In Transit: The Information Behaviour of Toronto’s Public Transit Commuters

Glyneva Bradley-Ridout

Abstract

Public transit users are a largely understudied population for information behaviour research, despite representing a significant portion of residents, particularly in urban areas. In this pilot study, the information behaviours of commuters in Toronto were examined, using Sonnenwald and Ivonen’s (1999) model of the information horizon. Semi-structured interviews and participant-drawn information horizon maps were generated from three participants. Analysis was conducted using a combination of narrative and quantitative techniques. From the study, several preliminary hypotheses regarding the information behaviors of individuals in transit were generated.

Keywords: Information behaviour; public transit commuters; information horizon; drawing elicitation

Introduction

For a large proportion of residents in the Greater Toronto Area (GTA), commuting is a daily activity. In a recent Statistics Canada report, it was documented that nearly 25% of all commuters in the GTA use public transit options – namely subway, streetcar, or bus – that do not require them to be in charge of operating a vehicle (Statistics Canada, 2011). These individuals present an intriguing population for study, as a significant proportion of their daily lives is spent riding as a passenger, giving them time to focus on stationary activities.

The amount of time that people spend commuting in the GTA on public transit is significant. The most recent census describes that the average time it takes for a public transit user to make a one-way journey is about 45.8 minutes. For those individuals who commute twice a day (such as from home to
work, and from work to home), the total average time spent on public transit is 91.6 minutes (Statistics Canada, 2011). This amount of time is substantial considering that the average person commutes five times a week for most weeks out of the year. When these numbers are added up, it can be said that Torontonians using public transit spend a large portion of their lives commuting.

Despite these numbers, little research has been done that examines the activities and behaviors of individuals during this portion of their daily lives. In this pilot study, the Information Horizon technique proposed by Sonnenwald and Iivonen (1999), is used to explore the information behaviours of Toronto’s public transit users. There were several main research questions of interest: what circumstantial information sources are commuters exposed to during an average commute? Which information sources do individuals purposefully use during their commute? What are the emotional responses to having to commute, and are these emotions in any way related to a use of information?

For this preliminary study, three commuters were interviewed and asked to create information horizon maps as described by Sonnenwald and Iivonen (1999). This data was then analyzed using a combination of narrative and quantification techniques. Three hypotheses have been generated as a result of the study: 1) that information sources are a deeply integrated part of the commuting experience, 2) that the act of commuting is also an act of encountering information, and 3) that there are a wide range of emotions associated with commuting, and these often relate to a use of information. Testing these hypotheses will contribute new insights into the experiences and behaviours of commuters during their time in transit.

Literature Review

This section will provide a review of previous literature that has been published on commuters and their interactions with information during their travels. A major study focusing on the information behaviour of commuters was published by Lopatovska et al. in 2011. In their paper, the researchers examined the information media consumption trends of subway riders in New York City using observation and interview techniques. The researchers were interested in determining the information activities that commuters engage in, and the information devices that they use to engage in such activities (Lopatovska et al., 2011). Following the twenty-three hours that were spent observing on a variety of different subway lines, in addition to interviews with thirteen passengers, it was determined that information devices were used by about one-half of the commuters (Lopatovska et al., 2011). This paper seeks to expand Lopatovska et al.’s conclusions by looking at additional information behaviours of commuters, beyond the use of information devices.

There have also been some notable studies which have examined the characteristics and classifications of commuter behaviour. Flamm (2005) conducted a qualitative overview of the experiences of people during their time spent commuting. Based on his interviews, the researcher determined that travelling activities fit into three main categories; 1) productive activities 2) relaxation
activities, and 3) social activities (Flamm, 2005). The author’s ultimate argument was that commuters make attempts to avoid wasting time by using their commute time for productive initiatives (Flamm, 2005). A related study by Brossard et al. (2009) argued that the personal experiences that commuters have during their travelling time should be considered significant. In their paper, the authors discuss the characterization of commuters into four groups based on their behaviour during transport. These groups were 1) The Beaver who is productive, 2) The Owl who is lost, seeking information, 3) The Peacock who communicates with others, and 4) The Marmot who sleeps, dozes, or keeps to themselves (Brossard et al., 2011).

