

Broadband Internet Usage Outside the Home: Insights from a Study of Toronto Internet Cafés[†]

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Abstract

This paper addresses a simple question. In an environment where more and more people have broadband internet access at home, what is the role of internet cafés? In answering this question, a contribution is made to the limited existing knowledge of how consumers use public internet points, with a specific focus on how broadband services are used. This study is novel because work to date has focused on understanding how consumers use broadband in their homes, with the assumption being that once everyone has residential broadband connectivity, public access points like internet cafés will disappear. This paper offers a description of user behaviours observed in 28 internet cafés and 4 free public access points. The paper documents diversity in users and usage patterns, and suggests that internet cafés continue to offer valuable services to their users. Broadband connectivity is used for gaming, but few other uses that required broadband connectivity were observed.

Introduction

Internet cafés (also known as cybercafés) are businesses that provide internet access to the public on a fee for service basis. The first internet cafés opened in California in the early 1990s, and by the mid-1990s, there were internet cafés in many countries around the world (Anonymous, 1995a, 1995b; Ditchburn, 1995; Nadelson, 1995). Internet cafés are locations where people who have never used the internet can get help using a computer and getting online, and are also places where people can access services that they do not have elsewhere (e.g. e-mail for travellers, web surfing for people without computers at home). But by the late 1990s, it was suggested that the internet café was becoming a relic in wired societies, as ever increasing numbers of interested consumers bought computers and signed up for internet access at home (Braddock, 1998).

In 2003, it appears that Canadian internet cafés are thriving. Despite the fact that Canada has one of the world's highest uptake rates of residential broadband services (OECD Directorate for Science Technology and Industry, 2001, 2002) and that more than 60% of Canadian households have at least one person who goes online from home daily

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(Statistics Canada, 2002a), internet cafés are busy locations. Statistics Canada data show that internet access in locations outside the home (including libraries, educational institutions and internet cafés) continues to increase in step with overall internet usage (Statistics Canada, 2002b). In Toronto, for example, new internet cafés are opening each month, and existing ones have steady streams of users. Canadian internet cafés cater to a wide clientele, offering services like web browsing, e-mail, internet telephony, and multiplayer games, in addition to basic computing services like word processing and printing.

The ongoing success of internet cafés in a wired country like Canada suggests that the initial understanding of internet cafés, as transitory businesses and spaces that would disappear over time, is no longer entirely accurate. The purpose of this paper is to investigate the current uses and users of internet cafés, with a view to providing insights on three specific research questions: i) How are internet cafés used in an environment where affordable residential internet access is widely available? ii) What do people do with the broadband access available to them in internet cafés?; and iii) What can be learned from the Canadian experience for the provision of public internet access (in internet cafés or other public spaces) in the Asia-Australasian region?

Literature Review

There is very little academic literature published on the topic of internet cafés. In 1998, Liff et al. conducted a survey of telecottages and cybercafés in the United Kingdom. This study provides a useful starting point for understanding the nature of public internet access points. Survey responses were received from 86 telecottages (defined as rural access points, frequently operated by voluntary sector organizations with public support) and 62 cybercafés (located in urban settings, operated by the private sector on a commercial basis). Both types of access points reported a wide range of users, with more than half of the cybercafés, and more than three-quarters of the telecottages indicating that at least of half of their patrons were unfamiliar with personal computers and the internet. In contrast however, both types of locations also reported many users with access to technology in the workplace, or the necessary resources to purchase their own computers, suggesting that these users were not dependent upon the cybercafés or telecottages for provision of internet access. In general, telecottages had fewer computers than the cybercafés, with two-thirds of telecottages reporting fewer than 5 machines available at their locations, compared to the 5-9 machines available at most cybercafés. Telecottages had fewer users per day than the cybercafés. Both reported users across various age groups, and about half of each type of location indicated there was a gender balance among their users. Cybercafés that did not have a gender balance tended to be dominated by male users, whereas the opposite was true for telecottages (e.g. dominated by female users when there wasn't a gender balance).

Usage patterns were quite different in the two types of locations, with cybercafé users favouring internet use for socializing and game playing, compared to internet use for employment and education related purposes in the telecottages (although all activities were recorded in both types of locations). Overall, this early UK study indicates diversity in usage patterns and users, across the cybercafés and telecottages surveyed.

Lee (1999) offers insights into user behaviours in a single internet café in Brighton, England, based on data collected in 1998. Contrary to the author's expectations, the study found that most patrons of this internet café were already familiar with the internet, and almost a third of them had internet access at home. Many users came to the café only once or twice, to check e-mail while visiting Brighton. Some users did live in the community and frequented the café regularly. It was noted that despite the social nature of the café setting, users' "attention remain[ed] fixed on terminals making public internet use an atomized and profoundly uncollective experience so that consumption of technology in this context remains an individuated and discrete act" (Lee, 1999, p. 346).

The South Korean experience suggests that the presence of internet cafés (known there as PC Bangs) helped to fuel demand for residential broadband in that country (Lee & O'Keefe, forthcoming). Offering internet access at speeds of up to 12 Mbps, the number of PC Bangs grew rapidly from about 100 across the country in 1998, to more than 21,000 in 2001 (de Bourdon, 2002). Current estimates suggest there are more than 25,000 PC Bangs now in operation in South Korea (Reynolds, 2003), which has the highest uptake of residential broadband in the world (Beardsley et al., 2003; International Telecommunication Union, 2003).

The 1998 studies in the UK, and the continued use of PC Bangs in South Korea all indicate that public internet access points are not just used by people who do not have access to the internet anywhere else. Nevertheless, many observers suggested that as home internet access became more widespread, internet cafés would disappear from the landscape. As early as 1995, Forrester Research was predicting that "at best, these new venues [internet cafés] will be a two-to-three year phenomenon that exists only while PC users without Internet connections exist" (Hodges, 1995). This viewpoint was echoed in 1996, with a commentator suggesting "as Internet access charges fall and more people are able to dial in from homes and offices, they may be less willing to pay a café tab" (Boss, 1996).

