale. The highest end of this scale sits at -70 dB, and the lowest sits at -110 dB, a 40 dB difference between the high and low extreme. The following quote displays exactly how severely brick affects signal strength:

RSSI	Signal Strength
> -70 dBm	Excellent
-70 dBm to -85 dBm	Good
-86 dBm to -100 dBm	Fair
< -100 dBm	Poor
-110 dBm	No signal

Figure 5: dB Signal Scale - Retrieved from https://www.signalbooster.com/blogs/news/how-much-which-building-materials-block-cellular-wifi-signals

> "Though incredibly sturdy against the elements, brick is one of the top materials for blocking a signal. First, you have the thickness of the brick which slows the signal down. Secondly, you have mortar between the bricks which does not allow a signal. Additionally, brick generally has supplementary materials on the interior so that electronics, sheetrock, shelves, etc. can be added. The mere thickness of the wall combined with the density of this building material can block up to a whopping -28db scale."[49]

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[46] "How Far Will Your Wifi Signal Reach?" OpenWeb.co.za. October 07, 2018. https://openweb.co.za/how-far-will-your-wifi-signal-reach/.
[47] Allsopp, Robert. "Are We Killing Yonge Street?" NOW Magazine. July 06, 2016. https://nowtoronto.com/news/are-we-killing-yonge-street/.
[48] "How Much & Which Building Materials Block Cellular & WiFi Signals?" *SignalBooster.com*, 2020. www.signalbooster.com/blogs/news/how-much-which-building-materials-block-cellular-wifi-signals.
[49] *ibid*

Determining that 28 dB is 70% of the 40 dB differential between the two extremes, we can assume that the signal strength is reduced by 70%. This reduction puts the connection, outside of the given institution at a 98 dB connection, which is on the very end (quality-wise) of a "poor" connection designation, which does not allow for effective internet access. Applying the 70% reduction in signal strength to the ~46m, we find that the average projection of a Wi-fi signal from a brick building (i.e. most Yonge St. buildings) is a 14m radius from the modem's location. Noting Wi-fi signals being projected from a location outdoors, it was found that the range of usage for signals not impeded by concrete and associated building materials is ~90m[50]. With this determination, I began creating the map.

The map has been created to illustrate the *negative communicative space* wherein individuals who cannot afford the predatory data rates of Canada's telecom corporations, are unable to access the internet while walking down Toronto's most dense and significant street without mobile data (a costly amenity). The creation of this map is utilizing the framework of *critical cartography*, developed in the 1980s and 90s "in opposition to the hegemonic tradition of mapmaking as a *progressive* and *value-free* transcription of the environment.[51]" I believe that the reappropriation of a state-created map (Zoning By-law 569-2013 map) for the purpose of identifying socio-economic discrepancies and the harm that might be caused by them places me within the literature of critical cartography, with the framework and its associated idea(l)s being foundational to the conceptualization of this research project. I wanted to make this map as empirically accurate as possible in order to strengthen my qualitative arguments, therefore I reappropriated the City of Toronto zoning by-law map (*569-2013*). As it would not be feasible to locate the micro-coordinates for the exact location

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[50] "How Far Will Your Wifi Signal Reach?" OpenWeb.co.za. October 07, 2018. https://openweb.co.za/how-far-will-your-wifi-signal-reach/.

[51] Wood, Denis, and John Krygier. "Cartography: Critical Cartography." *International Encyclopedia of Human Geography Oxford, UK: Elsevier* (2009): 345-357.

of the modem in the building, I used the individual markers that display the unit number as the nuclei for the Wi-fi's radius (in order to have uniform data representations). In order to emphasize my point of *negative communicative space*, I have inverted the colour of the spaces which are not covered by Wi-fi to make them appear darker, painting over spaces which require patronage for a Wi-fi connection with an opaque light green (symbolizing the colloquially associated colour of money), and leaving the spaces which are covered with public Wi-fi unedited.

This lack of internet access is problematic for a myriad of reasons, with consideration to demographics such as immigrants who are often marginalized due to racialized, gendered and national power structures. Further, immigrants often rely on social networks to cultivate and/or maintain their individual/familial social wellness, therefore their inclusion within this sphere is imperative in order to not perpetuate digital inequality[52] further, which is already pervasive throughout Canada (with an internet *access rate* of 10.2 per 100 inhabitants[53] [54]).

5 Methods

Through my research, I will be employing a mixed-method study that utilizes empirical, quantitative information and methods. The data obtained through this quantitative research will then be placed in the qualitative literature of CUT/postcolonial urban theory, identifying the shortfalls of current cellular infrastructure. I believe that a mixed-method approach paired with a post-positivist analytical framework will allow for reflexivity in the research, allowing me to identify gaps in either my own or the existing literature without explicitly debasing my claims.

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[52] Hargittai, Eszter. "The digital reproduction of inequality." In *The Inequality Reader*, pp. 660-670. Routledge, 2018.
[53] Ono, Hiroshi, and Madeline Zavodny. "Digital inequality: A five country comparison using microdata." *Social Science Research* 36, no. 3 (2007): 1135-1155.
[54] Organization for Economic Co-operation and Development (OECD). "*Education at a Glance 2003"* OECD, Paris, 2003.