Commuters have also been noted as a target population for library and information services, and as an important growing sector in urban environments. In a study by Flores (2002), a “mini library” was established in Godford, Australia. The library was located in a popular rail station and allowed commuters to quickly check out material as they hurried for their trains. The initiative was successful beyond the expectations of the implementers, and resulted in increased popularity and use of their library services (Flores 2002). A similar initiative in Denmark, called the “rush hour library,” also targeted commuters as an under-served population through the opening of a small library branch at a popular subway station in the town of Hvidore (Kylmann, 2011). Similar to the Australian initiative, the rush hour library was only open during the most popular hours of commuting, but received high numbers of patrons during those times (Kylmann, 2011).

Theoretical Framework

Sonnenwald and Iivonen’s (1999) model of human information behaviour will be used as the theoretical framework for this research. This framework suggests that there are “information horizons” in which people can act that occur within a given situation or circumstance (Sonnenwald et al., 2001). These information horizons can include various resources and information sources that are specific to each individual in a given situation. The information horizon technique seeks to illuminate the information behaviour processes of individuals through understanding decisions made regarding seeking and accessing resources. This framework has been successful in multiple information behaviour studies, such as Sonnenwald et al.’s (2001) follow up study about the information behaviours of students in a lower socio-economic status, and Huvila’s (2009) investigation into the information horizons of archaeological professionals. The information horizon interview framework includes a semi-structured interview and an information horizon drawing, which will be discussed in more detail in the methods section below. Due to the uniqueness of commuting for each individual, as well as the way that the concept of information horizons relates to the act of commuting, this framework was noted as the best way to undertake an investigation into the information behaviour of Toronto Transit Commission (TTC) commuters.

There is another information-based theory that is relevant to the research presented here, and
that has also influenced the design of this project. Proposed by Anders Hektor in 2001, this is the theory with which he investigated the information behaviours of individuals using the internet in their everyday lives. As part of this research, Hektor takes influence from time-geography theory to describe information behaviour as a secondary need, which aims to be met only after basic life needs are realized (2001). Within secondary needs, Hektor (2001) defines the difference between life activities and information activities. In the research presented here, the act of commuting can be thought of as a life activity, since it is a mandatory and required task for many individuals in their every-day lives. However, as Hektor (2001) describes, there is a relationship and connection between information-needs (also known as information activities) and life activities. The methods presented here seek to examine this connection.

Methods

This section will outline the methodology used to complete the pilot study. Three participants were recruited using an ease-of-access methodology. In other words, all of the participants were known to the researcher and asked to be a part of the study. No incentives were provided for participation and the informants all volunteered to be a part of the study.

There were some criteria that needed to be met in order to be eligible for the study. The first was that all participants had to be current commuters in the GTA, who generally commuted twice a day, at least four times a week. This qualification was set to ensure that the participants fell into the same spectrum of the average commuter in Toronto. The second of the two criteria was that each participant had to use solely public transit in order to make their commutes. For this study, the type of public transit (bus, streetcar, or subway), and the reason for commuting were not considered to be significant factors in determining the eligibility of participants.

The interviews took place over the course of a week. Two were conducted in a library setting, while the other took place in a small café. Participants were read an ethical protocol and were invited to ask any questions before the interview began. The interviews lasted between 22:49 minutes and 34:56 minutes, with an average time of 28:44 minutes. As mentioned above, Sonnenwald’s information horizon interview technique was utilized as the methodological framework for conducting the interviews (Sonnenwald & Iivonen, 1999). As Sonnenwald suggests, a semi-structured interview guide was created which included 11 pre-prepared questions that were addressed to all of the participants (Sonnenwald & Iivonen 1999). Additional questions were posited to each individual participant as they came up during the natural course of the interview. Following the discussion portion of the interview, participants were asked to draw an information horizon map that depicted the information resources and sources that they associated with their commute. A blank 8.5”x11” piece of white paper was provided, as well as an assortment of coloured and black pens. The participants were given no time limit to complete the drawing, and the times for this section of the interview lasted between four
to seven minutes.