Despite these predictions, many internet cafés were opened in the mid 1990s, in both the US and the UK. Still, Brockes (1999) suggested that "Internet cafes never took off in the US, where the number of people with home net access made them unprofitable". And by the late 1990s, many internet cafés had disappeared. "After an early round of fanfare surrounding their openings, many have quietly folded" (Johnson, 1999). Even London's

Cyberia, well-known as the first cybercafé in Europe when it opened in 1994 (Stavrinou, 1994) closed its doors in 2002. Weber (2002) quotes an internet café owner who suggests that “eventually ... enough people will have broadband in their own homes to make a simple high-speed offering less of a hook to potential customers”.

The 1998 studies suggested that public internet access was of use to people even when they were already internet users and had access to the internet in other locations, something that is confirmed by the continued existence of Korea’s PC Bangs. The quotes above from the popular press argue that there is a limited role for public internet access points in future, suggesting that they will continue to disappear as more people have home internet access. As will be discussed below, Canadian evidence suggests that the findings of the two academic studies still hold true today, and the purpose of this paper is to further investigate how internet cafés are being used in the Canadian context in 2003.

Rationale for the Study and Research Questions

Much has changed in the ways that individuals access the internet since the two UK-based studies were conducted in 1998. For this reason alone, a new study of public internet access points is warranted. In addition, a study of internet cafés provides data on Canadian internet use in public places, data that have not previously been collected and analyzed. It also provides an opportunity to investigate consumer uses of broadband networks and services, an important consideration as governments around the world promote widespread broadband deployment (International Telecommunication Union, 2003). As such, the primary research questions guiding this study are: i) How are internet cafés used in an environment where affordable residential internet access is widely available? ii) What do people do with the broadband access available to them in internet cafés and other public access points?; and iii) What can be learned from the Canadian experience for the provision of public internet access (in internet cafés or other public spaces) in the Asia-Australasian region? These questions are addressed below.

Methodology

The paper draws on data from Statistics Canada’s (2001, 2002c) Household Internet Usage Survey, and on data collected by the author and three research assistants through visits to internet cafés and other public access points in Toronto. Data collection was led by a graduate student, who established the data collection routine and trained the other members of the research team, to ensure consistency in data collection. Each of the researchers conducted at least one visit with the graduate student to observe the routine, and then each researcher conducted his or her own café visits to collect additional data.

When conducting a visit, the researcher simply entered the café like any other patron, asked to use a computer and then documented observations using either a word processing document (downloaded from the research website and then e-mailed back to the research team once completed) or an online form. (A copy of the observation form is included as Appendix A.) Visits typically lasted from 1 to 1.5 hours, during which time the observer would walk around the café, talk to the employee(s) and observe other users within the café, by looking over their shoulders to see what was on their screens. Data collection also included testing network speed using an online speed test, taking note of software installed on the computer, and observing the advertising used by the café to attract patrons. Most of the observers' time in the cafés was spent using the computer, either for entering data or doing other tasks (e.g. surfing, checking e-mail). Observers did not identify themselves as researchers unless asked, at which point they would explain they were doing a study of internet café usage. Café employees were generally helpful in providing information on usage patterns within their cafés, but there were some language barriers (many internet cafés in Toronto are operated by Koreans and no one on the research team spoke Korean), that hindered detailed discussions.

Café visits took place at various times during the afternoon and evening. An earlier study of a single internet café by a member of this research team (Powell, 2003) found that that café was not heavily used in the morning. This usage pattern was confirmed by other café visits, so data collection took place later in the day. Some visits were conducted after midnight. Some (but not all) cafés were found to be quite busy late at night. Cafés throughout the city were included in the study, as were a small sample of other free public access sites (3 public libraries and a post office). The data set is not complete. It does not include every internet café or public access point in Toronto. Rather, it samples a variety of cafés and public access points across the large geographic area that comprises the city of Toronto.

There are limitations in the data collection method used here. While certain factual information was easy to observe (e.g. number of users in the café, number of machines available, types of software provided, whether the café sold other products, equipment quality) or test (e.g. network speed), other information was more difficult to collect. The research team did not survey individual users in the cafés, so data on user age and ethnicity was gathered through observation and educated guesses. Information on usage patterns is of course reflective of usage at the time of observation, and it is recognized that user patterns may shift over the course of the day (e.g. tourists checking e-mail during the day may be replaced by teenagers playing games in the evening). For the purposes of this study, these limitations are not serious, as the primary objective was to understand the diversity of usage patterns within internet cafés. As research progresses on this project,

individual user surveys will be conducted to provide reliable data on user characteristics, and more specific information on usage patterns and habits.

