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Locating Montreal's Nannies: Micro-work, Work Trajectories and Multiple Work Locations

Supervised Research Project

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Abstract - English

A basic assumption that underpins most research on the urban space-economy is that economic activity, usually operationalized as jobs, can be located. Recent work on mobilities suggests this should be rethought, as knowledge workers perform increasing numbers of tasks at home, on the move or in third-spaces. However, it is not only knowledge workers whose work location cannot be pinpointed. This project explores the geography of work of a group of Montreal child-carers. By way of in-depth interviews we document the spatiality of their working days, revealing complex trajectories, which are broadly contained within a large neighbourhood. These trajectories seem to have become more complex with the advent of mobile communication technology and the gig economy, but child-caring has always required mobility: the convention that economic activity takes place at a place-of-work, although increasingly divorced from actual practice, has only ever described certain types of work.

Abstract - French

La plupart des études d'économie spatiale en milieu urbain conçoivent comme hypothèse de départ que l'activité économique, qui se traduit concrètement par des emplois, peut être localisée géographiquement. Des recherches récentes en mobilité suggèrent que cette approche doit être revisitée, car les personnes travaillant dans l'économie de la connaissance réalisent une part croissance de leurs tâches à leur domicile, durant leurs déplacements ou dans des tiers-lieux. Cependant, ce n'est pas uniquement pour ce type de travailleurs que l'emploi ne peut être localisé précisément. Dans ce projet, je explore la géographie des activités d'un groupe d'assistantes maternelles de Montréal. Au travers d'interviews approfondies, je documente la spatialité de leurs journées de travail, révélant des trajets complexes, généralement circonscrits au sein d'un vaste quartier. Ces trajets semblent s'être complexifiés avec l'avènement des nouvelles technologies de communication et le *gig economy*. Mais la garde d'enfants a toujours nécessité des déplacements : l'idée reçue selon laquelle une activité économique se pratique obligatoirement dans un lieu de travail ne correspond plus à la réalité de notre société contemporaine, et n'est réellement applicable qu'à un certain type d'activités.

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Chapter 1: Introduction

1.1 The Evolution of Work in the 21st Century

It is undeniable that both the contractual norms of work as well as the locations of where it is performed have changed dramatically in the North American context since the 1980s (Reich, 1991; Shearmur, 2016; Katz et al., 2016). The reasons for this shift are plentiful. The decline of Fordist production in North America has resulted in a greater demand for highly educated workers in the service economy while the need for factory workers has decreased (Daniels, 1986; Plunkert, 1990). Additionally, globalization and the declining influence of labour unions has resulted in an economy where flexibility and adaptability has an increased importance to corporations. As a result, employers offer their workers short-term employment contracts, a phenomenon labelled the gig economy due to employees working multiple short-term contracts throughout their lifetime (Friedman, 2014). Lastly, recent technological innovations such as the laptop computer and smartphone have altered our relationship to work as many tasks such as reading reports, communicating with clients and scheduling appointments can be performed from anywhere (Lyons et Urry, 2005).

These changes in work habits in the North American context do not only have significant social impacts but also result in common urban planning theories needing to be re-considered. A central assumption in the field of urban planning since the 20th century has been that urban space needs to be organized by uses (Adams, 1917; Fischler, 1998). Planners use tools such as land use regulations and zoning by-laws to create distinct residential, commercial and industrial zones.

The result of these regulations has been that throughout the 20th century most residents of North American cities had distinct places of work and distinct places of residence that were physically separated from each other (Park et al, 1925). This had significant impacts on the planning of transportation infrastructure; in order to move workers between their location of work and location of residence, most transportation infrastructure was planned to efficiently connect the suburban residential neighbourhoods to employment centres such as the Central Business District (Stopher, 2016).

With the rise of mobile technology in the past two decades, however, the distinct separation between place of residence and place of work, as previously mentioned, has been blurred (Lyons et Urry, 2005; Kesselring, 2013; Kwan, 2001). Whereas offices located in the central business district used to be the principal way for workers to connect and communicate, many workers no longer need to be in a specific location to have these interactions. Smartphones in particular have revolutionized the accessibility of data as well as the need for structured interactions that are tied to a location (Kesselring, 2013). While recognizing that some types of employment such as retail or hospitality still work in unchanging locations, for many workers much, and in some cases all, of their work is not necessarily connected to a physical place but can be performed in a series of different locations such as at home, at cafes or even in transit. Studies in the Canadian context suggested that a significant percentage of the urban working population can already freely choose their work location for at least part of their work time, tendency growing (Shearmur, 2016). The distinction between places of residence and places of work therefore cannot be an inherent assumption in the planning of urban space anymore.

So far, the majority of existing research focuses on the sociological effects of this mobility and on the locations that have replaced the traditional places of work (Urry, 2002; Büscher, 2014). While these questions are also of interest to the field of urban planning, planners additionally need to understand people's movement patterns as well as new forms of land use that are emerging from increased workers mobility. Such information is of importance as it aids planners in evaluating the effectiveness of current planning practices and informs how to plan for the transportation and social needs of a city's residents in the 21st century.

For this purpose it is paramount for planners to understand the changing mobility patterns of diverse employment groups. However, the predominant subject of previous studies on workers mobility has been what is called the knowledge worker, creative worker or symbolic analyst, which describes educated workers in the high-order service industry (Florida, 2010; Reich, 1992). It appears that many employment groups whose working conditions are often precarious, meaning that certain structures within their employment contract and conditions put them in both short-term and long-term risk, have been neglected in the research of workers mobility in the 21st century. As it is estimated that in some Canadian urban contexts as much as 40% of the urban working population works experience precarious working conditions, it is important for both sociologists and planners to understand how these workers are affected by the rise of the gig economy and increased workers mobility due to the introduction of mobile technology (Pepso, 2013).

1.2 Research Question

This project aims at contributing to this emerging research by raising and answering questions about changing employment-related mobility patterns among urban Canadians who experience precarious employment conditions. For this purpose this project uses exploratory, qualitative research methods to study one particular employment group in one particular urban context: child-care workers (or nannies) in Montreal. The reason that child-care workers were chosen is that while such personal service work has always been at least partially mobile, it is conceivable that the introduction of mobile technology such as smart phones contributes to increased mobility for child-care workers: a hypothesis that indeed proved to be true for child-care workers in the Montreal context.

As this is an exploratory study that aims at raising important questions that can be pursued in further research, the basis is a simple research question that will be examined:

What are the trajectories of a mobile child-care worker in Montreal on any given day, what physical locations are frequented, what types of transportation are used and what role does technology play as part of their work? Further, has the introduction of mobile technology changed the child-care profession's relationship to space over the past decade?

Such research would contribute to a better understanding of economic activity within the city and how space can be planned to accommodate these trajectories. Further, it would inform sociological research on the mobility of personal service workers in a similar fashion to the work that has been done on the mobility of the knowledge worker.

1.3 Outline

Chapter One has briefly described the evolution and currents trends of work habits and culture in North America since the 1980s, a theme that will be revisited in the Literature Review. Further, it has introduced the scope of the project and the subsequent research question. Chapter Two will introduce an overview of the relevant existing literature on the influence of technological innovation on the organization of urban space through land use and zoning regulations. Additionally it will discuss previous definitions of mobile work in the information age, which contributes to a better understanding of classifying the interviewees' mobility in the analysis section.

Chapter Three will introduce the methodology used in this study. The chapter provides an overview of the research approach that was used to recruit participants as well as a description of the participants. Chapter Four offers a brief overview on the geography, history and current demographics of Montreal's Mile End neighbourhood as this is where most of the interviewees live and work. The context of Chapters Three and Four are necessary to understand the in-depth analysis of the interview findings presented in Chapter Five. This chapter will contrast and compare the experiences as well as the work locations and subsequent trajectories described by the nannies in their interviews to understand common experiences and to answer the research question. Chapter Six discusses these findings in the larger context of the existing discussions of worker's mobility in the information age in an attempt to discuss emerging questions that can be pursued in further research as well as concluding this project.

Chapter 2: Literature Review

The first section of this chapter offers an overview of the relationship between technological innovation and the organization of urban space in the North American context. To summarize, urban planning practices such land use regulations and zoning by-laws often responded to and reflected urban residents' changing relationship to urban space as a result of technological innovations such as the invention of the train or the automobile. Further, the chapter demonstrates that while there has been some response in the planning profession to recent innovations such as the development of mobile technology, for example through the Smart City movement, large scale interventions to the urban environment in response to these technological innovations are still rare.

The second section of this chapter outlines how these technological innovations have, however, indeed already influenced North American urban residents' relationship to their urban space, especially affecting their locations of work and blurring the lines between place of residence and place of work. The purpose of this literature review is to demonstrate the need for planners to understand the influence of mobile technology on the North American urban population's relationship and use of urban space in order to respond to their planning needs.

2.1 Technological Innovation and the Planning of Urban Space

The Origins of Cities

While it is impossible to fully understand how and why human settlements, the precursors to modern cities, came into being, archeologists have generally agreed that two of the main catalysts in the establishment of such early settlements were technological advancements and resulting economic developments (Davis, 1955; Smith et al, 2014). Researchers have concluded that innovations such as the introduction of stone tools and pottery during the Neolithic age allowed for the development of agricultural cultivation, which subsequently encouraged trade. Further technological innovations throughout the Bronze Age (6,000 - 4,000 BCE) allowed for further travel and therefore encouraged trade between settlements (Davis, 1955)[1].

As cities emerged as hubs of economic activity as well as residential settlements, the relationship between these two uses has always been a factor in the organization of urban space. In ancient Rome, for example, the *forum* was established as a place of trade while large public housing apartments (*insulae*) were constructed for the workers (*plebs*). While not everyone worked in the marketplace, the state clearly planned and divided places of work and places of residence (Hall, 1997). Similar observations can be made in medieval European cities where centralized places of work, such as the market place, also existed despite the majority of people working and living in the same location. While the organization of such space followed some logic, for example the demonstration of power by placing castles and churches at the centre of the settlement, and documents such as the *Law of the Indies* from 1542 formalized planning practices, the profession of the urban planner was not developed until the inception of the Industrial City in the 19th century (Mundigo et al, 1977).

[1] Some researchers, most prominently Jane Jacobs in *The Economy of Cities*, have made the opposite claim (Jacobs, 1969). Jacobs argues that human settlements were the catalysts for technological innovation rather than the result of them. Though archeologists agree that cities allowed for further innovation, they see no proof that cities preceded the invention of stone tools (Smith et al, 2014).

The Industrial City and the Rise of the Planning Profession

Although technological innovation are continuous and ongoing, one of the most impactful innovation on the development of the modern city was the invention of the steam engine and resulting rise of the Industrial City (Lipovac, 2011). The impact of this technology was two-fold. On the one hand the steam engine and other technological innovations developed during the 19th century such as trains, paved roads and horse-drawn buses allowed for more convenient travel. The ability to regularly travel further than walking distance, a right previously reserved for the wealthy, became available to the broader public. On the other hand, increased industrial activity in the city and the commercial burning of coal led to pollution, which, in conjunction with poor housing quality, highly affected the health conditions of the Industrial City's residents (Engels, 1845). It therefore became both possible and desirable to physically separate the location of work and residence.