The interviews were audio-recorded on two devices. These audio recordings were then transcribed, and both copies destroyed. An excerpt of one of the interview transcripts can be found in appendix 1. Analysis of the transcriptions took place following the conclusion of all three interviews. In order to protect the privacy of all participants, all identifying information has been removed from any research materials, and aliases will be used throughout this paper.

Limitations

Before continuing, it is important to point out some limitations of this research. The findings presented here were part of a pilot study to examine the potential value of Sonnenwald and Iivonen’s (1999) information horizon interview technique on a commuter population. As such, there are several limitations to consider when examining the results.

Firstly, the sample population used in the study was quite small, with three people interviewed. It is acknowledged that a larger number of informants may yield additional conclusions about commuter information behavior, and future researchers may wish to consider a larger sample population. Secondly, the three informants who were used in the study were all of similar demographics. They were all white, female university students in their early to mid-twenties, who fall into the middle-class. Additional future research would benefit by looking at more diverse populations, as individuals who commute fall into a wide range of demographics. However, despite the above limitations, several important revelations emerged as a result of this research as seen below.

Pilot Study Findings

In this section, the major findings of the pilot study that were elucidated from the interviews and information horizon drawings will be presented. The section is divided based on the three hypotheses generated during the study, and will begin with an overview of the participants.

The participants were all female graduate students attending a Toronto University. They ranged in age from 22 to 26. They all commuted daily from their homes to their university for classes. Further, two of the three participants also commuted at additional times during the week for work. Two participants used both buses and subways frequently as methods of transportation, whereas one solely used the subway. The length of their commutes ranged from one hour per day to two and a half hours per day, on average. From these interviews, three key hypotheses emerged. These will now be discussed in detail.
1. Information sources are a deeply integrated part of the commuting experience

The first finding from the study is that information sources were a deeply integrated part of the commuting process and experience for all of the participants. All three informants consistently bring information devices or materials with them from home for the intended purpose of use during their commute. While these sources included physical items such as books and printed reading materials, most were technological in nature such as kindles, computers, and music. The only information source that all three interviewees discussed and was generally considered essential to their commute was their smartphone. The purpose of the phones during the commute varied from practical (such as using an app to see if there were any delays on the subway), to navigational (such as using Google Maps to find a location), to entertainment (such as playing a game or looking at social media). A large variety of other information sources were mentioned as common sources used during commuting. A complete list of all information sources mentioned during the interviews can be found in Figure 1.

The informants were also asked the purpose of the information sources that they intentionally take with them during commuting. The intention was to find out whether commuters are more likely to use information that is related to entertainment, work, school, learning, navigation, or another factor. One respondent, Rose, answered:
It's usually for entertainment purposes. I was considering starting to print out my articles and read them for class... but then I thought about it and I decided to make my commute my time. So I like to use that time to catch up on personal reading, and the news, check my Instagram and Facebook. I use it as my personal check-up time.

The other informants also reflected a similar view to that presented by Rose in the above paragraph. The information sources that they brought with them for use during commuting were almost exclusively for entertainment or personal pleasure purposes. The participants recalled that their use of information during commuting “is always entertainment” (Frankie), and “is to relax” (Rose). However, the participants also discussed the need to sometimes do school- or work-related activities while commuting. During our interview, Frankie recalled the commute she had taken that morning:

Today I had to finish an assignment on transit because I had an assignment due right away in the afternoon. So I took out my computer, which I've never done before... it was tough, and I am not going to do that again. It was bizarre circumstances that meant I had to do that.

Figure 2: Frankie’s information horizon map.

These statements by Frankie and Rose indicate that they prefer commuting to be a time in which they can interact with information sources and devices that are considered entertainment, and save school or work related tasks for another time in their day. April had a slightly different view, stating:
Sometimes I write emails and save it as a draft so that I can send it later. If there’s an assignment I need to do I might work on my laptop. Sometimes I do readings on the bus... if I am doing readings, then I think [commuting] is quite productive time for me because I normally wouldn’t find another time to sit down and force myself to do them.