Data

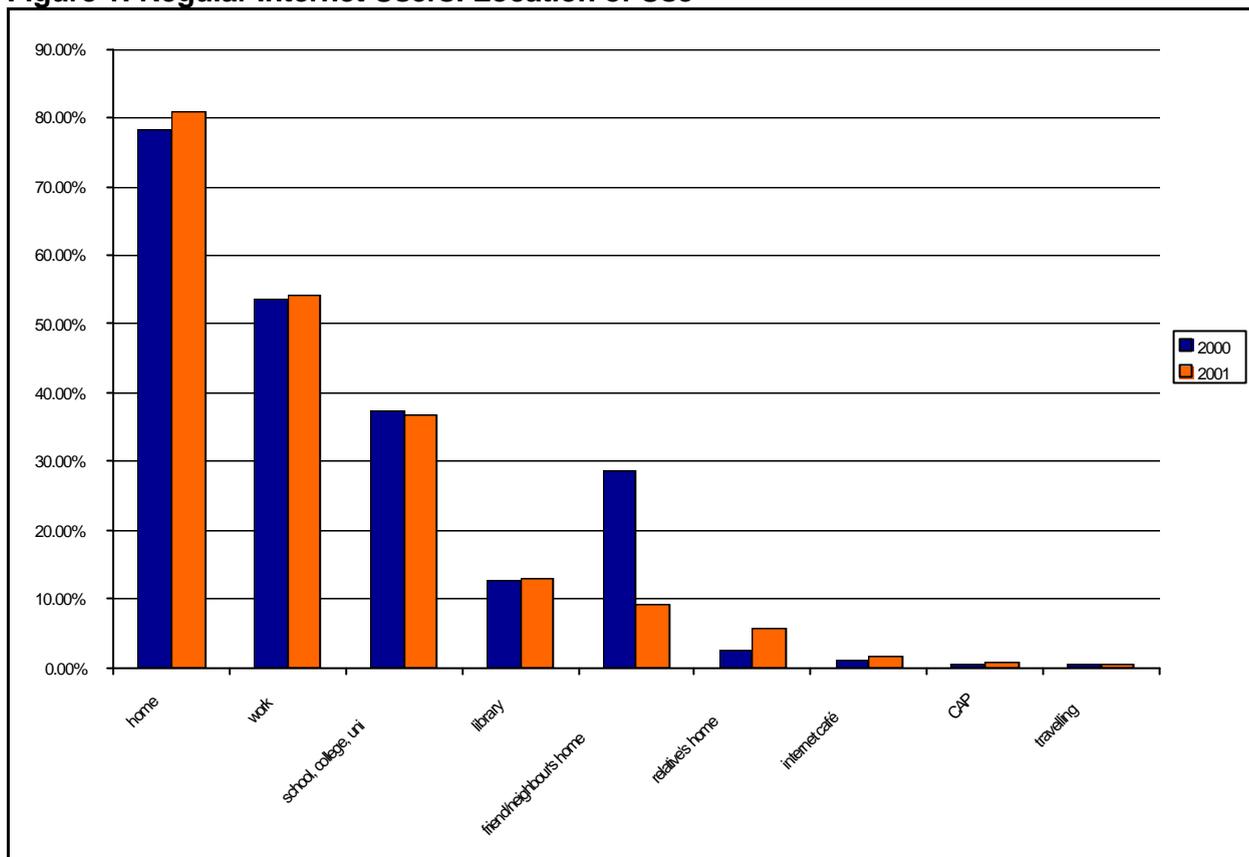
This section begins with an overview of internet usage statistics in Canada. This is followed by a typology of internet access points, derived from observation of the Canadian situation. The section concludes with the presentation of data from internet café and public access point observations.

Internet Usage in Canada

Statistics Canada (2001, 2002c) conducts an annual Household Internet Usage Survey (HIUS). Results are generally released in July for the previous year's study, meaning that the most recent data available at present are from 2001. What these data show are a continued increase in the number of Canadian households in which at least one person "uses the internet from any location", in a "typical month". In 2000, 51.3% of Canadian households had at least one internet user in a typical month (Statistics Canada, 2001), this number rose to 60.2% in 2001 (Statistics Canada, 2002c). It is anticipated that the 2002 HIUS data will show another increase in the overall percentage of Canadian households in which someone uses the internet.

Figure 1 shows that there are a variety of locations from which Canadians access the internet. The most common access point is within individuals' own homes, with more than 80% of Canadian internet users accessing the net from home in 2001. Internet users access the net from multiple locations, including the workplace, school or university, libraries and at the homes of friends, neighbours and relatives. (Note that there is no obvious explanation as to why internet usage at a friend or a neighbour's home dropped substantially between 2000 and 2001, more light may be shed on this issue with the release of the 2002 HIUS data.)

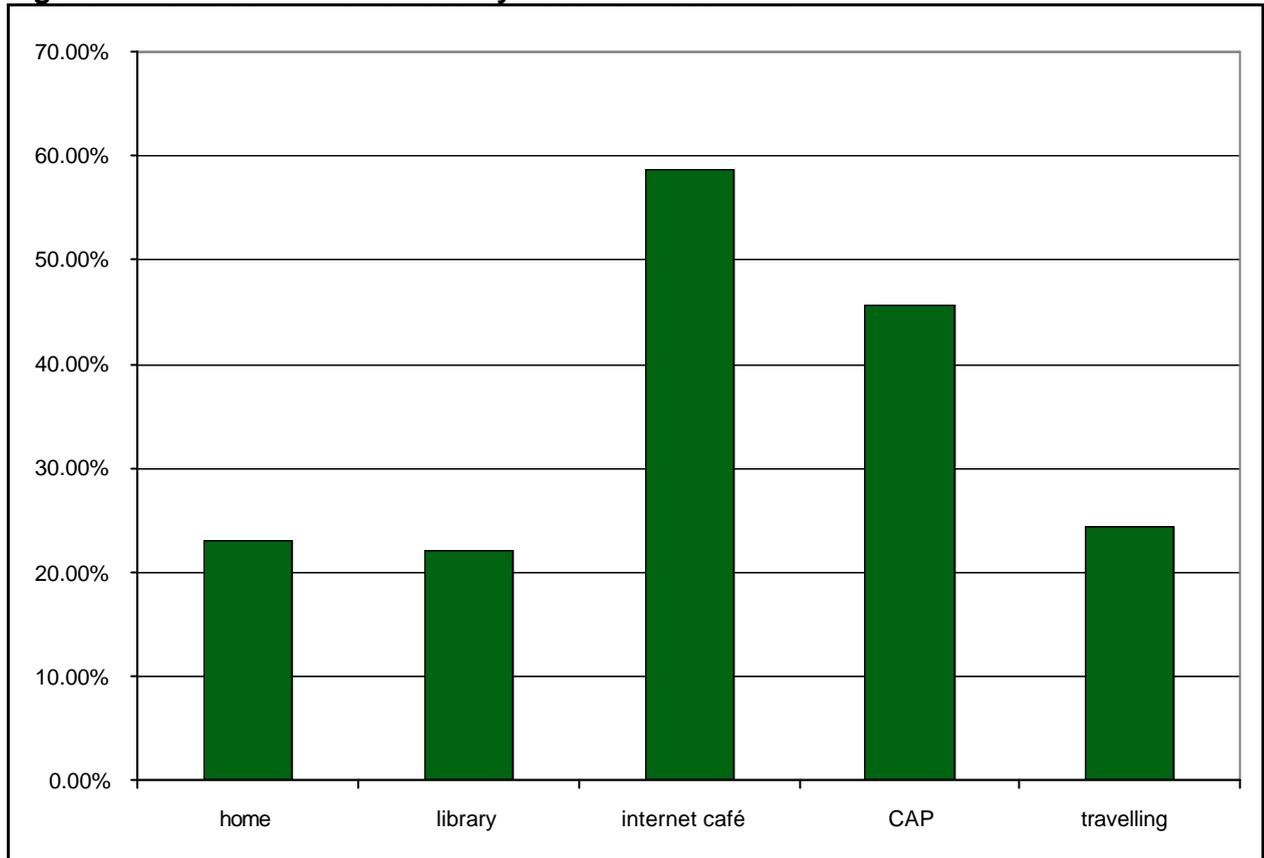
Figure 1: Regular Internet Users: Location of Use