One of the most poignant results of such transportation innovations on the organization of modern urban space in North America during this time is the development of the first suburbs, that is residential neighbourhoods which were physically separated from commercial and industrial activities. Factory owners who previously lived and worked in the urban centre chose to build country homes outside of the city and commute to their place of work (Fishman, 1987). Although the hazardous health conditions of the industrial city were the predominant factors leading to this move, it was also informed by ideology. The prominent values of the Anglican protestant work ethic and moral purity among British factory owners as well as the rigid class structures of 19th century Britain led to the belief that the vices and temptations of the city would corrupt the mind (Fishman, 1987).

The influence of philosophy and political ideology on the organization of urban space also informed the role of the early modern planning profession. While early founders of the profession recognized the damaging properties of air pollution and tenement housing on the industrial city's residents, the suggested solutions often involved the proposition of creating new utopian cities, such as Ebenezer Howard's Garden City or Le Corbusier's Radiant City (Howard, 1965; Le Corbusier, 1925). However, criticism of the housing conditions and a recognition of the negative impacts of air pollution on the Industrial City's residents also led planners, both in Europe and North America, to advocate for a better organization of space and subsequent introduction of formalized housing standards, separate industrial areas as well as green spaces (Engels, 1845; Ames, 1897; Olmstead, 1997; Veiller, 1905).

The Planning Profession in the 20th Century

Throughout the early 20th century, planners and policy makers introduced formalized processes that further enabled the organization of spaces according to land use. Especially the introduction of zoning bylaws in North American cities, which physically separated residential, commercial and industrial uses, further contributed to the formalized planned city (Fischler, 1998; Province of Ontario, 1917). The introduction of such policies coincided with impactful technological innovations such as the construction of subways and the introduction of the personal automobile, which allowed for further division of places of residence and places of work (Mumford, 1964).

As these new technologies were the catalysts for large-scale and non-reversible interventions to the built environment in the form of new roads and railways, theoretical planning frameworks were required to decide on the routing of this new infrastructure (Ford, 1909). As these

frameworks have greatly influenced the transportation networks of the modern North American city and continue to inform planners' understandings of locations of work and residence to this day, the most influential frameworks need to be introduced and understood in order to analyze the trajectories and transportation choices of mobile personal service workers in 21st century Montreal.

The Chicago School

The arguably most influential planning framework on the development of North American cities throughout the 20th century is the Chicago School model, which was based on Ernest Burgess' observations of Chicago's land use patterns. Burgess determined that the centre of the city was comprised of a Central Business District (CBD), where heavy industrial activity took place. The CBD was immediately surrounded by lighter industrial activity as well as low quality housing for workers. A ring of higher quality workers housing as well as suburban homes formed the edge of the city, as can be seen in *Figure 1*, which shows Chicago School scholar Homer Hoyt's revisited version of Burgess' model (Burgess, 1925).

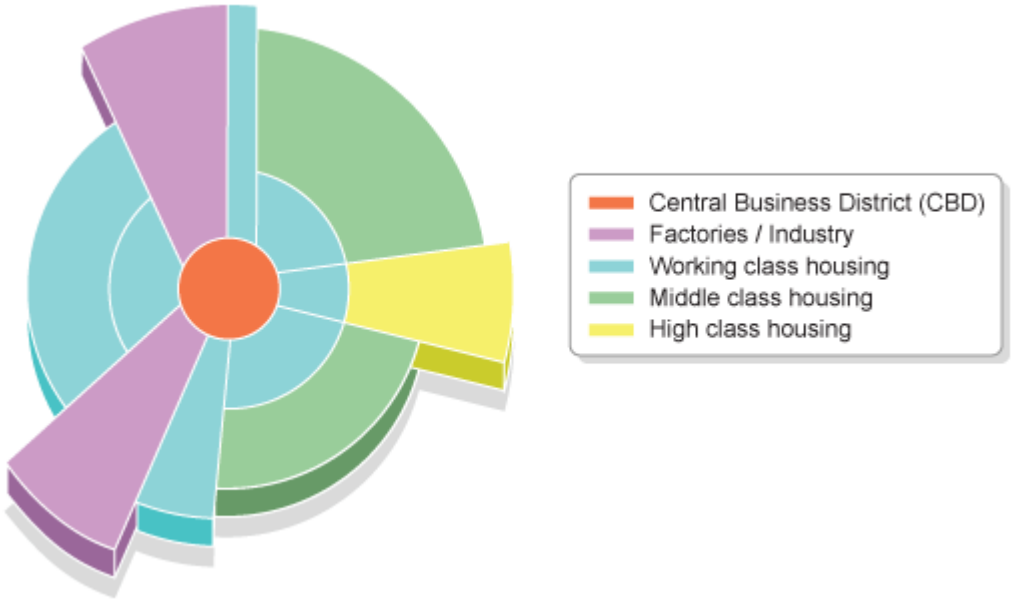


Figure 1: Hoyt's Chicago School model (Hoyt, 1932; BBC, 2017)

Although the Chicago School model was primarily based on observations and can be understood as an attempt to illustrate organic urban expansion, it became highly influential on North American urban development, especially when deciding on the location of industrial activity (Scott, 1988). As North American cities' transportation networks expanded in the form of new highways and roads, subways and commuter trains, the routing, whether intentional or not, often coincided with Burgess' observations that 'In all cities there is the natural tendency for local and outside transportation to converge in the central business district' (Burgess, 1925).

The resulting legacy is that as North American cities further developed throughout the 20th century, the routing of transportation infrastructure, in conjunction with increasing wealth and the establishment of national loan and mortgage agencies, led to an increasing suburbanization of North American cities (Henderson et al., 2000). The separation of distinct places of work and

places of residence, which had begun in the 19th century Industrial City, had become the norm in the North American city of the 20th century.

The Los Angeles School

As urban geographers continued to observe land use patterns and create theoretical frameworks that explain location patterns of where economic activity takes place, it became increasingly apparent in the later half of the 20th century that the transportation infrastructure built in the early 20th century did not account for trajectories that do not conform to the movement between suburban residential areas and the CBD. In New York, for example, almost all subway lines lead to Manhattan, the location of the city's CBD. Trajectories between Queens to Brooklyn, two boroughs that are located adjacent to each other on Long Island, can be notoriously difficult and require a detour to Manhattan.

These conclusions were largely based upon an observation that the single centrality of the CBD as the main location of economic activity does not hold true in all urban contexts. Similar to the Chicago School, urban geographers in Los Angeles used observations based on their own city to argue that cities could have multiple economic centres (Flusty, 2000). Economic activity was taking place in concentrated areas of the city that were most often on the outskirts of the urban centre and were located along important corridors such as highways and rail lines, most often in the form of business parks (Dear, 2002). As highways in North America were built during the mid-20th century, the polycentric model does not necessarily stand in contrast with the Chicago School model. Instead, it can be seen as a natural development induced by transportation

infrastructure where, while the CBD of the post-industrial city became the location of services, the industry that remains is located close to transportation corridors.

Since, as previously stated, the majority of public transportation planning in most North American cities was implemented in the early to mid-20th century under the assumption of the centrality of the CBD, these employment centres are most often not easily reached through public transportation and relied on workers commuting by car. As the Los Angeles model was developed in the late 1980s before the introduction of the gig economy and the rise of mobile technology, however, the model still assumed distinct and separate locations of work and locations of residence.

Contemporary Movements in Urban Planning

Whereas North American planning and development in the 20th century primarily aimed at separating land uses and creating distinct locations of work and locations of residence (although not without criticism from economic geographers), many of the underlying planning movements in the 21st century aim at reversing these developments (Jacobs, 1961). Movements such as *New Urbanism* aim at densifying suburban developments and creating mixed-use streets and communities that bring locations of work and locations of residence closer together again (Congress for New Urbanism, 2015). This coincides with a re-discovery of the urban core as a place of residence, although evidence of such counter-movements is disputed among researchers (Sohmer, 2001; Renn, 2011; Patterson, Saddier et al., 2014). Similar retrospective planning is also occurring in transportation planning where the disruptive nature of inner-city highways is being questioned and reversed, especially when reclaiming formerly industrialized waterfronts (Shaw, 2001).

Of particular importance to the matter of this project is the influence mobile technology has had on recent topics in the field of urban planning. The increasing prevalence of the *Internet of Things* - utilities that are connected to the Internet- has popularized the *Smart City* movement, which argues for using broad data collection and the use of technological innovation to optimize cities' efficiency (Glasmeier and Christopherson, 2016).

Conclusion

As outlined so far in this chapter, it has been assumed since the 19th century that in the North American planning context the location of work and locations of residence are separate from each other. This assumption manifested itself in transportation infrastructure being predominantly constructed to connect these two locations. The next section of this chapter outlines in what way this assumption is changing and what the effects are on the planning profession.

2.2 Mobility in the 21st century

This section will briefly discuss the existing literature on the gig economy, which emerged in the late 1980s, as well as the effects of technological innovations on workers' spatial and social mobility.

The Gig Economy

The increase in workers' mobility in the past thirty years can be understood through a combination of different cultural shifts in North America since the 1980s - a rapid development

of technological innovation, which will be touched upon in the following section, as well as the rise of the so-called *gig economy*.

Prior to the 1980s, the North American economy was structured as a Keynesian welfare state which ensured worker's welfare through government funded social services and the organisation of labour unions. Especially in the Canadian context, a full welfare state was established that provided citizens with full health coverage, unemployment insurance and nationalised industries. As A. J. Scott wrote in his article *Flexible Production Systems and Regional Development: the Rise of New Industrial Spaces in North America and western Europe*, stable and long-term working conditions for employees were mediated through situations where 'labour unions offered concessions to management over shop floor controls and overall production strategies in exchange for guaranteed shares in productivity gains' (Scott, 1988). As the economic foundation of the Keynesian welfare state was the Fordist mass production of standardized goods, the location of work was predominantly fixed, most commonly at a factory. The combination of contractual stability, fixed location of work as well as a shift towards widespread homeownership resulted in workers frequenting very few locations of employment - both on a daily and long-term basis.

However, the decline of Fordist production in North America due to the increasing globalization of production, global competition emerging in locations such as Japan, China and Korea as well as introduction of robots, led to a shift towards a primarily service based economy throughout the 1970s. As a result, strict labour laws were loosened and the influence of unions shrunk. The process was advanced by new conservative political leaders such as Thatcher or Reagan whose

goal it was to disempower labour movements (Harvey, 2005). Additionally, the flexibility of a service-based economy allowed employers to further globalize production. Through this process, vast sectors of economic production in North America neither needed to rely on or were obligated to offer their workers long-term employment contracts (Sennett, 1999).

The results of the shift towards shorter employment contracts has been a change in workers' relationships to work locations and stability changing in the North American context. An employment study of the U.S. service economy, which was conducted in 2014, found that 85% of the positions created between 2005 and 2013 had contractual stipulations that do not provide long-term security, such as the payment of medical benefits, salaried positions and fixed employment locations. These numbers differ significantly from the mid-1990s when only 3% of employment contracts were short-term (Friedman, 2014). Additionally, such contracts have significant impacts on the trajectories of workers as working multiple contracts throughout a lifetime or even week or month results in workers frequenting a higher amount of work locations than was common in the mid-20th century. Further, many services such as cleaning or catering are subcontracted, which means that workers in such professions provide their services to multiple different sub-employers.