Another question asked to the participants was whether or not there were any resources or services that could be available to them while commuting that would improve their experience while in transit. Interestingly, all three informants mentioned services that were related to improving information access. This result lends validity to the finding that information sources are a deeply important part of commuting for these commuters. Rose suggested that it would be a useful service if the TTC could incorporate phone chargers into their bus and subway designs. Improved access to a reliable Wi-Fi signal during the entirety of the commute was also a desire brought up by all three participants. Frankie mentioned the inconvenience of having to lose a Wi-Fi and service signal when entering the subway, and made a specific note of this in her information horizon map (Figure 2). She stated the following:

I start at home, where sometimes I look up the route on my computer, but you can’t look that up as you go, you gotta do that at home. And then there’s a little residential street that I walk along, and then you go underground, where you lose the signal.

2. The act of commuting is also an act of encountering information

The second finding that emerged from the pilot study is that the act of commuting is also an act of encountering information. In other words, commuters are exposed to various information resources circumstantially and usually unintentionally as they commute. These sources include advertisements, news, next train arrival information, audio announcements, and the Metro, which is a free daily newspaper provided to commuters at most subway stations. The full list of encountered information sources, and the frequency that they were mentioned can be seen in Figure 1. These information sources are sometimes interacted with in a minimal, passive manner while others are sought out and engaged with. Further, some participants see their commute as an information seeking adventure, and would prefer even more information to be circumstantially available to them as they commute than is currently provided.

To begin, two informants described a negative perspective on encountering information that they did not intend to find. To them, this accidental information can be considered annoying or unwanted. When discussing the types of information that is encountered during commuting, Frankie had this to say about audio announcements:
I guess that's an information source that I take in whether I want to or not... If I am listening to my audiobook, and then I hear an announcement come on I'll have to pause it, because I want to know what it is in case it affects me, and 99% of the time it doesn't but I'll have listened to it anyways. So that’s kind of a disruption that’s annoying.

The informants all considered the TV screens which are present on every subway waiting platform a significant source of information that was available to them while commuting. These TVs provide a variety of information, such as how much time until the next train arrival, weather updates, brief news blurbs, and advertisements. Some informants sought out these TV screens as a source of information, and even preferred it to sources accessible outside of commuting, such as Rose:

*I just remembered those screens they have in the subway. They give you the news and the weather, and the weather is key, because I wouldn’t normally search out that information otherwise.*

Other participants found that the information provided on the TV screens was not relevant to them. Frankie discussed that she would look at the TV if there was one near to where she happened to be waiting for her train, but would never seek out the TV to read the information purposefully. Further, Frankie was unhappy with the type of news that is often chosen for display:

*The TV screens also show news, which I don’t go looking for, but you can’t help but see the news story. I think that happened this morning where there was a shooting which wasn’t very nice. But it was on the screen and I was looking for the train time so I saw it.*

![Figure 3: Rose’s Information Horizon Map](image-url)
Clearly, the TV as a source of information was engaged with to varying degrees by all informants. Rose’s perspective on them became clearer during her information horizon drawing, where the following exchange took place (Figure 3):

*Rose:* I’m going to draw that stupid little TV that’s there.

*Glyneva:* Is there a reason why you referred to it as stupid?

*Rose:* Hmm. (pause). I mean a lot of the news is pretty stupid. Like, “Prince Harry arrived on PEI” and you’re like, thanks guys! That was really the most important thing to know? Either that, or the news is really brutal, like about a hit and run ... I don’t know what the criteria is for their news, and what’s feeding it.