Source: Statistics Canada, 2001, 2002c

Of interest for this paper is internet access via internet cafés, which increased markedly, by almost 60%, from 2000 to 2001 (see Figure 2). Access at Community Access Program (CAP) sites also increased greatly between 2000 and 2001, while more moderate increases were observed for home and library access points.

Figure 2: Increase in Internet Use by Location 2000 - 2001



Source: Statistics Canada, 2001, 2002c

Overall, the Statistics Canada data show increased internet access at home coinciding with increased use outside the home, at locations like libraries and internet cafés. The Statistics Canada data do not provide recent information on broadband adoption, but do show a 44% increase in the overall percentage of households accessing the internet via cable modem in 2001, as compared to 2000. The HIUS data report on DSL usage, but these figures appear to be inaccurate, indicating a 43% drop in DSL usage between 2000 and 2001. (As this is contrary to broadband adoption patterns around the world and to other data on broadband usage in Canada in 2001 [e.g. Lie, 2003, see below], it is suggested that some DSL users were recorded as accessing the internet by telephone, rather than responding “other” on the survey and then indicating that their “other” means of access was DSL.)

Data comparing broadband uptake in various countries consistently rates Canada among the leaders. Although different data sources measure broadband uptake in different ways, Canada ranks second (to South Korea) according to statistics from the OECD (2001) and from McKinsey Consulting (Beardsley et al., 2003). International Telecommunication Union statistics (2003) show Canada third, behind South Korea and Hong Kong (which is not included in the other two data sources). It is impossible to compare these data sources as the data were collected in different ways. For the purposes of this paper, the McKinsey data,

which measure broadband uptake on a household basis and are most current, are used. They suggest that 54% of households in South Korea now use broadband, compared to 25% in Canada (and 14% in Sweden, the next country on the list). Within Canada, cable modem access is the most common type of broadband infrastructure, used by about 63% of subscribers in 2001. DSL was used by about 36% of subscribers, and satellite and fixed-wireless services were used by less than 1% of subscribers (Lie, 2003).

Overall, these data clearly demonstrate that internet access by Canadians continues to increase, with public internet access points gaining in popularity, even as more Canadians adopt broadband access in their homes. In the section that follows, a typology is developed that describes internet access options available to Canadians.

Internet Access Points in Canada

There are three basic types of internet access available to Canadian consumers. These are described as i) private; ii) public, with a fee for service; and iii) public, with service provided free of charge. Each of these categories can be subdivided to more precisely describe the diversity of internet access options available to Canadian consumers. Figure 3 (see next page) offers a detailed description of each type of internet access.

Although the HIUS indicates that many Canadians have access to the internet at their place of work, this access point is not considered above. It is effectively a private access point, but given that employers discourage employee use of the internet for personal business, this access point is not considered as an option available to consumers to conduct non-employment related tasks. Access via mobile devices like PDAs and cell phones is also not included in this typology, because at the moment this sort of access does not provide the same range of services and applications available through a computer-based internet connection. It is noted however that mobile access would currently be considered an example of private, narrowband access. Once third generation mobile services become available, this would allow for private, broadband mobile internet access.

It is also noted that for many Canadians, not all of these access points are readily available in their local communities. The Canadian government's Broadband for Rural and Northern Development program (see broadband.ic.gc.ca) aims to bring broadband internet access to communities that are not currently served by commercial broadband providers.

Figure 3: Typology of Internet Access Points

	Private		Public: Fee for Service		Public: Free	
Subtypes	Narrow-band	Broadband	Internet Café	Hotspot	Open Access	Limited Access
Description of Access Point(s)	<ul style="list-style-type: none"> access point is inside consumer's home, access device (PC) is owned by consumer 	<ul style="list-style-type: none"> same as narrowband for consumers 	<ul style="list-style-type: none"> fee for service access point, computers and software are provided on a rental basis 	<ul style="list-style-type: none"> Wi-Fi network, user provides access device (e.g. laptop) frequently located in transportation hubs (e.g. airports or train stations); also in coffee shops and some office building lobbies 	<ul style="list-style-type: none"> computers with free internet access located in public spaces (e.g. post office, public library, Community Access Program) some Wi-Fi networks are open access 	<ul style="list-style-type: none"> computers with free internet access for specific users (e.g. university students) includes university/college/school libraries and labs
Connection Types	<ul style="list-style-type: none"> dial up modem service 	<ul style="list-style-type: none"> wireline (e.g. DSL or cable) wireless (e.g. satellite, fixed wireless) 	<ul style="list-style-type: none"> broadband (generally DSL or T1 connection) 	<ul style="list-style-type: none"> 802.11b wireless connection 	<ul style="list-style-type: none"> T1 	<ul style="list-style-type: none"> 10/100/1000 ethernet
Pricing (Canadian prices, converted to USD)	<ul style="list-style-type: none"> unlimited dial up service, ~\$18/mth 	<ul style="list-style-type: none"> standard broadband (cable or DSL, 1-2Mbps), ~\$36 	<ul style="list-style-type: none"> fee for service, ranges from \$1.50/hr to \$6.50/hr 	<ul style="list-style-type: none"> some hotspots are currently free, others charge ~\$7/hr 	<ul style="list-style-type: none"> free 	<ul style="list-style-type: none"> free, but must be a member of specific community (e.g. student)

Observations at Toronto Internet Access Points

In Toronto, people wishing to use the internet have the option of accessing it via any of the three main access modes. The limited access free service is not available to all Toronto residents, but all other subtypes can and are used widely by Torontonians. For example, there are 98 public libraries in Toronto, all of which have at least one computer offering free open public internet access. The focus of data collection in this study was in the fee for service public access arena, with the majority of visits conducted at internet cafés. As a point of comparison, several free public access points were also visited. Visits to wireless hotspots were not included in the study, because to date hotspots are receiving very limited use (Hamilton, 2003). (At this point, visiting a hotspot usually means there is no one to observe, thus data collection on hotspot usage will initially be done through interviews with hotspot providers and employees of the places in which the hotspots are located.)