The Rise of Mobile Technology

The shift from Fordism to Post-Fordism in North America coincided with and was furthered by rapid technological innovation, which additionally contributed to a shift in work culture. As personal computing and personal Internet access became normalized in North American households, the division of work and leisure activities have become blurred (Sennett, 1999). In the American context, the Pew Research Centre found that the percentage of people with Internet

access at home rose from 51% in the 2000 to 84% in 2015. The majority of the 16% who do not have access to the Internet tend to be people who are retired and therefore do not use the Internet for work communication. The percentage of millennials that did have Internet access in 2015 was 96% (PEW, 2017). Whereas prior to personal computing, most communication was limited to the workplace, due to it being the location where workers had access to their work phone, computer files as well as the ability to communicate with their colleagues, email, cloud computing and cell phones have made it technological possible for many of the work activities that were tied to a specific location to take place anywhere with Internet access. Especially the introduction of the smartphone in the mid-2000s enables employees to access most work related information and communicate about it instantly and practically anywhere.

The Spatial Impacts of Mobile Technology and the Gig Economy

As established earlier, the Keynesian welfare state of the mid-20th century was defined by fixed production locations at which an employee would typically spend their career. As work tasks could only be performed there, the place of work therefore was clearly defined. The rise of the gig economy, especially in conjunction with innovations in the use of communication technology, has severely altered these assumptions[2].

One of the earlier observations on the effects of globalization and the subsequent rise of the gig economy on the organization of space was made by economic geographer Doreen Massey. Massey argued that flexible production resulted in *time-space compression*, a term which

[2] At this point it must be acknowledged that even before the introduction of the gig economy and mobile technology, certain tasks could take place away from the fixed work location, such as reading reports or conducting meetings. However, the gig economy has resulted in the vast majority of tasks that used to take place at the location of work having the potential to take place in flexible locations.

describes the shifting relationship to time and space in a globalized world (Massey, 1994). Through easier travel and communication technology, global economic centres feel more accessible and therefore closer while economically isolated places are further isolated.

This assumptions also had its effect on the work experience of employees as *time-space compression* enables and expects educated workers to access employment opportunities on the global market. Further, the geographical flexibility of the global market incentivizes employers to not offer employers long-term security (Friedman, 2014). As previously mentioned, one of the consequences is that workers typically will work multiple contracts throughout their lifetime (often multiple at the same time), which implies that the amount of geographical work locations a worker will frequent throughout their lifetime has significantly increased. This is especially furthered by many employers not offering office space to their short-term employees.

Additionally, it must also be considered that the short-term contracts typical of the gig economy create additional work outside of the contractual obligations to their employer. Time must be set aside to secure new projects and contracts, which adds additional work locations such as the home or a cafe. This blurring between the traditional location of work and location of residence is especially enhanced by the introduction of mobile technologies. As a result, essentially any location -whether it be a train, cafe, park or bus- can be used as a location of work (Schieman & Young, 2010; Lyons & Urry, 2005).

It appears that the academic discussion surrounding the restructuring of work locations in the gig economy have primarily focused on the global impacts. The literature primarily discusses how

workers whose education and income levels allow them to chose their location of residence on a global scale choose where to live (Kesselring, 2006; Büscher, 2014). However, estimates of the Canadian context show that only 10-15% of the entire work population can be classified as such *hyper-mobile* workers - meaning that their level of education and income allows for the potential of performing at least part of their work from a location of their choice (Shearmur, 2016). While understanding *hyper-mobility* is important in the context of the gig economy and shows the direct impacts of time-space compression, such global *hyper-mobility* as studied by Kesselring does not explain how workers in North American urban centres are affected by the gig economy, their use of technology and resulting mobility.

Research has, as previously mentioned, determined that, aided by the rise of mobile technology, work tasks are now being completed on trains and other locations (Lyons & Urry, 2005). These studies primarily focus on the tasks performed at each location, whether it be the traditional work location, home or somewhere else, but offer limited information on the geographical relationship between each of these locations. However, when considering the impact technological innovation and the locations of home and work have had on the development of the North American city, it is paramount for the modern urban planner to understand these relationships when planning for the North American city of the 21st century.

The Social Impacts of Mobile Technology and the Gig Economy

One of the main social impacts of the introduction of the gig economy has been the widespread erosion of the social welfare system (Piketty, 2013). As short-term contract usually do not require employers to provide medical benefits, the workers' long-term social security is often

compromised (Friedman, 2014). Further, the requirement of searching for new positions may lead to an increase in work hours (Shearmur, 2016).

However, some of the early observations on the impact of the gig economy conclude that professions that can be classified as *hyper-mobile* benefitted from the gig economy in their personal flexibility. Theorists such as Richard Florida and Robert Reich explored the possibilities technological innovation opened up to workers deemed 'creative' (Florida, 2002) or labeled as the 'symbolic analyst' (Reich, 1992). For both of these types of workers, technological innovation as well as their high levels of education allow them to be able to perform work in a variation of different geographical locations, whether on a local scale (at cafes for example) or even globally (Kesselring, 2006). The underlying reason for their ability to perform some or most of their work from a location of their choice is therefore based in a personal freedom granted through education and workplace power.

It must be considered though that, as outlined earlier, the percentage of the working population with such personal freedom is quite low in North America, meaning that the vast majority of workers, while subject to the employment conditions of the gig economy, do not experience the personal freedom described in the paragraph above (Shearmur, 2016; Friedman, 2014). Works such as the *Capital in the 21st Century* outline how the impacts of the gig economy have led to greater social inequality, partly due to the rapid shifts in economic production (Piketty, 2013; Reich, 2006). In the Canadian context, precarious employment conditions- that is employment conditions that do not provide benefits, regular scheduling or a living wage- have increased dramatically with the prevalence of the gig economy and mostly affect socially vulnerable

groups such as recent immigrants (Quinlan and Bohle 2008; Underhill and Quinlan 2011; Lewchuk, Clarke and de Wolff 2013). Especially the lack of regularity due to the blending of home location and work location through mobile technology has led to precarious employment situations for as much as 40% of the working population in Canadian cities (Pepso, 2013). It has even been argued that *symbolic analysts* and *knowledge workers* are not able to freely choose their work location as they are tied to the larger global economic development patterns (Büscher, 2013).

The Mobility of Personal Service Work

As outlined in the previous section, mobility - that is the ability to perform work in numerous different locations- is becoming increasingly common among workers in the North American context. After acknowledging, however, that only a rising, yet still small percentage of the working population is *hyper-mobile*, meaning that they have the potential to freely chose their location of work, it must also be recognized that mobile jobs have always existed. Shearmur describes these jobs as semi-mobile and recognizes that these "jobs are not fixed in space, but there is little or no potential to roam" (Shearmur, 2016). Examples of this type of work include taxi and truck drives as well as airline pilots. Most personal service jobs can be classified as semi-mobile since personal service work by definition implies alleviating the employer of tasks which are predominantly performed in fixed locations such as the employer's home. This section explores the impacts mobile technology and the gig economy have had on the personal service workers' locations of work as well as the social ramifications.

Centralized vs. De-Centralization of Location of Work

One of the most common forms of personal service work is the provision of transportation services, either in the form of personal transportation (taxis) or the transportation of goods (food delivery). Both taxi and food delivery services existed before the rise of the gig economy and introduction of mobile technologies, and have changed little in their primary functions. The introduction of mobile technologies, however, has had an impact on the business models and user experience of both fields (Cramer et al, 2016).

While most discussions have evolved around the flexibility of scheduling working as a UBER drive offers, there are also serious implications for the geographical locations where semi-mobile personal service workers frequent and work at (Petropoulos, 2016). Traditional taxi services and food delivery provided geographical anchor points which function as a fixed location for the personal service workers. Taxi drivers, for example, have fixed locations where they will wait for customers, such as train stations. Similarly, traditional food delivery would be centred around one restaurant where the personal service workers could wait for the next delivery and take breaks. The introduction of mobile technology, however, has made the geographical anchor point less important to semi-mobile personal service workers or has removed this fixed location altogether. In the case of *foodora*, the personal service provider operates as the delivery person for a network of different restaurants, meaning that the origin location (restaurant) is just as flexible and decentralized as the destination location (customer).

Fixed, flexible and spontaneous locations

As discussed earlier, one of the markers of the gig economy is the need for workers to constantly find new employment opportunities. Further, even *hyper-mobility* only describes the *potential* for

mobility (Shearmur, 2016). Researchers agree that even in the information age the possibilities of exclusively working from spontaneous geographical locations without physical interactions are limited (Boden and Molotch 1994; Urry 2002). Since personal service work appears to be especially susceptible to precarious labour conditions, searching for new employment possibilities is a significant aspect for many personal service workers in Canada (Cranford et al, 2003). Like most employment sectors subjected to the gig economy, most personal service work therefore consists of a diverse set of geographical locations that can be flexible (locations where workers search for new gigs) or fixed (locations of service provision).

However, it must also be recognized that some personal service work also allows for *spontaneous work locations*, meaning work locations that offer flexible choice within certain spatial confines. An example of such work is the profession of dog walking. The potential work locations are limited by certain aspects such as having to remain within walking distance of the employer's location of residence, yet the trajectories within those geographical boundaries are flexible.

Personal Service Work and Precarious Labour

Although the vast majority of personal service work in the North American context can be classified as precarious labour according to the standards used in Canada, it must be acknowledged that not all personal service work necessarily is precarious or even subject to the gig economy (Pepso, 2013). Home nursing, for example, requires nurses to frequent their client's locations of residence and would be considered a semi-mobile personal service job according to the definition given by Shearmur (Shearmur, 2006). The required education level, typical employment benefits, high wages and long-term job security, however, distinguish home nursing

from other personal service work. Although the goal of this project is to further understand the trajectories of mobile personal service workers and understand how they potentially affect their employment precarity, personal service work cannot necessarily be equated with a precarious employment situation.

Conclusion

The development of cities has always been primarily shaped by economic activity. Until the mid-19th century the location of residence was chosen in relation to the location of work and was restricted by limited mobility. However, with the emergence of the Industrial City and subsequent development of modern transportation technologies such as trains and cars, it was possible to further separate the location of residence and the location of work. One of the subsequent roles assumed by the modern urban planner, a profession created during the 19th century in light of industrialization, was the organization of urban space according to land uses. Further, the planner created transportation links that would support the separation of place of work and residence. As a result the majority of transportation infrastructure in North American cities was designed in the mid-20th century and primarily connects suburban residential neighbourhood to the Central Business District.

Since the 1980s, however, the introduction of mobile communication technology in the form of personal laptops and smartphones as well as the newly emerging gig economy, which is defined by short-term employment contracts, have blurred the lines between location of work and location of residence. The majority of sociological research on the effects of the gig economy and mobile technology focuses on the tasks that take place in locations such as trains, cafes and

offices and considers the global effects. Nevertheless, for the field of urban planning it is important to understand not only the type of work that takes place in certain locations but also how these geographical locations relate to each other. Through understanding the resulting work-related trajectories, planners are able to plan for the transportation needs of workers in the information age. Finally, while there is limited research on the geographical effects of the gig economy and widespread use of mobile technologies on the work trajectories of workers in general, it appears that workers in precarious labour conditions have been neglected.