While the above statements show a current negative view on encountered information, all of the participants also mentioned that they like the idea of the TTC as a source of information, and would like this service improved. When asked about which services they would like to have available to them, April brought up the idea of meaningful vs. non-meaningful information. To her, most of the information that is provided by the TTC, such as news updates on TV screens and service alerts, is “repetitive” and “generic” to what she already had access to on her phone. Instead of or in addition to this kind of information, April thought that there were ways that the TTC could “incorporate more meaningful information” to commuters. When asked to elaborate, April replied:

*Maybe a list of events in Toronto that are ongoing for the day. Like you know how you go into a mall, there’s that giant screen with a touched based directory? Maybe they could have something like that. And there could be a map on there as well, of Toronto, so commuters and tourists, or people looking for an alternative route could use it. And it could have service alerts too.*

The posters and advertisements in the TTC were also discussed by all participants as an encountered source of information. Mostly, the informants described that their eye was often caught by advertisements, but they generally ignored them and did not feel motivated to purchase products that they had seen during the commute. However, Rose indicated that posters relating to events going on in the city were another story. For her, seeing events advertised during her commute were used as a way to learn about events and as a reminder that they were upcoming. Rose stated:

*I know last year Time Festival put up a sign in the subway and I used it as a reminder, because I really wanted to go to that festival and I kept seeing the date every day. It really does help because if you want to go to something... it’s a good way to kind of ingrain it in your brain. You’ll remember the date if you see it so many times.*
To conclude on the second finding, it is clear from the above testimonies from informants that the act of commuting involves encountering information. In some cases, this information was sought out and appreciated, while in others there were negative emotions expressed towards finding information which was not intentional.

3. There are a wide range of emotions associated with commuting, and these often relate to a use of information

Through the interviews, it became clear that there are many emotions that the informants feel that are related to their daily commute. All the informants mentioned both positive and negative feelings naturally during the course of the interview. Each emotion can be seen in Figure 4, as well as the total number of times it was mentioned in all interviews.

<table>
<thead>
<tr>
<th>Emotions</th>
<th>Number of Times Mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productive</td>
<td>7</td>
</tr>
<tr>
<td>Relaxing</td>
<td>5</td>
</tr>
<tr>
<td>Anxiety</td>
<td>2</td>
</tr>
<tr>
<td>Unproductive</td>
<td>2</td>
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<tr>
<td>Frustration</td>
<td>2</td>
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<tr>
<td>Annoyance</td>
<td>2</td>
</tr>
<tr>
<td>Refreshing</td>
<td>1</td>
</tr>
<tr>
<td>Misery</td>
<td>1</td>
</tr>
<tr>
<td>Boredom</td>
<td>1</td>
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<tr>
<td>Enjoyable</td>
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These emotions varied depending on several factors, such as the time of the day, the temperature, and how crowded the subway or bus was at the time. Interestingly, all three participants shared very similar views about their overall enjoyment of their travel time. It seemed that when the external factors came into play, the commute was stressful and anxiety producing. But for all informants, the majority of the time, their commute was expressed as a pleasurable and significant part of their day. April states:

*I find my commute relaxing because it forces me to kind of zone out from all the hustle and bustle of the day.*

The idea of the commute being a time for relaxation came up in all of the interviews. Interestingly, the term “mental health” was also brought up by all informants. Their commute was utilized as a moment to be relaxed and removed from the intensity of everyday life. For the informants, this time that could be used to engage with information that is enjoyable to them was appreciated time in their days. Being “forced” (April) to remove themselves from the business of their daily routines and relax for some time seemed to improve the informant’s overall happiness in the day. However, as mentioned,
how crowded the transit is and the smoothness of travel were major factors in the informant’s ability to enjoy their commutes. Frankie summarized it best:

*I think [commuting] is a good mental health thing most of the time. I don’t mind the commute at all because I enjoy listening to audiobooks or reading books or whatever... I like the entertainment that I have for myself, so [commuting] is productive in that it is a mental health kind of productiveness.*

As seen in the above statement, it seems that information plays a large role in whether or not a commute is enjoyable. This finding was reflected in the testimonies of all three informants, who expressed that having the time to relax and interact with information sources was a crucial factor in the emotional outcomes of their commutes. Frankie continues:

*If it is so busy that it is all packed in, then it [the commute] is totally unpleasant and unproductive because it makes me miserable. But since I’ve started listening to audiobooks, it makes that time less awful. It’s relaxing because I can just zone out and listen to the audiobook, no matter what the circumstances are.*