Epistemologically, I am positioned in the school of post-positivism, popularized by Karl Popper; a theory that asserts knowledge is not gained through an objective truth or arbiter(s) of that truth, but rather through a set of conjectures created through research. These conjectures are inherently subject to an individual's bias(es), therefore the research these conjectures produce is not objective. However, when observing a large scale of research claiming to be truthful one can see how these conjectures are warranted. These conjectures create an epistemological base and allow for modification if a theory is falsifiable, therefore making research malleable and reflexive whilst also promoting the idea of objective truth.

Ontologically, I remain in the camp of post-positivism, which insists that there is an objective truth and reality, however, humans and our individual intelligence is too imbued in bias to objectively provide that data. Therefore, I will agglomerate many cases of falsifiable research in order to subvert my own biases as much as possible in an attempt to be positioned as objectively as possible.

3 Positionality/Ethics/Bias

Positioning myself within the intersectional discourse, I identify as an Anglo-Saxon, queer, first-generation university student. This positionality puts me in a precarious position while interacting with marginalized populations through academic interviews (as my lack of interviewing acumen in conjunction with my identity markers might inadvertently cause harm), therefore I have omitted interviews from my research process. I recognize the harm that past researchers have caused to disenfranchised groups, as well as the practice of *extracting* histories of the marginalized for their own academic advancement. Despite these considerations, I am a partial insider due to my class as I have lived in a lower-economic bracket my entire life, and have been barred from using cellular data due to fiscal barriers,

therefore I intimately understand the social amenities and utilities that cellular data brings. If I am to explicitly place myself within the academic canon of urban theory, I believe that I identify as a critical (digital) human geographer, however much of my previous work echoes the tenets of Marxist theorists such as that of David Harvey (his work on neoliberalism) and Henri Lefebvre ("*the right to the city"*[55]*, "the production of space"*[56]*)*. Therefore, I believe it is a little premature to attach myself to one theoretical approach, however, that is where I am currently academically situated.

3 Limitations

The limitations of my research are largely relegated to the geographic zone which the study covers, that being Yonge Street and Bloor Street to Yonge Street and King Street. While this paper attempts to speak to the situation in Toronto as a whole, it will be geographically limited to the area sampled. However, I believe this sample will provide the densest and most data-rich results, thus, allowing for extrapolation and application of the data to an individuals own neighbourhood based on the density of public Wi-fi distributors (i.e. same study conducted in suburbs could gather data from a larger area in order to include more institutions that provide private/public Wi-fi). It should be noted that the retail landscape of Yonge Street is persistently changing, therefore the actual utility of my map as a guiding resource is limited to the amount of time that the studied institution is open. However, given the data and discovered methods used to develop the Negative Space map, it will continue to be useful, allowing observers of the counter-map to understand the disparity in publically available Wi-fi, and how that might negatively affect demographics which are

[55] Lefebvre, Henri. "The right to the city." *Writings on cities* 63181 (1996).
[56] Lefebvre, Henri, and Donald Nicholson-Smith. *The production of space*. Vol. 142. Blackwell: Oxford, 1991.

already disproportionately disenfranchised (often due to intersectional [racialized, gendered, nationality] identity]).

6 . Map Produced

Figure 6: Map: "The Negative Space of Communication"

Zoomable map can be found at:
https://imgur.com/a/tgQa4Uk

7 . Analysis

Through the creation of this map, my research has found that there are very few places where public Wi-fi is truly public and truly free. The overwhelming majority of spaces that provide public and free Wi-fi require users to purchase goods or services to be able to connect to the internet. As is illustrated in the map, the *negative space* is represented through the darkened parts of the map, identifies a severe lack of connectivity within the densest street in Toronto; with three spaces that offer true public Wi-fi. The green spaces indicate facilities which offer Wi-fi, but require you to purchase a good or service; thus, presenting a financial barrier for those experiencing socioeconomic precarity. Analyzing the data gathered for the map, one can see how this public Wi-fi distribution pattern is potentially furthering the effects of digital inequality. Addressing my hypothesis, the spaces wherein public Wi-fi is accessible without the requirement of paying are few and far between. The spaces which offer public Wi-fi with the requirement of patronage to the business are more frequently found, however, these spaces have financial barriers that pose issues of economic accessibility to that service. This barrier to accessibility is problematic with consideration to the ways in which the internet has been entrenched into almost every facet of life (i.e. the digitization of public services), with a lack of internet limiting one's opportunities for engagement with the modern, 'intelligent' city, thus contesting their *right to the city*. Recognizing private businesses are fully within their rights to restrict internet access to consumer's of their goods, I believe that this map does not illustrate the greediness of these businesses; rather, it displays how the provision of public Wi-fi services by the municipality would markedly improve the lives of both the vulnerable and privileged.