Chapter 3: Methodology

The literature review outlined how the rise of the gig economy as well as mobile technology has influenced the North American urban population's relationship to urban space and the division between place of work and place of residence. Further, it outlined apparent gaps that exist in the emerging research on the gig economy and mobile technology's geographical effects for North American workers in precarious labour conditions.

After this broad contextualization, the remaining chapters of this project will explore these aforementioned geographical effects in a case study of child-care workers in Montreal. The purpose of this case study is to explore the nannies' locations of work, trajectories, modes transportation and explicitly examine how their use of the urban space in influenced by mobile technology and, by extension, the gig economy. As there are remaining gaps in this emerging field, the hope of this study was to recognise patterns in the experience of urban space among

nannies in Montreal, whose transferability to other professions and cities could then be explored in further studies.

This chapter outlines why specifically child-care workers in Montreal were chosen as the research population as well as the underlying research methodology that was used throughout this study.

3.1 Primary Data Collection

As previously mentioned this project uses exploratory qualitative research methods. As the main objective of the study is to obtain a better understanding of the spatial trajectories of child-care professionals - or nannies - during their working days and weeks, the primary researcher, in conjunction with the supervisor, determined that the research questions could best be answered through semi-directed, in-depth interviews.

Criteria of Interview Selection

Before deciding upon a profession that would be interviewed for this project, the primary researcher established selection criteria based on the questions raised during the literature review. The following restrictions were made:

Age

As discussed in the literature review, the effects of mobile technologies such as smartphones and laptops on the North American work force both in a geographical and social contexts is an emerging field with very little research. Research so far has primarily focused on the social ramifications of the gig economy. However, much of this research precedes the widespread adoption of mobile technologies such as cell phones and laptop computers.

The primary researcher therefore limited the interview population to mobile personal service workers who can be categorized as *millennials* (Fry, 2015). This decision is founded on the assumption that members of this age group are digital natives, meaning that they have been interacting with and using mobile technologies throughout their entire lifetime (Howe & Strauss, 2009). The participants therefore, as discussed in the literature chapter, have never been exposed to the distinct separation between locations of work and locations of residence that dominated planning practices and work habits throughout North America during the 20th century.

Further, the primary researcher decided to exclude potentially vulnerable participants from the selection process. As adolescence under the age of 18 are considered vulnerable participants, only potential participants between the ages of 20 and 35 were selected to be interviewed.

Profession

The purpose of this project is to explore the effects mobile technology has on the trajectories of mobile personal service workers. As discussed in the literature review, mobile personal service workers defined as service workers who frequent their clients' homes. Due to time limitations on this project (the project was scheduled to be started and completed within a four month timespan), only a small number of participants could be interviewed. Further, the purpose of this study was to contribute to an emerging field of studying workers mobility in the 21st century and is intended to be a starting point for further research. The main purpose therefore was to select a group of people who would allow for further exploration and the forming of preliminary hypothesis. The participating professions were therefore selected using the following criteria:

Availability

For reasons outlined later on in this chapter, the first participants were selected using the primary researcher's personal network. The professions therefore would have to be common personal service professions which could be found within the primary researcher's social circle.

Susceptibility to Precarity

Existing research on the effects of technology on the mobility of workers has so far primarily focused on knowledge workers, meaning well-educated workers in the service sector who have high workplace power. This project aims at diversifying the research on the mobility of workers through mobile technology to include professions whose labour practices can be described as precarious.

Geography

Participants in the project were personal service workers living and working in Montreal, which is where the primary researcher lives and studies. Throughout the selection process, most participants lived and worked in the Montreal borough of Plateau Mont-Royal, specifically in the Mile End neighbourhood.

Network

As the interview selection process rested on the snowball technique, it was paramount that the professions selected for this project would have the potential for building a professional network, meaning that the interviewees would have a professional or personal network that included others who practiced the same profession as them.

Using these criteria, the primary researcher determined that both child-care workers as well as professional personal cleaners would meet all of the criteria mentioned above.

3.2 Recruiting Participants

The participants in this study were recruited using the snowball technique. This meant that the primary researcher initially intended to contact one nanny and one cleaner from his personal network and would recruit the remaining participants through referrals from the initial interviewees. This approach assumed that both nannies and cleaners would have a professional network they could access to refer the primary researcher to further members of their respective profession. While this assumption proved to be true for nannies, recruiting cleaners using the snowball technique proved to be challenging. The primary researcher therefore decided to focus the study solely on the trajectories and use of technology of child-care workers in Montreal while using the two interviews with cleaners to compare and contrast the childcare-workers' experiences with another profession within the personal service work field.

As the primary researcher accessed his personal network to recruit mobile personal service workers for this project, it must be acknowledged that the sample is not necessarily representative of nannies and cleaners in Montreal. The homogeneity of the participants' social background, which will be discussed in the next section of this chapter, is an important limitation to this study.

3.3 Participant Profile

In total, ten participants were interviewed for this project. Out of these ten participants, eight were working as nannies and two were working as cleaners. The vast majority of participants were female (9/10) and were in their mid-twenties. With the exception of two participant who grew up in Chile and the Caribbean and immigrated to Canada as young adults, all participants are white, anglophone Canadians with a limited knowledge of the French language and moved to Montreal in their early 20s. The majority of participants lived in Montreal's Plateau-Mont Royal borough or the adjacent Rosemont Petite-Patrie borough, with the exception of one person who lived in LaSalle and worked in the Monkland Village. An unforeseen and interesting outcome was that more than half of the participants were pursuing a career in either visual art or music. Four of the participants had received a BFA (Bachelor of Fine Arts) and two of the participants were musicians who had professionally released recordings.

3.4 Interview Experience

The majority of interviews were conducted face to face in locations chosen by the participants. All of these locations happened to be coffee shops located in Montreal's Plateau-Mont Royal borough. Three of the interviews were conducted over the phone. The general experience was relaxed and marked by openness. All participants with the exception of one agreed to be recorded during the interview.

Chapter 4: Introducing the Study Context

As described in the methodology chapter, this project's participants were selected using the snowball technique and accessed the author's personal network in Montreal as the initial contact. This selection process resulted in the majority of the participants living and working in the Plateau neighbourhood, more specifically the Mile End, which is where the author lives himself. This chapter will offer a brief description of the Plateau and the Mile End in order to understand the geographical and social context in which the nannies who were interviewed for this project work.

4.1 The Plateau and its Demographics

The Plateau Mont-Royal is one of Montreal's inner boroughs and, with 12,400 people per square kilometre, is one of the most densely populated areas in all of Canada (Statistics Canada, 2011). The borough is in close proximity to Montreal's CBD as well as located just east of Montreal's most iconic landmark, Mount Royal. Due to its close proximity to Montreal's four largest universities (McGill University, Universite de Montreal, UQAM as well as Concordia University), the area is a common residential area for Montreal's large student population.

Although the Plateau borough has a consistent character of mixed-use development as well as a diverse housing stock that primarily consists of three story walk-up apartments, the borough is large enough (8.1 square kilometres) to have clearly defined and distinctly different neighbourhoods. The neighbourhood within the Plateau that most of the nannies interviewed for

this project live and work in is the Mile End, which was an unforeseen outcome of the author accessing his personal network to find participants.

The Mile End, which is located in the north-western section of the Plateau Mont-Royal borough (approximately three kilometres north of Montreal's CBD), shares many communalities with the rest of the Plateau. As mentioned earlier, the majority of the housing stock tends to be two or three story walk up apartments. Due to the high density of such apartments combined with Montreal's strict rent control laws, most residents in the Mile End are renters (CMHC, 2013). When compared to neighbourhoods in other Canadian cities that share a similar close proximity to the CBD, amenities and services, as well as educational institutions, the rental prices for an apartment in the Mile End (or most other neighbourhoods in the Plateau Mont-Royal borough) are significantly lower.

Although rental prices have continuously risen in the past years, the living costs for the quality of life found in the Mile End are still quite low. As a result, the Mile End has a reputation of a good neighbourhood for artists or people for whom a high quality of urban life is a driving factor for choosing their living location. As one participant said, and this was a sentiment shared by many of the interviewees, the reason for moving to Montreal was 'just for the city' itself (Luke, personal interview). Economic opportunities were found only after the move, which was an approach shared by almost all participants. Many of the participants had either attended university to be trained as visual artists or had been professionally signed to a recording label and were pursuing a career as an artist The Mile End has historically been a neighbourhood with a reputation of being a desirable place for artists for much of the past 100 years. Some of Canada's

most famous cultural figures such as the author Mordecai Richler and Leonard Cohen have worked and lived in the Mile End throughout the 20th century.

While the Mile End has historically been an important location for cultural creation, the neighbourhood has also been defined by the economic activity that takes place there. Throughout most of the 20th century the Mile End was an important cluster for the city's garment production. With the decline in Canadian garment manufacturing throughout the 1970s and 80s, however, most of the factories closed. Their legacy is still felt in the neighbourhood; the northern border of the Plateau is still dominated by the large twelve story industrial buildings that used to house the garment factories. These buildings have since been at the centre of a new economic cluster which emerged in the early 2000s and has been referred to as a "cultural district and creative cluster" (Tremblay & Battaglia, 2012). One of the main catalysts for this development was the city of Montreal's active pursuit to form an economic cluster of video gaming companies in the city through tax incentives. As a result *Ubisoft*, one of the largest producers of computer games in the world, opened an office in one of the former garment factories in 1997 (Ubisoft, 2017). The other former factories have since been filled with start-ups both with and without affiliations to the gaming industry as well as with services such as gyms and restaurants that support the surrounding industries. One of the notable developments surrounding this economic cluster in the Mile End's former garment district is the high density of cafes, co-working spaces and rentable board rooms, which seem to indicate a high concentration of hyper-mobile workers (Rantisi & Leslie, 2010).

The intersection of an important economic cluster that employs thousands of people in the garment district (this excludes the unquantifiable yet presumably large number of hyper-mobile workers and students who regularly use the co-working spaces and cafes as work locations) as well as a large affordable housing stock in a walkable, mixed-use neighbourhood has led to a broad social mix with a large diversity of age, income and levels of education, which must be considered when analyzing the mobility of personal service workers such as nannies in the Mile End.

Chapter 5: Interview Analysis

The analysis presented in this chapter attempts to answer the research question of which locations mobile child-care workers in the Mile End work at, what their trajectories are, what modes of transportation they use and what influence mobile technology has on both their work locations and work-related trajectories. The analysis is primarily based upon the interviews with seven mobile nannies that work in the Mile End, but also compares and contrasts these findings with the experiences of the participant working in a suburban neighbourhood of Montreal as well as with two mobile cleaners who also work in the Mile End.

The key findings of this study is that nannies in the Mile End do not work in a single location. Instead, their job is inherently mobile as many of their tasks include picking up and dropping off children from their daycares as well as programming outdoor activities. While this type of mobility has apparently always been a defining factor of the job according to interviewees who have been working as child-care professionals for many years (which will be touched upon

later), the introduction of mobile technology has increased the amount of mobility nannies experience. Instead of long-term engagements with one family, most nannies in the Mile End work multiple short-term, part-time contracts that provide less than ten hours of work per week and usually do not last more than a year. As a result, nannies will work with multiple different families on a weekly basis, which, if one considers the need for scheduling and searching new gigs, may result in more than 20 different work locations each week. One of the main reasons for this phenomena is the self-organisation of Mile End parents in an online list-serv, which gives employers a large database of peer-reviewed potential employees. As a result of this list-serv, many parents in the Mile End hire multiple child-care workers in order to ensure the constant possibility of spontaneous childcare, if needed.