This paper reports on visits to 28 internet cafés and 4 free public open access points in Toronto. One of the first questions of interest is how many internet cafés are there in Toronto as a whole, a question that is very difficult to answer. There is no single source of information that lists all Toronto internet cafés. Telephone and online directories list approximately 25 cafés, but this is a very incomplete list, and more than a third of the cafés in these listings are no longer in business. There are certainly more than 28 internet cafés in Toronto, it is estimated that there are at least double that number spread across the city, and possibly many more.

There are certain areas within the city where there are large numbers of cafés. In the centre of the city there are several stretches where there are 5 to 10 cafés within a square mile. (These clusters are along major streets, some close to residential areas, some not.) In other parts of the city, cafés are more isolated, with single cafés located in some residential areas. There are also internet access points in businesses like Kinko's (a North American chain that provides photocopying and business services), which are scattered throughout the city, and in public libraries and post offices. These access points are not included in the estimated number of internet cafés provided above.

Various characteristics of the cafés and other access points will be described below, with discussion of the findings provided in the following section.

User Demographics

As individual users were not surveyed, user age could only be derived from researchers' best estimates of the age ranges of people in the locations visited. It was estimated that users ranged in age from teenagers to senior citizens (e.g. from 13 to over 65), with the majority of users estimated to be in the 20 to 30 year old range. Mirroring demographics in the city of Toronto, there were a wide range of ethnicities observed among internet users. 74% of the internet users observed in this study were male. In 7 of the 28 cafés visited, all users were male. There was no clear relationship between gender and the type of usage observed.

Café Capacity and Usage Rates

In the 32 locations visited, there were a total of 741 personal computers available for use. 334 machines were in use at the time of visits, which is approximately a 45% usage rate. The largest and smallest numbers of computers were found at the public access points. The Metropolitan Toronto Reference Library was the largest site, with 60 machines, compared to the post office location with only 1 machine. Excluding the free access points, the average number of machines per internet café was 24, with a range from 12 to 44 machines.

The free access points were the most heavily used. At the Metro Reference Library (the main branch in the Toronto library system), all 60 machines were in use at the time of the visit (mid afternoon) and an additional 8 people were waiting to use the machines. There were also people waiting to use the machines at the post office and other libraries. None of the internet cafés had all machines in use when visited. The busiest cafés had more than 70% of their machines in use (between 4 and 7 pm), and the least busy had less than 20% of their machines in use. Of the 5 cafés that had less than 20% of their machines in use, one was empty (at midnight, but a café across the street from the empty one was busier, with 35% of machines in use). Three of these five were primarily gaming cafés, and were visited between 10 pm and midnight. However, there were some gaming cafés with more than 40% of machines in use when visited after midnight, suggesting that the relationship between time of day and usage rate is not clear.