Through my analysis, I will apply two theoretical frameworks to my research and data; firstly, a post-colonial framework that analyzes the replication of colonial-era methods of silencing voices of dissent and/or the vulnerable through the claiming of discursive space; secondly, I will apply the theory of *the production of space* to both the realm of internet connectivity and non-connectivity. I believe the inclusion of both of these theoretical concepts will help articulate the harm that might come from the market mechanics of predatory telecom corporations.

1 Postcolonial Urban Theory

Canada's history with colonialism is one that has been brought back to the forefront of political thought with the proliferation of Indigenous rights protests, decrying the government's historical and contemporary subjugation of First Nations people. This shift in perspective was followed by the Liberal government's formal commitment to the improvement of Indigenous lives on and off reservations (i.e. water quality, public health resources, etc.). This governmental recognition has made postcolonial urban theory more relevant than ever to analyses of Toronto and its urban mechanics. Therefore, I will use this theory to illustrate the harm that predatory telecom corporations are doing to vulnerable populations. I believe that the *silencing* of vulnerable populations that is occurring due to digital inequality echoes many tenets of colonialism, and provides a distillation of the contemporary neoliberal political framework of Canada.

Firstly, I must recognize that this is not traditional colonialism which is being enacted today, but one that has evolved from those traditional roots. Traditional colonialism is settler-colonialism which is more concrete in definition (i.e. [cultural] genocide, theft of land

for the sake of expansion [*terra nulius*, manifest destiny]). In the current socio-politico landscape of Canada, we can see that colonialism has evolved in order to adapt to a more socially conscientious and tolerant society. A contemporary example of this evolved process is the pipeline that has been laid through Wet'suwet'en lands, met persistently with extreme opposition (such as protests). While Justin Trudeau and the Liberal government had posited themselves on campaign platforms such as reconciliation, Royal Canadian Mounted Police were deployed with recommendations to enact 'lethal overwatch[57],' replicating the violent colonial practices of the RCMP throughout the 19th and 20th centuries[58]. However, rather than for goals of social control, this process is the result of public-private partnerships that did not engage with a comprehensive *enough* community consultation period, resulting in the soiling and theft of sacred Indigenous land for the sake of industrial capitalism. This suggests the Liberal party was disingenuous (or unable to fulfill promises) when indicating that reconciliation was a prioritized mandate of their platform.

This evolution of colonialism has manifested within the market mechanics of predatory telecom corporations in an interesting way. If we are to examine historical colonial processes, the main factor in such processes was the silencing of people; whether it be through the rejection of one's native language, or through the disallowance of people of certain races not to participate in political processes. Regarding my research, I believe that a similar silencing has occurred to vulnerable populations through digital inequality; however, the typology of this silencing is markedly different and more subversive in tone. In a landscape that lacks comprehensive regulation, telecom corporations are able to raise prices

[57] Parrish, Will, and Jaskiran Dhillon. "Exclusive: Canada Police Prepared to Shoot Indigenous Activists, Documents Show." *The Guardian*, Guardian News and Media, 20 Dec. 2019, www.theguardian.com/world/2019/dec/20/canada-indigenous-land-defenders-police-documents.
[58] Dhillon, Jaskiran K. "Indigenous girls and the violence of settler colonial policing." *Decolonization: indigeneity, education & society* 4, no. 2 (2015).

on data and internet resources without governmental intervention, thereby limiting the digital mobility (i.e. economic, social and political) of vulnerable populations

In an interview with BNN Bloomberg[59], Phil Lind, vice-chair of Rogers Communication stated that 'data rates are growing about two-times every year.' Therefore, minimizing the positive impacts that the Liberal government's 25% cost cut might have on consumers. This exponential increase in cost presents an economic barrier to vulnerable consumers and, as such, does not allow them to participate in the hegemonic discursive space, the internet (the space predominantly being occupied by white, male voices[60]). This not only limits the social networking capabilities of vulnerable populations such as immigrants (as was discussed throughout the literature review), but further stifles their economic, social and political mobility. The importance that internet connectivity has for vulnerable populations, conversely examined with the discrepancy of internet connectivity due to lack of public availability or economic barriers, is surely an issue worth examining by federal policymakers if the politics of accessibility are to be comprehensively employed throughout the country's multi-faceted economic sphere.

2 Rhythmanalysis of Dialectic Spaces of (Non-)Communication

This section seeks (like Harvey and Lefebvre) to understand the 'relations between capital and space'[61] through Lefebvre's conceptions of '(social) space as a (social) product.' However, in work on the production of space and how it relates to technology, I have found

[59] "Consolidation in Canadian Telecom Industry 'Inevitable': Rogers Vice-Chair." *BNN*, 30 Oct. 2018, www.bnnbloomberg.ca/company-news/video/consolidation-in-canadian-telecom-industry-inevitable-rogers-vice-chair~1527094

[60] Ono, Hiroshi, and Madeline Zavodny. "Gender and the Internet." *Social Science Quarterly* 84, no. 1 (2003): 111-121.