5.1 An Overview of the Child-Care Profession

Before presenting the analysis of the interviews, this section presents a succinct description of the interviewees who participated in this study. As already briefly mentioned in the methodology chapter, the majority of participants in this study were white, Anglophone Canadians in their mid-twenties who had moved to Montreal in early adulthood. Especially when speaking about child-care workers in the Mile End, all of the interviewees fell into this profile and, with one exception, all were female.

Throughout the interview analysis it became apparent for all of the Mile End child-care workers that both their work as a nanny as well as their residency in Montreal were quite temporary. Some of the participants had already terminated their work contracts to pursue other opportunities such as post-secondary education and many of the current nannies were planning to

do so within a few months of when the interviews were conducted. The reasoning for this was predominantly that nannying was seen as an optimal profession that allowed young, anglophone Canadians to live and work in Montreal without needing work-related education, prolonged experience or French language skills. Further, the majority of nannies who worked and lived in the Mile End had university degrees in fine arts or, even if they did not (three of the Mile End nannies did not attend post-secondary institutions), were working part-time as either a recording or visual artist. Nannying functioned as a part-time job that allowed for the further pursuit of a career in fine arts.

Even though all participants reported precarious working conditions, it appears that the participants living and working in the Mile End have access to social mobility and financial security. All of them had either moved to Montreal explicitly for the city's life-style or, in two cases, had decided to stay after graduating from Concordia University. Economic opportunities were only pursued after the move. When asked about future plans, all of the participants acknowledged, as previously mentioned, that their plans for the short-term future did not involve nannying. Instead, participants hoped to travel, attend university or move to a new city. Further, most participants acknowledged the ability to be able to return to their parents' homes in the case that nannying did not provide enough economic stability to sustain a life in Montreal.

This economic stability differed significantly from the two participants in this study who did not live and work in the Mile End and who had immigrated to Canada as adults. These two participants did not consider alternatives to nannying or, respectively, cleaning. Further, the

participants worked significantly more hours per week than the Mile End nannies and also had commutes that exceeded more than an hour and a half each day.

From the interviews, it can be concluded that the general tasks and responsibilities nannies agreed to perform for their employers remain constant among all participants. As a child-care worker, the interviewees generally watched and entertained their employers' children, which included playing with them, taking them to the park, libraries or other locations of the nanny's choice as well as picking them up and dropping them off at daycare, school or other activities. Additionally, all nannies were expected by most of their employers to perform chores such as cooking, doing laundry and tidying up the house. In many cases, at least one of the parents had a mobile profession that would allow them to perform their work from their location of residence, meaning that they would be present in the house while the nanny took care of their children. In other cases, the nanny would look after the children until the parents returned home from work.

While the general tasks performed did not differ among the interviewess, the contractual agreements with their employers varied significantly. Although some participants had regular full-time schedules, a signed contract and some benefits such as the provision of a monthly public transit pass, the majority of child-care workers in the Mile End had part-time positions with multiple employers. In many cases, these part-time gigs did not offer regular shifts as the parents scheduled the nanny less than a week in advance and sometimes even on the same day. Such part-time shifts would generally be three to four hours in length and could take place in the morning, afternoon or evening, depending on the needs of the employer. It appears that such part-time nannies had oral agreements with their employers rather than signed contracts.

5.2 The Location of Work

One of the key items to emerge from this study is that nannies do not work in a single place. Not only does their work as a nanny imply inherent mobility through tasks such as picking children up from daycare and taking them to the park, but the structure of their work contracts and of their interaction with employers superimposes additional mobility on top of that which is inherent to the job. All participants at least to some extent had a mixture of fixed, flexible and spontaneous locations at which they performed different aspects of their work

Fixed Locations

The most common fixed work location for nannies in the Mile End was their employer's homes. As the majority of interviewees were employed by multiple employers at the same time, the amount of these fixed locations ranged from a minimum of two to up to seven. Although these gigs vary significantly in terms of regularity and amount of hours, the result is that on any given week some of the participants in this study frequent up to five or six families' homes and occasionally work at two to three fixed locations in a day.

When considering the potential for further fixed, flexible and spontaneous work locations resulting from the engagement with a family (most nannies regularly picked up their employers' from their daycare or school, ran errands or took the kids to a park), this can result in as many as 25 potential work locations each week:

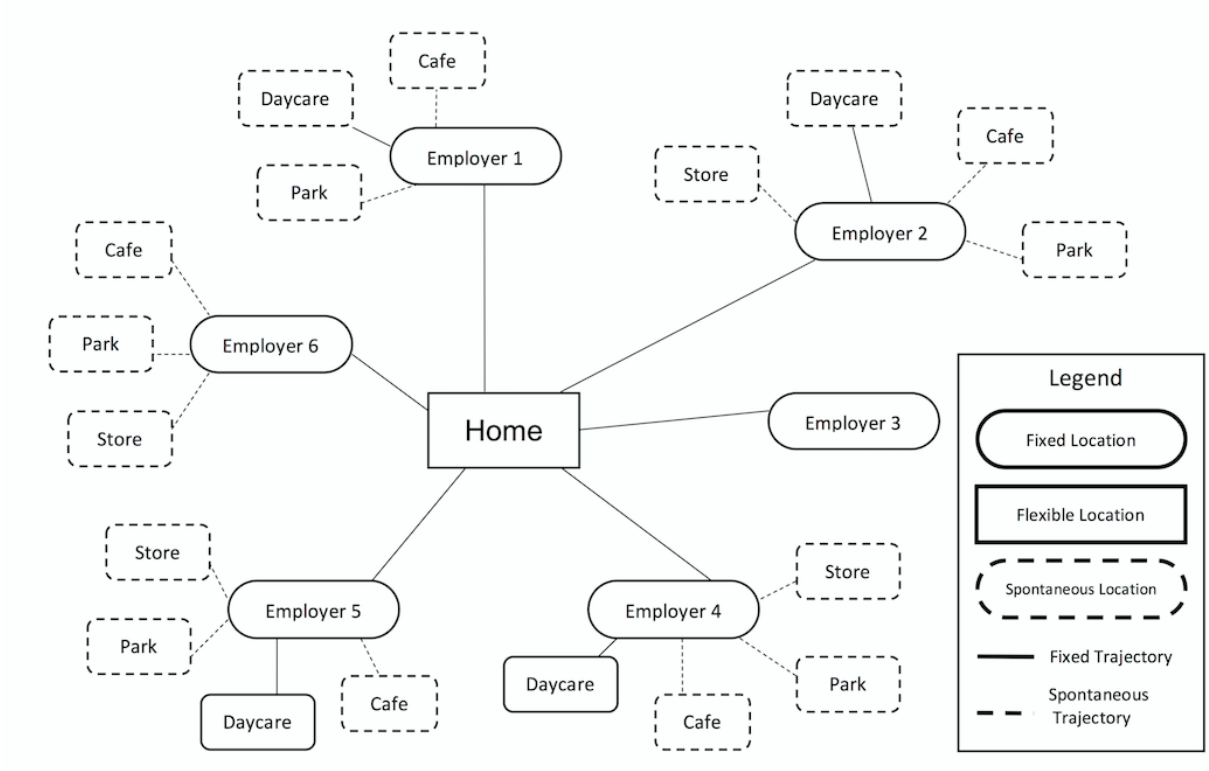


Figure 2 (Source: Jen, personal interview)

Moreover, it must be considered that the influence of the gig economy on the nannying profession in the Mile End means that many of these fixed family locations are short-term and can change quite frequently. The same nanny, whose trajectories are illustrated above, estimated that she worked for eight or nine families in the year and a half before terminating her employment contracts and moving back to her parents' house in Saskatchewan due to not being able to support herself as a nanny in Montreal (she worked approximately 20 hours per week). When projecting that every engagement with a family led to a fixed locations at the family's house as well as three to four flexible and spontaneous locations (a number that proved to be consistent among all interviewees), this meant that this particular nanny had at least 35 frequent

regular work locations throughout an 18 month time period, many of which she frequented every single week.

While the small number of interviewees and varying work experiences among the nannies does not allow for a definite conclusion on the average number of fixed locations Mile End nannies frequent on a regular basis, the most common model found in the interview process is that nannies would be employed with three to four employers simultaneously, which would translate into approximately eight to ten different fixed locations:

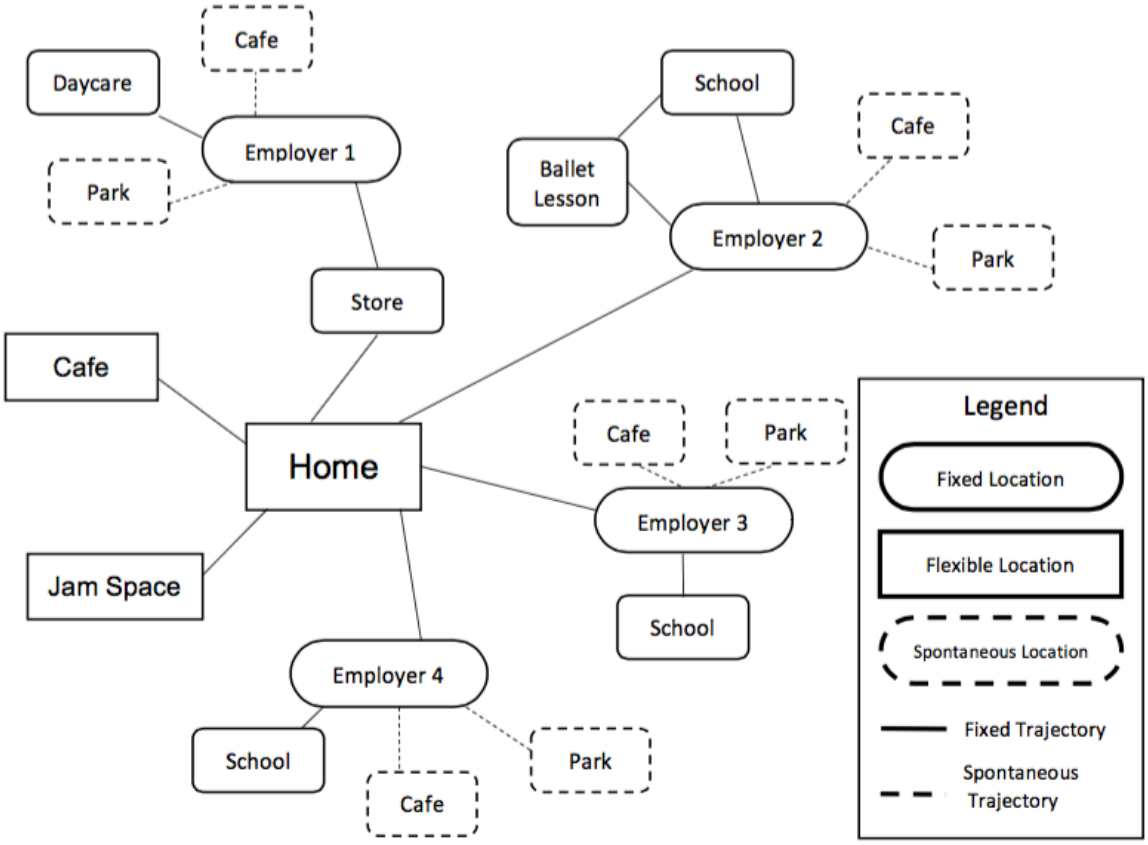


Figure 3 (Source: Luke, Personal Interview)

It appears from the interview process that nannies in suburban neighbourhoods of Montreal do not have the same high amount of employers but rather only work for one family. The only interviewee who worked outside of the Mile End but rather in the suburban neighbourhood of Monkland Village had been a nanny for thirteen years and had only ever been employed with one family at a time. Additionally, one of the participants reported that an employer of hers in Hampstead, a further suburb of Montreal, hired a live-in nanny who also worked exclusively for one family.