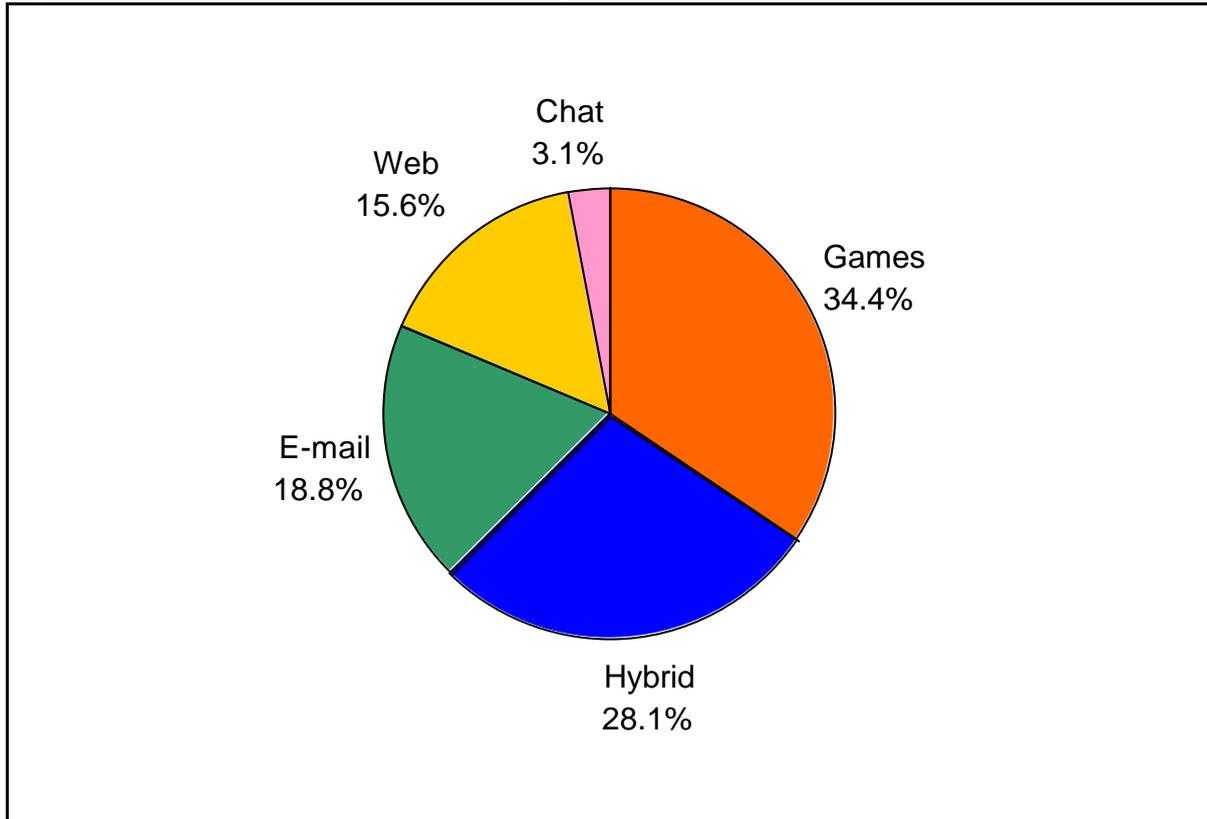
Types of Usage

As noted above, usage data were collected by observing users in cafés and free access points, and by searching the machines used during the visits to see what programs were available and what sorts of web sites had been recently visited. Researchers described all uses observed, and then indicated a primary use of the machines during the time of the visit. These primary uses were categorized as game playing, e-mailing, and surfing the web. There was one café where the primary activity observed was instant messaging (chat), and many cafés where it was difficult to identify one dominant use during the visit (hybrid). As is shown in Figure 4, the most frequently observed dominant pattern was gaming, the dominance of gaming is reinforced when it is noted that in all of the cafés identified as having hybrid activities, some people were playing games.

None of the free public access points had games available on their machines. 24 of 28 cafés visited did have games available, and games were being used in 87% of these cafés during the time of data collection. One café had 28 games, and 75% of cafés with games had at least 6 games available. The most widely played game was CounterStrike. One researcher commented that “even though it’s over 4 years old, many people are still playing it”. It was noted that cafés where gaming was common were very loud, as gamers talked to each other and shouted while playing games.

The free sites were used primarily for web surfing and e-mail, but this is to be expected as there were no games on machines in these locations. Given the popularity of gaming in the cafés, it would be expected that gaming would also be used heavily if it were available for free.

Figure 4: Internet Uses Observed During Data Collection



In addition to games, e-mail and web browsing computers in the internet café also had various other types of software available. Word processing was available in 85% of locations, FTP in 25%, music downloading software (e.g. Kazaa) in 61%, and instant messaging (MSN Messenger, Yahoo etc.) in 85% of the locations visited. Other activities observed in the cafés included printing documents and watching television over the internet (programs in languages other than English). Many locations offered CD burning services, but no one was observed using these during the visits.

Browser history files showed that many sites were visited by internet café patrons. Among the most widely used sites were those for checking e-mail (e.g. Hotmail, Yahoo mail) and news from other countries (e.g. BBC News), other sites included online pornography, online personals, and employment sites. Users did not appear to be shy about downloading pornography in internet cafés.

Pricing and Hours of Operation

Internet café pricing is generally done on a price per hour basis, with prices ranging from free (at the libraries and post office) to \$9 Canadian (~\$6.50 USD). The average price was \$3 Canadian per hour (~\$2.25 USD), this was also the price charged by most cafés. Some of the cafés offered memberships that reduced the cost of using their services, membership

options included a discounted hourly rate or a flat fee for a specific time period (e.g. \$10 Canadian from 10 pm to 10 am).

11 of 28 internet cafés advertised that they were open 24 hours a day, although at some of these places employees indicated that they did not always stay open all night. Some of the free access points were open as few as 8 hours a day, while most cafés were open for at least 12 hours a day. Many did not open until the late morning, and many were open until at least 1 or 2 am.

Type of Equipment and Network Speed

All locations visited had Windows-based personal computers available for use. In the libraries and post office, many functions were disabled so that the computers could only be used for certain activities. (Macintosh computers are available at Kinko's, with high end software like PhotoShop provided for use in graphic design, but no Macs were observed in the cafés visited for this study.) The equipment quality varied greatly. In some cafés the equipment was old and dirty, in others it was new and of high quality. Peripherals available included headsets with boom microphones, headphones, webcams, scanners and ergonomic mice and keyboards. In some locations computers had CD burners and some had DVD drives. Monitors ranged in size from 15 inches to 21 inches, some cafés had high end flat panel monitors. Machines were usually Pentium 3s or 4s, some with 2.4 Ghz processors, and most with 256 Mb of RAM. Most machines were running Windows 98 as an operating system, in some cafés the operating system language was Korean or Chinese.

Network speeds ranged from a dial up equivalent speed of 43 Kbps at the post office to close to 2.7 Mbps at one café. Several cafés offered speeds in the 1.5 Mbps range. One café indicated that it was on a 100 Mbps network, another on a 10 Mbps network, but these speeds were not verified in speed tests. Many were connected with speeds in the 350 - 950 Kbps range, with an average speed in these cafés of about 650 Kbps.

Description of Space

30 of 32 locations visited provided additional services or sold other goods, including photocopies, telephone cards, and cigarettes. 24 locations sold some snacks, but only a few would be described as cafés in the traditional sense (e.g. offering sit down food and drink service).

The free public access spaces offer clean, well-lit workspaces. In the internet cafés, the atmosphere varied widely. Locations where gaming was the primary activity tended to be noisy, dark places. Of one gaming place, one researcher wrote "Let me emphasize how loud it is in here. My left ear is hurting from the sound of machine gun fire, "fire in the hole," "terrorists win," and "multi-kill" being repeated over and over. All of the machines seem to

have their volumes turned up to the maximum here". The observation closes with "Did I mention that the computer games in here are loud?"

Here are a few descriptions of cafés taken from the data collection form, intended to illustrate the diversity in atmosphere at various locations.

"This place is the worst one I've been to so far. This place feels seedy and crappy, for one thing, it's very dirty inside. The area it's in isn't the greatest either. I'm glad I came here during the day and not at night. I did not spend more than an hour here. As soon as my hour was up, I was glad to leave".