This idea of being closed off from the world in a positive way during commuting was re-iterated by April in her information horizon map. April chose to manipulate her paper in order to represent a set of closed doors (figure 5). She elaborates:

*I folded the paper to represent the doors of the TTC. I guess it’s supposed to reflect or mimic the action of zoning out to some aspects of life, because when you are on a subway or bus, you are closed off from reality in some ways.*

![Figure 5: April’s Information Horizon map. April folded the paper (shown on the left) to allow it to “open” and display the image shown on the right.](image-url)
Discussion

In the above findings section, three major hypotheses were presented using a combination of narrative techniques in the form of interview excerpts and some quantitative analyses of the language used by participants. These findings have illustrated some preliminary discoveries about the information behaviour of Toronto’s commuters, which may lead to further insights if a larger study were to be conducted. Firstly, this research contributed to the existing literature on the behaviours of commuters, such as the study by Flamm (2005) which argues that commuters attempt to make their commute productive in order to avoid wasted time. Interestingly, the findings presented here support Flamm’s conclusions, but in a different way. Flamm (2005) considered productive activities to be activities that accomplished work or school goals, or made steps towards completing daily tasks (Flamm 2005). As seen in Figure 4, the informants in this study also considered their commutes to be productive time, as that was the most common adjective used by all participants to describe their commutes. However, through the discussion it became clear that the meaning of productive in this context was personal and mental health productivity, not task related productivity. Although completing school or work related responsibilities on the TTC was only done occasionally by the participants as discussed above, none of them considered their commutes to be wasted time.

A second interesting outcome that the pilot study revealed was the dichotomy between being simultaneously connected and disconnected to information while commuting. On the one hand, the commute was seen as a time for the informants to tune-out their daily lives and environments, and spend some time doing activities they enjoyed. None of the informants discussed communicating with other individuals during their commutes, or mentioned any attempts to complete daily mandatory tasks while on transit. The informants felt that during their commutes, they were removed from the hustle and bustle of everyday life. However, on the other hand, the idea of being connected while on transit was also brought up as an important necessity, as revealed by the tendency to use the internet and social media while travelling on buses, and the desire to have service and internet connection available while in the subway underground. Further, encountered information within the transit system was both disliked and desired by the same individuals. This dichotomy reveals an interesting dynamic where commuting is seen as a time of the day in which one is simultaneously connected and removed to the world around them.

The research presented here also suggested that engaging with information is a crucial part of travelling for these daily commuters. Different devices and sources provide essential information to commuters in the form of navigational tools, service updates, and weather and news information. Furthermore, engaging with information during commuting was a key component of what was considered a successful commute. Information used during commuting can not only be helpful, but can also contribute to the emotional well-being of commuters and the satisfaction that they have.
during their daily acts of commuting. In practice, this information may be valuable to anyone looking to provide services for commuters, or anyone wishing to improve the experience of commuters. This early research suggests that access to information devices and sources during travel is an important requirement for commuters.

Conclusion

The research method presented here has sought to investigate previously unanswered questions about the information behaviours of TTC commuters. Sonnenwald and Iivonen’s (1999) theoretical framework of the information horizon was used to guide the presented pilot study. Through interviews and information horizon maps with three informants, several hypotheses about the information behaviours of commuters were generated. Firstly, information devices and sources are a deeply integrated part of the commuting experience. Secondly, information is constantly encountered while on route, and these encounters were seen as both negative and positive interactions by commuters. Thirdly, there are a variety of emotions associated with commuting, and these can be affected by interacting with information. Importantly, an additional observation generated from the pilot study suggests that commuters may consider their commutes to be a mental health break from daily life, and commuting is considered productive time that gives travelers the opportunity to perform activities that are enjoyable to them. This observation alone may merit further focused study.

These preliminary findings have implications for future programming and services created for commuters. It is acknowledged that the sample size used in this pilot was small, and future research may consider testing the hypotheses presented here on a larger population. While extended research will expand these results, it is clear that commuters display a rich and opulent suite of information behaviours during their time in transit.
References