[61] Kirsch, Scott. "The incredible shrinking world? Technology and the production of space." *Environment and Planning D: Society and Space* 13, no. 5 (1995): 529-555. (pp. 530)

that there is a focus on the ways in which technology changes already established spaces[62], rather than the ways in which technology has *produced* space. For example, the *global village* is a term which is used to describe the increasingly small world which we inhabit, Harvey stating that "we have to learn how to cope with an overwhelming sense of *compression* of our spatial and temporal worlds"[63]. However, there must be people who live outside that compressed landscape as no population is entirely homogeneous but rather paradigmatic, one existing between two extremes (in this case, hyper-connectivity vs. non-connectivity). Further, as the world becomes increasingly connected, the size of that global village becomes smaller, with divisions in that space revealing themselves with detailed theoretical and intersectional analysis (not unlike the structure of a molecule;

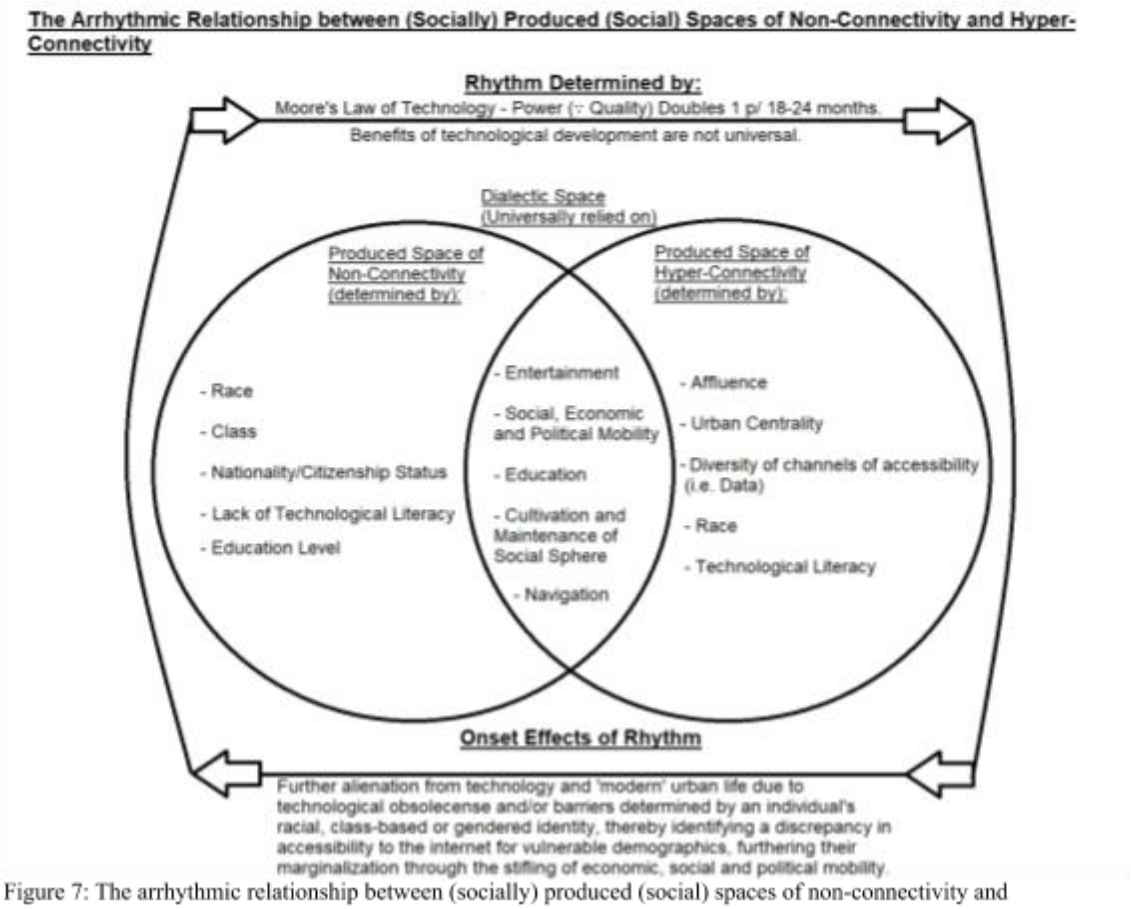


Figure 7: The arrhythmic relationship between (socially) produced (social) spaces of non-connectivity and hyper-connectivity

[62] *ibid*
[63] Harvey, David. "The Conditions of Postmodernity". Basil Blackwell, Oxford. (pp. 240)

appearing as a single object, but in actuality, is made of an unknowable number of individual parts [or perspectives]). One's accessibility and usage of the internet is determinant on social factors, as Ono and Zavodny's article has identified (i.e. race, gender, class positionality), therefore the spaces of hyper-connectivity and non-connectivity exist in tandem. It is my belief that one's social positionality determines one's accessibility to the internet, putting them either in the space of hyper-connection, or one of non-connection.