"This café is HOT, as in above 250c... presumably why so many people are buying drinks. The clientele @ this point in time seem to be school kids just off from school who have come to play multiplayer videogames. This café is nice, the seats are very comfortable to sit in, but are only height adjustable. The kids playing multiplayer games are speaking in 'gaming lingo' – 'I OWN this game,' 'Damn, I just got owned by him!,' 'where's my banshee? Send in a hero!,' and so on...' "

"Online gaming must be important here: there's a big poster for the Canadian cybergames competition. Posters advertise high speed access and games. However, I was amazed by the variety of ages, ethnicities, and uses I saw here – pretty much everything from basic offline computing to high-bandwidth applications like watching tv online, to graphics, music download and CD burning".

"I really can't tell what's going on here socially, but it is a social place, absolutely packed with young people who are playing games, watching TV, chatting, and smoking. TV shows are all Chinese imports, variety shows, music videos, etc. Most people are also smoking. A girl phoned her friend (in English) to ask if she was coming here tomorrow morning, and to arrange a meeting here".

"The operating system on these PCs is ANCIENT. It froze on me a few times. The keyboards are dirty, it's as if they have been left outside in the rain and much – I need to use hand cleanser after using these keyboards. These are even worse than the [university] lab keyboards. The mouse pads are gross too. Some of the chairs are falling apart, a testament to how long they've been in use. They suck, even though they look nice, they aren't comfortable. I had to switch my chair. There is a very loud and very annoying sound coming from the refrigerator that keeps drinks, located close to the door. The sound comes on periodically, and startles you because it's so loud. Other than the conversations of the other gamers in the café (who are actually fairly quiet), this place is extremely quiet, more so than the other ones I have visited. This is probably due to the fact that it's 1am on a Thursday morning".

"Catherine wanted to note dead mouse on stairs. Indeed, a very dark, quiet, somewhat creepy place to enter, but not so bad once you are here. But it is probably the quietest internet café I have been to. Only noise is from someone's video game across the room. I stopped in later one night and it was a little noisier, but not much. More of a mix than I expected of gender, age, etc. Lots of surfers, even one person working on a resume, with core of gamers"

"Despite the fact that the walls are pink, and that it smells like the disinfectant in apartment hallways, this is not an unpleasant place to be. People seem to know each other and the employee. The demographic mix is typical of this neighbourhood, lots of range in terms of age and ethnicity, I was surprised by how many older Hispanic men were here, surfing or playing dominoes. Young guy who lives round the corner said that this is the cheapest internet café in the city, and is cheaper than maintaining his computer at home, which died. They also apparently fix computers here, because someone came in with one and dropped it off. A guy in a suit who was sitting next to me is negotiating a new job in Korea on his cell phone"

Discussion

What can be learned from these data that were collected in internet cafés in Toronto? The first research question posed in this paper asked how are internet cafés used in an environment where affordable residential internet access is widely available? The data provide many answers to this question. What is perhaps most striking is the diversity of use and users, and the numbers of users found across the city, in free and fee for service access points, during the day and at night. It appears that even when internet access is widely available, people find reasons to use public internet access locations.

Because of the nature of the data collection done for this study, it is not possible to determine whether the individuals observed using public access spaces had access to the internet elsewhere, but it is reasonable to assume that at least some of them did. For example, one researcher noted that he knew many people who used gaming cafés, these were people who had internet access at home. Liff et al.'s 1998 study suggested that "the availability of equipment and facilities to which users would not otherwise have access was their main attraction to new users", something that still appears to be true today. Like the Korean experience with PC Bangs (which provide more bandwidth than is available to consumers in their homes), it seems that users in Toronto come to internet cafés to get what they can't get at home. Although the network speed data indicated that few cafés provided bandwidth that was higher than what DSL or cable modem users would get in their homes, what the cafés did provide was locations in which several friends could play games at the same time, something they could not do at home (unless everyone brought their own computers). As compared to 1998, "what consumers can't get at home" has changed, but it is evident that there are still reasons for consumers to leave their homes and use public internet access points. In this regard, what was observed in Toronto is consistent with continued PC Bang usage in South Korea.

There is strong demand for free internet access, as the observations at the free access points demonstrated. This study did not collect data on whether people using the free access points would also be likely to use fee for service internet access. One researcher commented on a fee for service internet café across from a library, and initially wondered why people would use the fee for service one instead of the free one. After using the free access point however, the researcher suggested that he would be very willing to pay a couple of dollars an hour to use a machine that had no restrictions on it. For those who can afford to do so, using fee for service internet cafés may be more appealing as they offer a wider range of services.

The data also showed strong demand for fee for service access points. With one exception, all cafés visited had several machines in use at all times. Given that the cafés visited in this study are just a subset of all internet access points in Toronto, it is fair to

suggest that there are large numbers of people using public access points on a regular basis.

In response to the issue of how the internet cafés are used, the data clearly show a diversity of uses. Although gaming was one of the most common uses (and perhaps the most appealing one for people who already had broadband access at home), internet cafés and public access points continue to offer people a location in which to read and send e-mail, browse the internet for multiple purposes, create and print documents (at internet cafés only), and do online chat. People who were passing through Toronto had the opportunity to connect with their lives in other places, something that was also observed in the Brighton café in 1998. There is no doubt that internet cafés will continue to be of value to travellers, but these data suggest that they are also valuable for those who live in the same community the cafés are located in.