The majority of work that takes place at the fixed work locations is traditional childcare work, which meant creating a program for the child or children as well as assisting with chores such as putting the child down for a nap and tidying the children's belongings such as toys and clothing. Further tasks could include cooking for the family or doing basic housework such as tidying or clearing out the dishwasher. While many nannies were expected to cook, the employers would still shop for the ingredients. As the other predominant fixed location, the daycare, involved the short task of dropping off and picking up the children, the resulting importance of these locations lies in the fixed trajectories that they create, an idea that will be revisited in the next section.

The parents' involvement and therefore relationship between the nanny and the family can differ quite starkly. In some cases, the nanny functioned as a mother's aid, meaning that one or both parents are present at the home. This is especially prevalent when the parents themselves have professions that allow for mobility and flexibility. The presence of the nanny furthered their flexibility, an idea that will be further explored in this chapter when the nannies' use of technology is discussed.

In other cases, the nannies would be present at the fixed location while parents were out. It was striking that all of the interviewees referred to this work as *nannying* when it took place in the daytime and *babysitting* if it took place in the evening. Further, the frequency of shifts a nanny would work for the employer seemed to play a significant role. When asked about this differentiation, one of the nannies gave the following definition:

> I think nannying is a longer-term commitment with more of a set schedule. I would call something babysitting if it is just an occasional evening or an afternoon where someone contacts you saying 'hey, I am going out tonight, can you take care of our kids?' whereas nannying presumes that something is for a few months and you know what your schedule is.

While it appeared that the parents established clear task structures for their nannies at the fixed locations, other parametres of work such as breaks and vacation time did not seem to be discussed. Even in cases where the nannies would spend full days with one family, the nannies did not appear to have formal breaks. When pressed about why they did not take breaks, the nannies often expressed feeling guilty about taking breaks at the fixed location:

> The parents don't expect me to prioritize house work over my lunch break, but for me personally it's hard to take the break. I want to be doing the job that I am supposed to be doing and I forget about sitting down.

However, it appears that this pressure did not come exclusively from the parents, at least explicitly, but rather was a result of the working conditions in which many parameters such as fixed hours, breaks and vacation time, all of which are legally protected by the Canadian legal system, are not clearly defined or even discussed between the employer and employee. The

consequences of such precarious working conditions are further heightened by the use of technology and has serious effects on the nannies' trajectories and work locations, as will be discussed later.

Flexible Locations

The primary flexible work location mentioned in all of the interviews is the home, although many participants also cited cafes as frequent flexible work locations. The work performed at these flexible work locations is administrative work, primarily securing new gigs as well as responding to emails and texts concerning scheduling as well as contractual concerns.

The importance of the home as a flexible work location, however, extended beyond the administrative work that takes place there; while it is normal for workers to consider the location of their place of work when choosing their home location, the nannies had to choose based on a network of multiple fixed locations. This resulted in some of the nannies strategically moving to minimize the distance they had to travel, which is an important factor when considering the high amount of locations frequented every single week:

> I have moved around since a few times in the past years, but it was always Mile End-centric. The first time I moved to Parc La Fontaine, so pretty far but I just realized that having a job that was so far away wasn't good for me. For various reasons, I moved back into the Mile End and it was so much easier.

Further, the regular change in new gigs leads to nannies not only considering their current, but also future work. They must therefore assess which neighbourhoods have the highest density of possible gigs.

While most interviewees acknowledged that the administrative work performed at their flexible locations only amounted to a few hours per week, the need for such additional work appears to be a recent development to the nannying profession and may not apply to full-time positions. The interviewee who worked in the Monkland Village had never experienced such administrative work, despite working as a nanny since 2004. Her work experience as a full-time nanny had always ensured consistency as well as long-term security that did not require searching for new gigs and organizing her weekly schedule.

However, even in the context of a consistent work schedule, the nanny in the Monkland Village, along with all other nannies, exchanged regular text messages with their employers. The experience of such messages and the response chosen by the nannies differed quite strongly. While some nannies responded favourably to the messages and viewed them as an important tool to develop a relationship to their employer (Morgan and Don, personal interview), others viewed the blurring of the lines between work and and their time off negatively:

> For the longest time, I would think about the text the second I received it and would answer but it was hard for me. It is a pretty emotionally involved and sometimes stressful job. I would find that when I got those texts on my time off I had a feeling of 'I don't want to be at work right now'. I did eventually start answering all of the texts in the evening. It gets tricky at that point because we text each other for a lot of things. I go home and an hour later I'll get a text saying "where is the green ball?" or "do you know where this is?", so a lot of the time I don't mind when it's an easy answer, but there are times when it's a question about my pay or something more professional, so those ones i set aside.

As can be seen above, many of the messages required a prompt responses. While many of the nannies reported that not answering immediately did not have any negative consequences on the

working relationship with the family, they would report feeling guilty for not responding. The burden of defining the boundaries of professional relationship therefore was the nanny's responsibility, similar to the organization of breaks. As a result, the majority of interviewees reported that they immediately respond to text messages wherever they received them, although expressing that this often occurred in as what one nanny referred to as 'calm locations', such as buses or at home.

Further, imminent responses to text messages were essential to some nannies' work security as work was often scheduled spontaneously for the next or same day. One participant in particular who relied on infrequent, short-term babysitting work said that a quick response and frequent availability were essential to maintaining a client and securing new ones, as new clients were often won through an employer's recommendation. If this nanny's response was delayed or she repeatedly was unavailable, the client would cease to consider her. The ability to respond at any location therefore was required to remain competitive and blurred the lines between flexible and fixed places of work; although the location of where the text is answered is flexible and only requires the connection to the cell phone network, the immediate pressure to respond compromises the flexibility of time that is often associated with flexible work.

Flexible Locations Outside of Child-Care Work

A large percentage of the interviewees had received formal education in fine arts or were pursuing art or music as a long-term career. For some of the interviewees the prospect of part-time, flexible hours and the ability to control one's own schedule was one of the main motivating factors in choosing the nannying profession over other personal service work in Montreal that

did not require the knowledge of French. Two of the participants had spent time working as cooks in kitchens located in the Mile End and Rosemont prior to nannying, but had actively chosen nannying. The motivating factor was the ability to work less hours for a comparable annual income, which would therefore allow for the flexibility and time it took to pursue an artistic career. In both cases, the interviewees expressed an awareness that nannying with its inconsistent schedule and need to secure new clients proved to be more precarious. However, for two of the nannies the creation and sale of pieces was essential to financing their livelihoods (Hannah, personal interview; Marissa, personal interview).

Depending on the participant of the study, the locations chosen to make art would either be fixed (studio space or home) or flexible. Many of the nannies would use their flexible work time to complement their nannying schedule and locations:

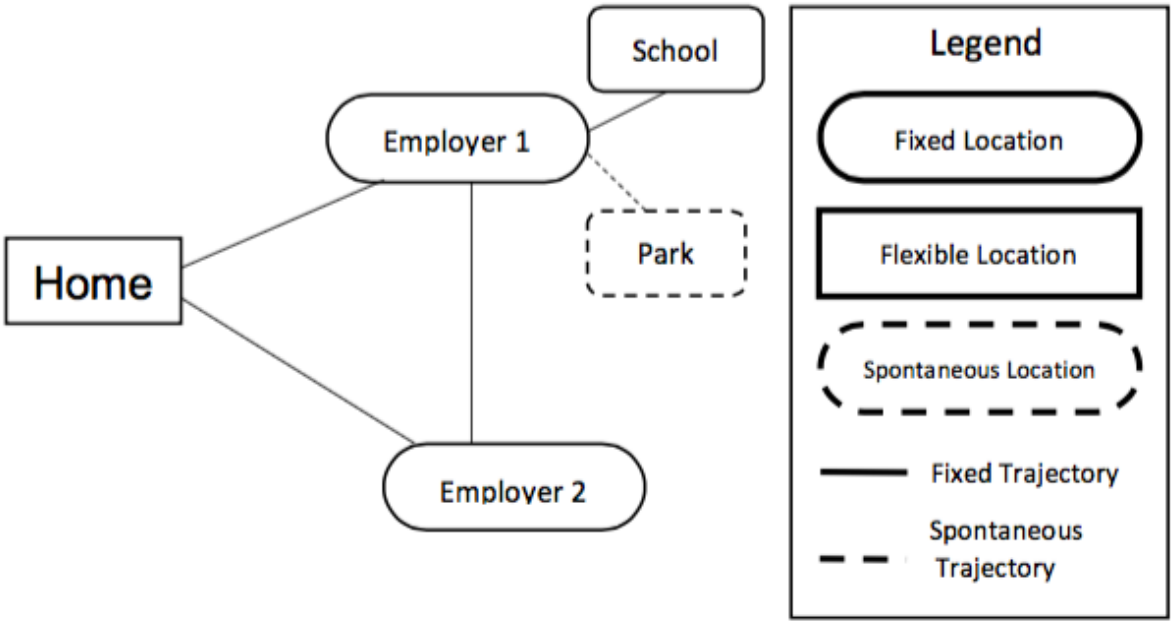
> That'll be a big difference when I move. I will be able to go home. Right now in Rosemont [located about a 20 minute walk from the Mile End], it would make no sense for me. So usually I hang out. I have a notepad and my phone and i can work writing down ideas [...]. But when I live here [the participant was scheduled to move to the Mile End for work reasons later that week], I will probably run home. It'll make a big difference.

Spontaneous Locations

The last type of work location frequented by the nannies can be classified as spontaneous. As defined in the literature review, these are flexible work locations that are chosen under

underlying parameters set by the employer. The most common guideline given to the nannies were geographical restrictions. Although some nannies needed to take public transportation to drop off or pick up their employer's children from extracurricular activities, schools and daycares, the vast majority of parents (all but one) did not allow the nannies to take their children on public transportation for further activities planned by the nanny. The geographical restrictions therefore were set by the mobility of the child, which generally translated into a ten minute walking distance.