However, despite the oppositional nature of these spaces, the two populations are both dependent on the internet for their everyday social (i.e. social networks), economic (i.e. banking, public services) and political (i.e. news, dominant space of political discourse [e.g. Twitter]) functionality, therefore a dialectic relationship exists between the two spaces. The structure of these dialectic spaces is maintained by *a technological rhythm*, determined by Moore's *law of technology*, which dictates that technology doubles in power every 18 months to two years. Harnessing Lefebvre's concepts of Rhythmanalysis[64], we find an *arrhythmia* between these two spaces through their dialectic relationship with discrepancies in accessibility to the internet, thereby reducing one's multi-scalar mobility due to laissez-faire regulations of Canada's telecom market. Arrhythmia, in the context of rhymanalysis, describes two rhythms that are not in sync with one another, despite existing within the same (urban) context. With consideration to Moore's tried and true law of technology, we can see the alienation of vulnerable populations worsening in time with society's increasing reliance on the internet for daily economic, social and political functionality.

To illustrate this theory, I have prepared a flowchart (figure 7). I believe this combination of theoretical frameworks allows for the understanding that, while these spaces

[64] Lefebvre, Henri. *Rhythmanalysis: Space, time and everyday life*. A&C Black, 2004.

exist in tandem and are both functionally contingent on one's (or a group's) utility of the internet (as seen in the dialectic space; the temporal zone in which these two spaces interact), they are not growing in tandem, despite scientific law dictating technology doubles every 18 months. Despite this development, people within vulnerable demographics do not experience the benefits of these technologies in tandem with those who exist in the space of hyper-connectivity, often affluent and/or white. This is obviously problematic in terms of the social power of the internet and is an issue that requires mitigation as soon as possible. Further, the identification of a *rhythm* related to technological alienation asserts the notion that this alienation will be worsened perennially, and that a prioritization needs to be made to mitigate these problems if the government is to ameliorate these discrepancies.

8 . Solutions

Through this section, I will provide two potential solutions. The obvious solution to this problem is to designate the internet and mobile data as a public utility, as supported by Hargittai: "as ICT becomes ever more central to our social infrastructure one can no longer participate meaningfully in our society without deep and ongoing usage of digital media,"[65]. However, under Canada's contemporary neoliberal political framework, such a task cannot be feasibly funded by public expenditure and federal funding. Firstly, the market for internet/mobile data users is far too large to make such a shift without heavily enforced transition planning. Secondly, neoliberalism is a political ideology that encourages competitiveness and entrepreneurialism, conversely cutting back funding for social programming. Therefore, such a decision would contradict the dominant political-ideological position of the government. Lastly, with the advent of COVID-19 and the dispersion of the

[65] Hargittai, Eszter. "The digital reproduction of inequality." In *The Inequality Reader*, pp. 660-670. Routledge, 2018. Pp. 943

Canadian Emergency Response Benefit (CERB), public expenditure will be at a minimum for an extensive period of time. Therefore, the restructuring of the current regulatory framework surrounding the provision of internet and mobile data is unlikely. Instead, I will provide two realistic solutions to my research problematiques.

8 Long-range Wi-fi Antennas

The most realistic solution to the lack of publicly available Wi-fi is, I believe, the implementation of long-range Wi-fi antennas. If one were to retrofit existing street fixtures (i.e. street-lamps, hydro-poles) with these antennas along an arterial street like Yonge St., we might see the destratification of digital inequality with regard to internet connectivity. As it has been shown in the study from Luxembourg[66], the geographic trends of people's internet usage indicate a hyper-mobility within the mobile internet-using population, potentially indicative of several stops. If one were to implement a contiguous mesh-network along a given street, these discrepancies might be mitigated and the general quality of life for all will improve, as less money is being spent on mobile data and those who need such connection will know that there is

Figure 8: Proposed effects of *long-range Wi-fi Antennas*

[66] Afanasyev, Mikhail, Tsuwei Chen, Geoffrey M. Voelker, and Alex C. Snoeren. "Usage patterns in an urban WiFi network." *IEEE/ACM Transactions on Networking* 18, no. 5 (2010): 1359-1372.

an avenue for internet accessibility despite socioeconomic positionality. I think this solution is realistic chiefly because such a program would strengthen public-private partnerships between internet service providers and the federal/provincial/municipal government; such partnerships being a hallmark of the neoliberal model of governance. Further, it will still allow telecom corporations to profit from home internet usage, thereby not entirely harming the various telecom corporation's profitability (i.e. Bell, Rogers). Applying the same cartographic logic employed to create the presented map, we can immediately see the benefits of implementing such networks (with the light circles representing spaces of connectivity, dark spaces representing areas of non-connectivity [see: figure 8).

8 Expansion of Toronto Public Library Wi-fi Hotspot Program

If the solution just explained is either impossible or parties are unwilling, I feel that the expansion of the Toronto Public Library's Wi-fi Hotspot program[67] is imperative to the mitigation of digital inequality. This program provides individuals access to the internet through the provision of portable Wi-fi hotspots, accessing the internet through a library-exclusive stream of mobile-data. This is a surprising and refreshing initiative, identifying the fact that digital inequality is a pervasive issue throughout Toronto, as is evidenced through this paper. The federal and/or provincial governments should recognize the utility of these programs, especially with the Liberal Government's formal recognition that mobile data and internet rates are disproportionately high when compared to countries of similar socioeconomic structure/stature. Further, they should be more proactive in using the

[67] "Wi-Fi Hotspots." *Toronto Public Library*, www.torontopubliclibrary.ca/using-the-library/computer-services/wifi-hotspots/.

library as a source of care and maintenance[68] for those affected by digital inequality. Further, funding of such a program would be a fantastic springboard to do so from.