The second research question asked what do people do with the broadband access available to them in internet cafés? As has been noted elsewhere (e.g. Sawyer et al., forthcoming), there is very little research on what consumers do with broadband networks. Governments tout the value of broadband for e-government, e-learning and e-health services (e.g. National Broadband Task Force, 2001), but there is little evidence that these sorts of applications are actually being used by consumers, or that broadband networks are actually needed to provide functionality in these areas (Bauer et al, 2002). The data from this study suggest that, to a large extent, broadband is being used like narrowband, to allow people to communicate with each other (Middleton, 2002b), as evidenced by the widespread usage of e-mail, and to surf the internet. People do benefit from faster downloading times, when using broadband connectivity for web surfing. This study did not ask users whether they were using the internet cafés in order to get faster download speeds, this is a question for further research in this area. And while the data make no specific mention of people surfing the web to access government services or healthcare information, these uses would be expected. Internet cafés do not offer telemedicine services (e.g. videoconferencing consultations with health care providers) or specialized e-government services, thus there is no opportunity to determine demand for such services in a study like this one. The most widely observed activity was gaming, and this is an activity that benefits from the broadband connections found in internet cafés. Although there is little published research on Canadian consumers' broadband usage, anecdotal evidence suggests that gaming is a very popular activity. The popularity of gaming in the internet cafés studied in Toronto is not surprising, but what is surprising is that there was little evidence of people downloading music or movies at internet cafés. Recent research conducted by the author suggests that making it easy to download and share music and video files is one of the most appealing features of broadband, but this behaviour was not widely observed during this study.

The final research question addressed in this study, and of particular interest to the International Telecommunications Society Asia-Australasian Regional Conference is what can be learned from the Canadian experience for the provision of public internet access (in internet cafés or other public spaces) in the Asia-Australasian region? To a certain extent, it might be argued that lessons for Asian countries might better be drawn from the South Korean experience with PC Bangs. But there are many similarities between Canada and Australia however (see the Chang, Lee & Middleton paper presented at this conference), so the Canadian experience may offer insights for provision of public internet access points in Australia. As noted earlier, this study suggests that there is a continued strong demand for free and fee for service public internet access points. Given that the cost of home internet access remains higher in Australia than in Canada, it is expected that there would be more demand for cheap public internet access in Australia than in Canada, which could be reflected in larger number of internet cafés in Australian cities than in Canadian ones.

An interesting point to consider is the relationship between internet café usage and demand for broadband services. Korea and Canada appear to have had contradictory experiences in this regard. In Korea, it has been argued that the popularity of PC Bangs helped drive demand for residential broadband services. In Canada, the proliferation of internet cafés is occurring after many users have adopted residential broadband. That said, the adoption of broadband in Korea is more than double that in Canada, thus there may still be a relationship between increased internet café usage and increased demand for residential broadband. What is unclear are the implications for a country like Australia, and whether access to broadband in public locations like internet cafés will have a significant impact on demand for broadband in consumers' homes. In the short term, internet cafés may be an appealing option for Australians who want broadband access for certain applications, but do not want to pay the price for broadband connections to their homes.

Conclusions

This paper offers some insights into how internet cafés and other public access points are used in Toronto. What it does not fully address is the question of why internet cafés continue to flourish, even as broadband is more widely adopted by Canadians. It is clear that internet cafés offer services to people that they do not otherwise have access to, either at home, or because they are away from home. It is evident that people find value in services offered by public access points, that there are many diverse uses observed in these locations, and that they are widely used. There are many unanswered questions about internet cafés and their users that should be addressed in future research. These include gaining an understanding of the social nature of the internet café (something addressed in the 1998 Brighton study in the UK), surveying individual users to find out their reasons for

using public access points (e.g. social, economic, convenience), and understanding the viability of internet cafés as businesses.

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Appendix A: Data Collection Form

Date	
Time of Visit	
Researcher	
Business name	
Street address	
Intersection	
Postal code	
telephone	
URL	
e-mail?	
Pricing	
▪ hourly price	
▪ membership offered? (yes/no)	
▪ membership details	
Layout/Physical space	
▪ number of machines	
▪ description of space	
▪ music? (yes/no)	
▪ type of music (describe)	
▪ lighting (describe)	
▪ private spaces? (describe)	
Users	
▪ number of users	
▪ demographics	
○ age range	
○ ethnicity	
○ number of males (number)	
○ number of females (number)	
Description of business	
▪ internet café only (yes/no)	
○ sells other products?	
○ laundry (yes/no)	
○ bar (yes/no)	
○ snack food & drinks (yes/no)	
○ cigarettes (yes/no)	
○ phone cards (yes/no)	
○ copies, faxing, printing	
• type of advertising on street (text) – i.e. what does the sign outside the café say? what services does it promote?	
• hours of business? (8-10 hours daily, 12-16 hours daily (specify closing time), open 24 hours)	
• uses of computers? (list of options: games, web surfing, off line activities, e.g. word processing, e	

mail, chat)	
<ul style="list-style-type: none"> main use – select one from list above 	
User Interface/Desktop	
<ul style="list-style-type: none"> language of operating system (select one) <ul style="list-style-type: none"> English Korean other (specify) (text) icons on desktop (describe) Programs available <ul style="list-style-type: none"> Word processing File transfer programs Music sharing programs Music editing or playback programs Video or multimedia editing programs Photo editing programs Graphic design programs (PageMaker, Quark) Messenger programs (ICQ, Yahoo or Microsoft Messenger) Office software (PowerPoint, database programs, spreadsheet) Games (# of: 0, 1-5, 6-10, more than 10). 	
<ul style="list-style-type: none"> Comments on programs sign in necessary on computer? (yes/no) <ul style="list-style-type: none"> if yes, what does the start up screen say? (text) 	
<ul style="list-style-type: none"> quality of equipment (check list, e.g. screen size, CD or DVD burners, headsets, processor speed etc.) network speed (check using bandwidthplace.com) 	
Social Interactions of Users	
<ul style="list-style-type: none"> users talking to each other? (yes/no; comments) users talking on internet phones? users using cell phones? voice? text messaging users playing games with other people in café? (yes/no; text field for comments) users playing games with other people not in café? (yes/no; comments) 	
Changes to café while observing?	

<ul style="list-style-type: none"> ○ in the time that you've been in this café, have the dynamics changed? (text) 	
Questions for Employees	
<ul style="list-style-type: none"> • How does the network work? (text) 	
<ul style="list-style-type: none"> • Usage patterns over the day? (text) – e.g. what are the busiest and least busy times, are the patterns consistent, or do they vary a lot? 	
<ul style="list-style-type: none"> • What's the main focus for the business? (text) (e.g. what do most users do, why do users come to this place) 	
<ul style="list-style-type: none"> • How long has the café been in business? 	
General Comments	