The spontaneous locations that were frequented were predominantly child-friendly environments such as libraries, parks and playgrounds. While these locations can primarily be considered programing for the child being taken care of, almost all nannies used the opportunity to take the children to 'family-friendly' cafes (i.e. cafes that offer designated playing areas for children). These spaces would not only function as locations where nannies took care of the children, but also a place of rest as well as locations where administrative work would take place as some of the participants would use the internet connection at these cafes to perform administrative work such as communicate with other clients about scheduling. The ability to choose spontaneous locations was not only restricted by employer's guidelines of acceptability but also by the availability of potential locations to visit within the ten minute walking radius. While the Mile End offers a high density of parks, libraries and cafes, the interviewee working in the Monkland Village had less access to spontaneous locations:



Source: Don, Personal Interview

5.3 Work-Related Trajectories

Similar to the locations, the interviews suggest that the nannies' trajectories can be classified into fixed and flexible trajectories. Fixed trajectories are ones that are necessary, such as commuting to and from work as well as travelling between the children's home location and daycare. Flexible trajectories, similar to the flexible locations, are subject to the nanny's choice of both time and location. Additionally, most of the nannies had spontaneous trajectories that accompanied the spontaneous working locations and allowed them to chose their location of work.

The most frequent and important trajectories taken by the nannies for the purpose of this study are the fixed trajectories to and from fixed places of work. However, the number of these

trajectories differed extensively among the participants as they were influenced by the amount of families they worked for, both generally as well as on a daily basis.

The effect of the number of families a nanny worked for has a significant impact in two ways: the higher number of fixed work locations automatically leads to a higher amount of possible trajectories between these locations. Additionally, a higher amount of employers also generally implied many short-term gigs that only require the nanny's assistance for a few hours at a time. Many of the nannies therefore would encounter days where they would be working for two to three families.

As the hours and times with the families are inconsistent and flexible, the amount of possible fixed trajectories nannies working for multiple families could encounter is very high. For example, if one considers the six fixed work locations shown in the first map of this chapter and consider that this particular nanny generally works at two different locations on a normal work day, this leads to three daily fixed trajectories. When considering all of the statistically possible combinations for these three trips, there are 36 possible different trajectories that a nanny could take on a given day. These 36 possible trajectories only consider the commute to and from families' homes and are even higher when considering other fixed trajectories such as picking children up from school.

A commonality throughout the interviews, however, was that employers appeared only willing to pay for all or part of a monthly transit pass when the nanny worked full-time hours for them. Otherwise employers, at least from the perspective offered by the nannies in the interviews, seem reluctant to even pay for the transit costs accrued by the nanny's travel to and from their location

of work (Hannah, personal interview). The result is that the nannies with the highest amount of families, and therefore fixed trajectories, were not provided with transit passes.

The effect of not having access to a regular transit pass seriously influenced the locations where nannies could work. While it would have been possible for them to purchase a pass privately, many felt deterred by the precarity of their employment situation. The consistent change over of gigs as well as the unpredictability of many positions' schedules disincentivized nannies to accept positions that would require the need of a transit pass. The main reason voiced by nannies was that the cost of a round trip would be a significant portion of their income made during the shift, which generally only was a few hours. Instead, they accepted positions that could be reached either by foot or by bicycle.

The general sentiment was that the furthest acceptable employment distance among nannies in the Mile End was a 30 minute walk from their home locations, which the majority of interviewees would do regularly regardless of the weather. These geographical limitations result in nannies frequently rejecting employment opportunities that are located outside of the half hour walking radius, although some of the opportunities are located less than three kilometres away in areas that could easily be reached by transit from the Mile End, such as Villeray and Rosemont.

While the cost of transit acted as a main deterrent for the interviewees, the accessibility and reliability of it also contributed to nannies favouring walking over Montreal's STM service, especially if they were working with multiple clients each day and needed to reliably travel from one work location to the next. In many cases, the available transit service was either not frequent

enough or did not save enough time compared to walking, as is demonstrated by this participant who lived in the Mile End and worked in the lower Plateau:

> Well, I like to be active, so that's why [I walk]. It's also inconvenient in that it would take the exact same amount of time to take the bus to Rosemont and then the Metro to Laurier than to walk. It might actually take even more time and it would be more insecure to know when I will be there. I just know that when I start walking I will get the in 30 minutes. That's the reason why and I just prefer it, I guess.

Transit frequency and reliability appears to be even more of an issue in more suburban communities, as was demonstrated by the nanny working in the Monkland Village. Due to her home location being located in LaSalle, a suburban area located 10 kilometres to the south-east of the Monkland Village, the trajectory from her house to her work location would require two bus trips on lines with infrequent service. This proves to be especially problematic if the nanny is required to stay late, which would increase the chances of missing connections and thereby doubling the length of travel time. While this particular nanny had a full-time position with one employer who therefore was willing to not only pay for her transit pass, but also willing to reimburse the nanny for taxi trips on particularly late nights, part-time nannies who rely on public transportation to get to particular locations had to expect the possibility of being delayed in their transit, which impacted their ability to work with multiple families in one day.

The part-time nannies limited mobility due to precarious working conditions that do not allow for the cost of transit as well as unreliable bus service also impacts the nannies' mobility outside of the fixed trajectories. Flexible work locations are chosen using the same criteria informing whether or not a job offer is accepted, meaning that they cannot be further than 30 minutes

walking distance. Additionally, many nannies voiced that even the locations they frequent during their time off tend to be within the Mile End, meaning that although they live in a neighbourhood with good transit connection to the rest of Montreal, the nannies rarely leave their neighbourhood. While almost all essential services are available in the Mile End, the implications of such limited mobility in other areas of the city would be quite severe and will be subject of discussion in Chapter 6.

5.3 Work-Related Use of Mobile Technology

This section answers the portion of the research question on what influence technology has on the trajectories and locations of work nannies in the Mile End frequent. While this project is primarily interested in what tasks are performed in certain locations, how mobile personal service workers travel as well as what influence on this technology has, it cannot ignore the influence that technology has on the precarity of mobile personal service work. For this reason this section includes an insight into the interviewee's experience in precarious labour conditions.

What Tasks Are Performed Using Mobile Technology?

All of the interviewees reported using mobile technology at least to a certain extent as part of their nannying positions. The need for using technology on a regular basis, however, differed significantly depending on the amount of families they were working with as well as how stable their employment situation is. Mobile technology was generally used to perform two types of work related tasks: communication with employers about work-related administrative work as

well as for the pursuit of new gigs. Further, some nannies regularly exchanged text messages with their employer to check in on the family or even communicated with them using their private social media accounts such as Instagram and Facebook (Fiona, personal interview). However, the nannies who had this personal rapport with their employers tended to be long-term, full-time nannies who had built a personal relationship with the family. When asked if this type of casual communication feels like work, one nanny gave the following response, which was representative of all nannies who had this type of relationship to their employer:

> I don't think I would ever see just talking to them as work. A lot of the times I still feel like a lot of what I do doesn't feel like work. I am just hanging out with this kid who is amazing, so I am pretty happy doing it. I imagine I could get stressful if they were constantly reaching out to me but I also follow them on instagram so I always see pictures of him. I never feel like this is work life. Whenever I see the picture, i am always commenting on it. They are like a second family.

For nannies with part-time positions, however, text messaging functioned primarily as the main medium with which to communicate with clients about scheduling. Owning a cell-phone and regularly checking it therefore was essential to the positions; as previously mentioned, employers regularly would request the nanny's availability one day in advance or often even on the same day. For part-time nannies, who were relying on numerous short-term shifts, constant availability was one of the driving factors that would ensure the long-term stability of being re-considered by the potential employer as nannies who rejected shifts too often or did not respond in time, would no longer be contacted (Marissa, personal interview). As a result, the only communication medium that fulfilled the employer's needs of instant feedback whether or not their nanny was available was text messaging. Two interviewees in particular started nannying without owning a cell phone but needed to purchase one as even emailing, which they reported checking two to three times a day, was not a sufficient medium to meet the needs of their employers.

Judging from the two control interviews with mobile cleaners in the Mile End, the need for constant availability appears to not apply to personal service positions with less personal interactions. Although the cleaners who were interviewed for this project also had a high number of clients, the independence of their job allowed for a more consistent schedule as their employer's schedule did not hinge upon the availability of the cleaner.

The need for availability among part-time nannies leads to a stark division between the mediums used for the purpose of scheduling (the cell-phone) and recruiting new gigs (the computer). Interestingly, while almost all nannies reported having used online nanny services such as nannyservices.ca or canadiannanny.ca, which allow nannies and parents to create profiles and search for people in their neighbourhood, most only secured their first nannying position in Montreal through such sites. Afterwards, new employers were rather found through word of mouth as well as through recommendations given by current employers. However, one nanny found that while the sites generally did not lead to employment opportunities, they did formalize the profession as it helped establish comparable wage expectations:

> I made an account and don't think I ended up messaging anyone. I was just browsing at that point. But it opened up things for me. Since I had gotten my first job on Kijiji, I was getting paid more or less under the table. It was like prolonged babysitting, but I realized how professional nannying could be. So seeing people post their wage expectations, was nice for me.

For nannies in the Mile End, the technological innovation that appears to have changed the nature of the nannying profession the most has been the establishment of an email listserv by the name of Plateau Playgroup, which has been self-organized by parents in the Plateau. While it

was not possible to determine how long this listserv has existed for and who hosts it, the nature of it is best described as a data base to which parents can upload their nanny's personal information, if they consent to do so. Employers will vouch for the reliability and credibility of their nanny, thereby establishing a peer-reviewed rating system commonly found among service providers such as UBER or AirBnb.

The impacts on the nannies' employment situation are extraordinary. While the listserv allows nannies to easily find further employment gigs in the Mile End, it also gives employers access to a large network of qualified personal service providers who have been peer-reviewed and therefore can be trusted with their children. The result is that personal trust as well as long-term commitment to one nanny becomes less important to the employers. Instead spontaneous availability becomes expected as the service provider is easily replaceable. This has resulted in many employers hiring multiple nannies to ensure constant availability and flexibility.

What Locations are These Tasks Performed At?

As touched upon earlier, the majority of work-related communication using a smartphone takes place instantly whenever the message is received, especially among part-time nannies with multiple gigs. Full-time nannies can have the discretion to evaluate which text messages need an instant response and which can be answered at a later point. These messages are often answered during calm moments throughout the day where location does not matter as much, such as the bus or at home. Email communication with the client as well as time devoted to organizing new employers generally takes place in the flexible locations described earlier.

5.4 Work-Related Precarity among Montreal's Child-Care Workers

When analyzing the mobile personal service workers' experience disclosed in the interviews through the lense of the what constitutes precarious labour conditions in Canada, it quickly becomes apparent that all participants' work qualifies as being precarious. Not only do the majority of nannies not have a regular and reliable schedule that is set a week in advance, but many positions do not respect basic labour laws and policies, such as fixed break times.

The introduction of mobile technology has blurred the line between being on work and off work as constant availability is crucial to maintaining working relationships for some gigs and regularly securing shifts. This is a significant break from the organisation of schedules before the introduction of the smart phone. Two interviewees in particular who have been working in personal child care since the mid-2000s experienced the shift. In their experience, schedules used to be agreed upon further in advance, were less likely to change spontaneously and were organized either in person or over a phone call (Marissa, personal interview).

Technological innovations to the nannying profession such as the Mile End listserv may increase the accessibility of new employment situations for the nanny, but also leads to a greater dependence on the working relationship with the employer since access to this market hinges upon their recommendation. When considering the increased competition among nannies due to the listserv in light of this reliance on the employer's recommendation, this innovation strengthens the employer's bargaining position. As nannying, like most personal service work,

has historically already been an employment sector with low workplace power, the implications of a further loss of power among nannies are dire.