9 . Conclusions

Through this research project, I have made several conclusions based on both primary evidence that I gathered and secondary evidence that I have agglomerated, contextualized and analyzed. The first conclusion is that immigrant demographics assuredly rely on the internet and social networks for social, economic and political mobility - with access to the internet markedly improving mental and physical health outcomes. I then conclude that despite this reliance on the internet and mobile data, that this demographic is being excluded from the space due to financial barriers. Thirdly, it was found that on Toronto's busiest street (Yonge St.), there is a significant lack of publicly available, free Wi-fi, posing several issues for immigrant populations. For example, if one was to try to navigate through the city, unable to access the internet through mobile data they would have a difficult time finding publicly available Wi-fi (disproportionately affecting immigrant demographics). I then identify the ways in which this exclusion is replicating colonial-era methods of social control, which is problematic. My last theoretical conclusion in the paper is through a combination of the Lefebvrian theories of Rhythmanalysis and the Production of Space, which has found that (with consideration to Moore's law of technology) technological alienation is cyclical, and will, therefore, worsen in time (potentially doubling its effects every 18-24 months).

Recognizing both of these theoretical issues, I have provided two potential solutions that might mitigate this digital inequality, lest the technological alienation immigrants

[68] Graham, Stephen, and Nigel Thrift. "Out of order: Understanding repair and maintenance." *Theory, Culture & Society* 24, no. 3 (2007): 1-25.

experience worsens. The first solution suggests the implementation of long-range Wi-fi antennas onto dense, arterial roads in order to implement a mesh network - providing contiguous zones of communication. Secondly, I suggest further funding of the Toronto Public Libraries Wi-fi Hotspot Program, as it requires the least amount of public expenditure and physical maintenance, allowing an existing institution to provide a mode of internet access. Regardless of the solutions that are employed, my research has identified a problem in the current communicative sphere of Toronto which requires mitigation if the municipality is to hope for a socioeconomically healthy city, providing equality of opportunity through internet connectivity as the world becomes increasingly entrenched in its reliance on the internet.

Acknowledgements

I am obliged to acknowledge several individuals for both the help and support needed to create this paper. Chiefly, I would like to thank Professor Teresa Abbruzzese for her steadfast and life-changing guidance and support. As someone who has struggled with schooling for my entire life, being met the care and compassion that Professor Abbruzzese has afforded me means more to me than I can articulate. I will forever be indebted to her for such guidance, and I cannot imagine where I would be in my academic experience if not for her. The freedom that she has provided in this academic experience has allowed for me to understand my full intellectual and academic potential, and as a result, has instilled a great amount of self-confidence into myself (something which I have historically lacked). So, for that, Professor Abbruzzese, I thank you, from the very bottom of my heart.

Further, I would like to acknowledge my best friend, Jake Fuller, who helped greatly in the process of collecting the raw data necessary to complete the map. He was both

courteous, professional and effective with regards to his work during the collection of the raw cartographic data. He has also been a pillar of support throughout my university education; in times of frustration and elation, encouraging me at every juncture and it was a joy to work with him in such a context. Similar to Jake is my mother, Ruth Heathcote, who has also been a pillar of support for me during my schooling. Her help included assisting me edit this research project, discussing complex topics and her valuable personal insight and just overall, being a great mother. I do not know where I would be without her steadfast compassion and support.

Lastly, I would like to acknowledge Ann Heathcote, my aunt. As a former policy-maker (Federal Office of Immigration), her review of my paper was invaluable - allowing me insight into the different prosaic and content-based features that federal policymakers look for in professional research. Further, her review and support have provided me with the confidence needed to submit a paper of this length constantly reassuring me that my research was both valuable and substantive. I cannot thank my Aunt Ann enough for her academic support and guidance throughout my university education, and I am incredibly grateful to have been able to involve the people I love within the work that I love.

Works Cited

Allsopp, Robert. "Are We Killing Yonge Street?" NOW Magazine. July 06, 2016. https://nowtoronto.com/news/are-we-killing-yonge-street/.

Afanasyev, Mikhail, Tsuwei Chen, Geoffrey M. Voelker, and Alex C. Snoeren. "Usage patterns in an urban WiFi network." *IEEE/ACM Transactions on Networking* 18, no. 5 (2010): 1359-1372.

Brenner, Neil. "What is critical urban theory?." *City* 13, no. 2-3 (2009): 198-207. Pp. 198

Bourdieu, Pierre. "The forms of capital." (1986): 258.

Brisson, Daniel S., and Charles L. Usher. "Bonding social capital in low-income neighborhoods." *Family Relations* 54, no. 5 (2005): 644-653.

Coleman, James S. *Foundations of social theory*. Harvard university press, 1994.

Daoud, Nihaya, Nasim Haque, Meiyin Gao, Rosane Nisenbaum, Carles Muntaner, and Patricia O'Campo. "Neighborhood settings, types of social capital and depression among immigrants in Toronto." *Social psychiatry and psychiatric epidemiology* 51, no. 4 (2016): 529-538. (pp. 537)

Dhillon, Jaskiran K. "Indigenous girls and the violence of settler colonial policing." *Decolonization: indigeneity, education & society* 4, no. 2 (2015).

Dovey, Kim, and Felicity Symons. "Density without intensity and what to do about it: Reassembling public/private interfaces in Melbourne's Southbank hinterland." *Australian Planner* 51, no. 1 (2014): 34-46.

Fellows, G. Kent, and Mukesh Khanal. "The Economics of Telecommunications in Canada: A Backgrounder." *The School of Public Policy Publications Research Paper* 11 (2018): 32. Pp. 1

Geist, Michael. "The policy battle over information and digital policy regulation: a Canadian perspective." *Theoretical Inquiries in Law* 17, no. 2 (2016): 415-449.

Government of Canada, Canadian Radio-television and Telecommunications Commission, and Crtc. "Communications Monitoring Report 2017: Canada's Communication System: An Overview for Canadians." *CRTC*, 9 Nov. 2017, crtc.gc.ca/eng/publications/reports/policymonitoring/2017/cmr2.htm#s21.

Goel, Deepti, and Kevin Lang. "Social ties and the job search of recent immigrants." *ILR Review* 72, no. 2 (2019): 355-381.

Golding, Jacqueline M., and M. Audrey Burnam. "Immigration, stress, and depressive symptoms in a Mexican-American community." *Journal of Nervous and Mental Disease* (1990).

Goonewardena, K. and Kipfer, S., 2005. Spaces of difference: Reflections from Toronto on multiculturalism, bourgeois urbanism and the possibility of radical urban politics. *International Journal of Urban and Regional Research*, *29*(3), pp.670-678. (pp. 671)

Graham, Stephen, and Nigel Thrift. "Out of order: Understanding repair and maintenance." *Theory, Culture & Society* 24, no. 3 (2007): 1-25.

Hargittai, Eszter. "The digital reproduction of inequality." In *The Inequality Reader*, pp. 660-670. Routledge, 2018. Pp. 937

Harvey, David. “The Conditions of Postmodernity”. Basil Blackwell, Oxford. (pp. 240)

"How Far Can a WiFi Signal Travel?" Actiontec.com. December 18, 2019. https://www.actiontec.com/wifihelp/how-far-can-wifi-signal-travel-2/.

“How Much & Which Building Materials Block Cellular & WiFi Signals?” *SignalBooster.com*, 2020. www.signalbooster.com/blogs/news/how-much-which-building-materials-block-cellular-wifi-signals.

Kawachi, Ichiro, and Lisa Berkman. "Social cohesion, social capital, and health." *Social epidemiology* 174, no. 7 (2000).

Kazemipur, Abdolmohommad. "The market value of friendship: Social networks of immigrants." *Canadian Ethnic Studies* 38, no. 2 (2006): 47.

Kirsch, Scott. "The incredible shrinking world? Technology and the production of space." *Environment and Planning D: Society and Space* 13, no. 5 (1995): 529-555. (pp. 530)

Lefebvre, Henri. "The right to the city." *Writings on cities* 63181 (1996).

Lefebvre, Henri, and Donald Nicholson-Smith. *The production of space*. Vol. 142. Blackwell: Oxford, 1991.

Lefebvre, Henri. *Rhythmanalysis: Space, time and everyday life*. A&C Black, 2004.

Liberal Party of Canada. “Cell Phone Bills: Our Platform.” *2019*, www2.liberal.ca/our-platform/cell-phone-bills/.

Middleton, Catherine. "An Introduction to Telecommunications Policy in Canada." *Australian Journal of Telecommunications and the Digital Economy* 5, no. 4 (2017): 97-124.

Ng, Edward, and Walter Omariba. "IS THERE A HEALTHY IMMIGRANT EFFECT IN MENTAL HEALTH? EVIDENCES FROM POPULATION-BASED HEALTH SURVEYS IN CANADA." *Canadian Issues/Thèmes Canadiens* (2010).

Ono, Hiroshi, and Madeline Zavodny. "Gender and the Internet." *Social Science Quarterly* 84, no. 1 (2003): 111-121.

Organization for Economic Co-operation and Development (OECD). “*Education at a Glance 2003”* OECD, Paris, 2003.

Parrish, Will, and Jaskiran Dhillon. “Exclusive: Canada Police Prepared to Shoot Indigenous Activists, Documents Show.” *The Guardian*, Guardian News and Media, 20 Dec. 2019, www.theguardian.com/world/2019/dec/20/canada-indigenous-land-defenders-police-documents.

Pénard, Thierry, and Nicolas Poussing. "Internet use and social capital: The strength of virtual ties." *Journal of Economic Issues* 44, no. 3 (2010): 569-595. (Pp. 570)

Portes, Alejandro. "Social capital: Its origins and applications in modern sociology." *Annual review of sociology* 24, no. 1 (1998): 1-24.