The blurring of personal and work life through technology in a profession that many interviewees described as emotionally draining has also resulted in the responsibility of setting the professional boundaries resting on the nanny. The nannies will frequently be asked spontaneously if they can stay longer or take a spontaneous shift, so it is up to the nanny to decline and to plan days off. Further, due to the high amount of gigs, the ability to take vacation time off is limited. Instead, nannies will have lighter weeks during which they work less gigs, which are the result of one of their employers taking time off. While the nannies schedule their own schedules and it would be conceivable to take vacation time, the need to defend existing gigs often makes prolonged vacations impossible. In fact, one interviewee admitted that she regularly changes private plans she had previously made if she gets a spontaneous call to work later that day (Marissa, personal interview).

Judging from the interviews, it appears that employers are unaware of the precarious work conditions nannies are under. One interviewee mentioned that employers will spontaneously cancel shifts and portray it as pleasant surprising day off, not recognizing the financial pressure such cancellations leave the nanny in:

> I found it very difficult to be working for someone else's schedule, depending on what the parents schedule would look like, which influenced what mine looked like. And I found that a big source of stress for me was that I wasn't a constant employee, so quite often i would get texts the night before I was supposed to go in saying we don't need you tomorrow, you can have the day off because the kid is sick or I'm sick. Or even things like the kid doesn't want you to come in because he wants us to stay with him. It was quite stressful for me because it was hours gone like that and I don't think the parents

> realized I was living paycheque to paycheque. So when I lost a day of work, it really hit me. And I was never making more than rent and my basic groceries. It's actually one of the reasons I left, I couldn't make my rent like that.

More serious signs of vulnerability and precarity are demonstrated by one nanny reporting that she had been sexually harassed by former employers.

Conclusion

The interviews conducted with the purpose of answering what the work locations and trajectories of nannies in the Mile End are as well as what role technology plays in influencing these geographies show that many of the patterns observed about this type of mobile personal service work prove consistent with the observations made about the symbolic analysts and the knowledge worker. Many of the Mile End nannies find themselves in an intensified gig economy with a high need to defend their gigs. This results in a high number of work locations and potential trajectories. Further, the nannies use mobile technology to coordinate gigs but also subject themselves to frequent spontaneous scheduling changes. For the field of urban planning, the interviews show that Montreal's STM service does not meet the transportation needs of nannies living and working in the Mile End. As this is a narrow study, the majority of these findings are most likely not representative of all work contexts. However, as the study proves consistent with some of the ideas presented by researchers such as Kesselring and Shearmur on how the gig economy and mobile technology have influenced workers' mobility, the next chapter will explore the transferability of this study as well as explore which further questions must be asked.

Chapter 6: Discussion

This exploratory study was designed to raise preliminary questions about mobile workers' relationship to urban space with the long-term purpose of exploring how current common urban planning theories and practices should consider changes in mobility patterns due to the gig economy and mobile technology. As this study found that the use of mobile technology is indeed influencing nannies' mobility patterns in the Montreal context, this chapter will therefore discuss which aspects of the interviewee's experiences are potentially unique to their context and which are potentially transferable to other professions and urban contexts. The chapter will first discuss the apparent disparity in amount of gigs between child care workers in the Mile End and other urban contexts before discussing the resulting transportation needs. As the purpose of this study was to explore the mobility of workers in precarious working conditions, the chapter will conclude with a brief discussion of the potential long-term effects of increased mobility on precarious employment groups.

6.1 Locations

As discussed in the literature review, the rise of the gig economy in the North American context has led to an increase in work locations frequented by workers both short-term and long-term. This study found that this also applies to nannies in the Mile End. From the interviews, it appears that traditionally a child-care worker would be engaged with only one or two employers for a longer period of time before requiring a new position. While this appears to remain true in more suburban neighbourhoods of Montreal, it does not apply to child-care workers in the Mile End. Alternatively, the interviewees work for three to four employers simultaneously and experience a

high turnover of gigs resulting in a high annual number of employers. The need for additional locations of work used for administrative tasks such as scheduling and securing new gigs as well as the mobility of the job itself, leads to Mile End nannies having more than 20 possible locations of work each week, which is approximately four times higher than the suburban nannies interviewed for this project experience.

A potential reason for the high amount of gigs among nannies in the Mile End is the high density of both employers and employees in close proximity to each other. As child-care workers for suburban families appear to live in other neighbourhoods than their employers, they are restricted in their ability to travel as much as distances are further. Due to this distance, the employer, respectively, has a lower density of potentially available nannies that could work as flexibly as the Mile End nannies do. It is therefore in both the nanny's and the employer's interest to maintain a long-term working relationship. The high density of nannies in the Mile End, on the other hand, allows employers to access a wider range of possible employees in close proximity, which is especially heightened by the Plateau list-serv. As a result, nannies in the Mile End must accept contracts that provide less security and significantly increase the amount of working locations, which is consistent with existing research of the effects of the gig economy.

Further, small-scale space-time compression appears to be happening in the Montreal nanny market (Massey, 1994). Not only are the experiences of child-care workers in the Mile End and other suburban neighbourhoods significantly different from each other but multiple nannies mentioned not accepting gigs in neighbourhoods bordering on the Mile End, such as Rosemont or La Petite Patrie. It is conceivable that the high concentration of potential gigs in the Mile End

is deterring child-care workers from taking gigs in those neighbouring areas; despite being located in close proximity to the Mile End, employers in those neighbourhoods might not have access to the same employment markets.

As the demographic conditions in the Mile End are, as outlined in Chapter Four, unusual, it cannot be claimed that the increase of working locations due to the gig economy is transferable to other urban contexts or other personal service professions. While the increased amount of working locations among Mile End child-care workers remains consistent with the observations made by other researchers on the geographical effects of the gig economy and mobile technology, further studies in other Montreal neighbourhoods and other Canadian cities will be required to ensure consistency.

6.2 Trajectories

The literature review outlined how the organization of urban space through land use regulations and zoning by-laws led to transportation infrastructure in the North American urban context that was primarily designed to connect residential areas to employment hubs such as the CBD. As this transportation infrastructure was primarily built in the 20th century, one of the underlying hypotheses of this study was that current transportation infrastructure might not be sufficient for the needs of mobile workers in the 21st century. This hypothesis proved to be true throughout the study.

The trajectories of nannies have always defied the transportation flow between residential neighbourhoods and employment centres; child-care workers either move within or between

residential areas. However, the conclusion of this study is that current transportation infrastructure increasingly is not meeting the needs of mobile child-care workers. Although the Mile End is well-connected within Montreal's public transit system, the increase in working locations is resulting in a high number of potential trajectories that a mobile child-care worker may frequent in a given week or even a given day. These trajectories do not follow linear movements between a location of residence and a location of work, but cover a larger geographic area that is not consistently covered by public transportation infrastructure that is reliable and offers frequent service.

For the field of urban planning, this brings up questions about the suitability of public transit in other urban contexts and for other professions, which must be addressed in further research. As changing mobility patterns and a resulting insufficiency of public transportation for certain trajectories has been observed since the 1980s and an increase of non-traditional trajectories has been observed in many other professions, it is paramount for such research to occur. A potential solution, for example, could be the increased evaluation of the most flexible public transportation mode, the bus. For many Mile End nannies, an increased service of the 46 bus would provide better and quicker transportation connections.

6.3 Precarity

This project is primarily concerned with the effects of the gig economy and mobile technology on precarious workers' use of and relationship to urban space. It appears that both mobile technology as well as the Mile End list-serv are major contributors to the increase in trajectories as well work locations that nannies in the Mile End experience, thus increasing the precarity of

mobile nannies. Mobile technology forces the employee to be constantly available in order to remain competitive in the job market and the list-serv further provides employers with a list of peer-reviewed alternatives to their current employee.

While the Plateau list-serv is only affects a small geographic area, its development is congruent with other mobile technology-related changes in personal service work on a global scale. Peer-reviewed services that make use of mobile technology such as Airbnb and UBER have significantly altered the hospitality and taxi industry. While similarly impactful innovations to home-based personal service work has not occurred yet, apps like *GoFetch* for dog walkers or *Soothe* for mobile massage therapists do offer flexible, spontaneous and peer-reviewed personal services (Spencer, 2017; Lawler, 2015). Similar apps that function similarly to the Plateau list-serv are currently being developed for child-care work (Nguyen, 2016).

The Plateau list-serv demonstrates the potential for such apps to significantly alter the nature of personal service work. This study suggests that such a development would not only lead to an increase in work locations and resulting trajectories among service providers, but also increased precarity. When considering that an important contributing factor to Mile End nannies only accepting employment positions in their neighbourhood was the unaffordability of a transit pass, such personal service apps could have significant impacts on personal service workers' use of space. The potential options are either localised services such as in the Mile End where personal service workers live and work in the same area or an increase in long-range trajectories where personal service workers cover large geographic areas to provide their services. Either way, such apps could lead to intensified precarity among personal service workers as well as an increase of

work locations and corresponding trajectories for child-care workers in suburban neighbourhoods such as the Monkland Village .

Chapter 7: Conclusion

This study shows that the work experience of mobile child-care workers, especially in the Mile End, largely corresponds with the observations made by researchers about changing working habits in North America since the 1980s. Like many other professions, it appears child-care workers in Montreal are subject to the gig economy, meaning that their profession has seen an increase in amount of employers an employee has on a short-term and long-term basis.

This project attempted to answer the question whether or not the introduction of mobile technology has changed the child-care worker's relationship to urban space. While it appears that mobile technology has increased the amount of employers, and therefore work locations, child-care workers have, further research must be conducted. The focus of such research would have to explore the apparent suburban-urban divide previously described, which suggests that the child-care profession is less impacted by the introduction of mobile technology in suburban neighbourhoods. Possible explanations include socio-demographic reasons as well the higher density in urban areas that allow for a higher density of employers.

A definite conclusion of this project is that the use of mobile technology such as smartphones and laptops allow nannies to perform part of their tasks (primarily administrative tasks) from a series of flexible locations. It is notable that the locations chosen for these tasks, such as the

home, on public transportation or at cafes, remain consistent with the locations previously identified as popular flexible work locations among highly educated knowledge workers in other research (Shearmur, 2016; Kesselring, 2006).

This study further suggests that the inception of a listserv in the Mile End where parents can access a database of peer-reviewed potential employees is a driving factor in the significant difference in frequented work-related locations and trajectories when comparing nannies in the Mile End to nannies in suburban neighbourhoods of Montreal. As a result, Mile End nannies have many infrequent part-time positions while parents will often rely on multiple employees.

This study attempted to understand the movement patterns and resulting transportation needs in the 21st century of an employment group experiencing precarious working conditions. Analyzing the effects of the gig economy and mobile technology through a spatial lense can contribute important insights to the field of urban planning and can influence the way urban space is conceptualized in the planning of North American cities. Although this exploratory, qualitative study of one employment group in one urban context obviously does not allow for conclusive answers, it does raise preliminary questions that can be addressed in further research: can these observations be transferred to other professions and urban contexts? Have other personal service professions seen an increase of work locations and trajectories with the introduction of a peer-reviewed database, either based in the sharing economy or not? What are the underlying reasons for the increase in trajectories and work locations in the urban Mile End context versus the suburbs, especially relating to the density of built environment? And finally, how could urban

transportation networks be improved to meet the needs of mobile personal service workers? It is my hope that this project can contribute to these questions being answered.

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