Putnam, Robert D. *Bowling alone: The collapse and revival of American community*. Simon and schuster, 2000.

Rousseau, Jean-Jacques, and Gita May. *The social contract: And, the first and second discourses*. Yale University Press, 2002.

Sassen, S., 1994. *Global city* (p. 330). Princeton, NJ: Princeton University Press.

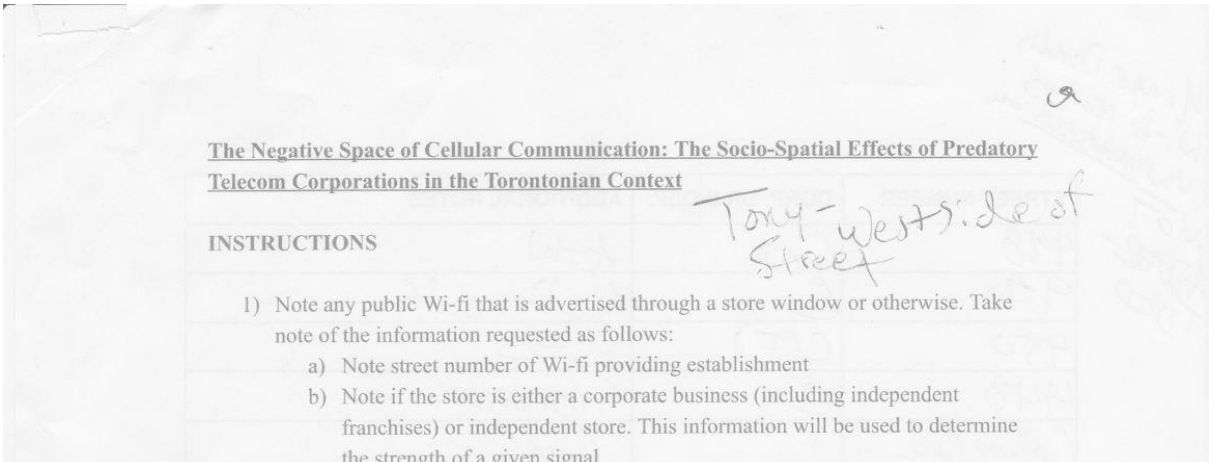
Subedi, Rajendra Prasad, and Mark Warren Rosenberg. "Determinants of the variations in self-reported health status among recent and more established immigrants in Canada." *Social Science & Medicine* 115 (2014): 103-110.

"Wi-Fi Hotspots." *Toronto Public Library*, www.torontopubliclibrary.ca/using-the-library/computer-services/wifi-hotspots/.

Wood, Denis, and John Krygier. "Cartography: Critical Cartography." *International Encyclopedia of Human Geography Oxford, UK: Elsevier* (2009): 345-357.

Zhang, Wei, and Van M. Ta. "Social connections, immigration-related factors, and self-rated physical and mental health among Asian Americans." *Social Science & Medicine* 68, no. 12 (2009): 2104-2112.

Raw Cartographic Data



The Negative Space of Cellular Communication: The Socio-Spatial Effects of Predatory Telecom Corporations in the Torontonian Context

Tony - Westside of Street

INSTRUCTIONS

1) Note any public Wi-fi that is advertised through a store window or otherwise. Take note of the information requested as follows:
   a) Note street number of Wi-fi providing establishment
   b) Note if the store is either a corporate business (including independent franchises) or independent store. This information will be used to determine the strength of a given signal

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Wi-fi reaches
NW intersection
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TISED.

STREET NUMBER	CORP. ORNDEP.	ADDITIONAL NOTES
498	Corp	A+W
470	C	McDonalds
450	C(F)	Ritz
448	C	Starbucks
College Park	C	Tims
↓	↓	Planet Fitness
356	C	McDonalds.
~~336~~	~~C~~	~~Warehouse~~
322 Yonge	C	Panera (unloaded
220 Yonge	C (mixed)	CF Eaton Centre Connection (WE-N
	C (P)	Dundas Station
	!*	(NOTE COLLEGE STATION) !*
	C	Nordstrom
		Starbucks.
The Bay	C	Dior
	C	Louis Vuitton
1 Richmond	C	Tim Hortons
	C	A+W.
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STREET NUMBER	CORP. OR INDEP.	ADDITIONAL NOTES
1 Adelaide	Corp	Starbucks/complex
Queen Subway		
turned	Around	on opposite Side
going		North
4 King West	Corp	Starbucks/complex
110 Yonge	Corp	TD Bank/Complex

SOSC3702 RESEARCH PROJECT CHECKLIST

Name: Antony Riley

Cover page: ✓

Title: ✓

Course: ✓

Name: ✓

Word length: ✓

Acknowledgements

Abstract: ✓

Table of Contents: ✓

List of Figures and Tables: ✓

Introduction:✓

Research question: ✓

Literature review: ✓

Context: ✓

Methodology: ✓

Methods: ✓

Analysis: ✓

Conclusion: ✓

References: ✓

Appendices: ✓