THE CAPABILITIES OF FAMILY AND FRIENDS: HOW NEPALI IMMIGRANTS TO CANADA EXPERIENCE AND OVERCOME DIGITAL INEQUALITIES

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Abstract

This dissertation investigates how very recent, recent, and established immigrants who use e-government service platforms in Canada experience and circumvent digital inequalities. Employing a Capabilities Approach perspective, this study focuses specifically on the challenges encountered by very recent, recent, and established Nepali immigrants to Canada in using federal-, provincial-, and municipal-level e-government service platforms. To meet this objective, an explanatory sequential design mixed-methods approach involving a survey with 261 respondents and five focus group meetings with 25 Nepali immigrants to Canada was used to gather the requisite data. In contrast with dominant narratives in much digital divide literature, the findings revealed no statistically significant differences in the use of e-government service platforms by very recent, recent, and established Nepali immigrants other than very recent immigrants were found to be using the federal-level e-government service platform more frequently than their recent and established immigrant counterparts. The lack of observable differences between the two groups was found to be linked to the participants' reliance on their social support networks of family and friends who provide the material and immaterial resources needed to mitigate the effects of digital inequalities. The implications of these unexpected findings are important for understanding the evolving on-the-ground dynamics with which immigrants must contend and, specifically, how their lived experiences contrast with stereotypical perceptions and understandings of their encounters with digital inequalities. The findings also contribute to advancing the knowledge both in terms of theory and practice. At the level of theory, the findings suggest the presence of two conversion factors — social support networks, and perceptions of convenience — that up to now have not received much attention in the Capabilities Approach literature. At the level of practice, the findings suggest a need to reconsider the ways in which the ubiquity of ICT devices and the pervasiveness of Internet connections along with changing immigration criteria are contributing to a transformation in how very recent, recent, and established immigrants experience digital inequalities.

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Chapter 1: Introduction

Between the early 1990s and 2015, Canada annually welcomed, on average, more than 250,000 immigrants from more than 200 countries (Zilio, 2017; Statistics Canada, 2016a). According to Canada's 2016 census, the country is home to some 7.5 million foreign-born people who account for 21.9% of the national population (Statistics Canada, 2017a). Statistics Canada projects that by 2036 immigrants will comprise between 24.5% and 30% of Canada's population; the largest share of immigrants in Canada's demographics since 1871 (Morency, Malenfant, & MacIsaac, 2017).

In 2016, Canada increased the annual threshold of immigrants and refugees to 300,000 people per year in accord with the following categories and quotas (Harris, 2017a, 2017b; Article 12, Immigration and Refugee Protection Act (IRPA), 2001):

1. Economic class: 57.5%. This category refers to those immigrants who are selected "on the basis of their skills and ability to become economically established in Canada."
2. Family class: 28%. This category refers to those immigrants selected on the basis "of their relationship (such as spouse, parent, and children) with a Canadian citizen or a permanent resident."
3. Refugee class: 14.5%. This category refers to foreign nationals who are selected on the basis that under the Act they are defined as "a Convention refugee or as a person in similar circumstances, taking into account Canada's humanitarian tradition with respect to the displaced and the persecuted."[1]

The information presented in Table 1.1 sets out the country's actual and projected immigration numbers between 2015 and 2023.

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[1] In Canada's *Immigration and Refugee Protection Act (IRPA),* 2001, a Convention Refugee is defined as a person who meets the refugee criteria set out in the United Nations Convention Relating to the Status of Refugees, signed at Geneva on July 28, 1951, and the Protocol to that Convention, signed at New York on January 31, 1967.

Table 1.1: Immigrants to Canada: Annual Admission and Targets

Immigrant category		**Economic-class**	**Family-class**	**Refugee-class**	**Humanitarian**	**Total**
Status	*Year*					
Admitted	2015	170390	65485	32,114	4,315	272,304
	2016	156028	77998	58,914	3,792	296,732
	2017	159289	82468	41,121	3,631	286,509
	2018	186366	85170	45,493	4,026	321,055
	2019	196658	91311	48,530	4,681	341,180
Target	2020[2]	195800	91000	49,700	4,500	341,000
	2021	232,500	103,500	59,500	5,500	401,000
	2022	241,500	103,500	60,500	5,500	411,000
	2023	249,500	104,500	61,000	6,000	421,000

Source: Immigration, Refugee & Citizenship Canada (2020)

Initially, the government of Canada targeted welcoming 341,000 new permanent residents in 2020, 351,000 in 2021, and 361,000 in 2022. Owing to the consequences of COVID-19 pandemic in 2020, the annual target for that year was not met. The government subsequently increased the targets to 401,000 new immigrants for 2021, 411, 000 in 2022, and 421,000 in 2023 (see, https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/annual-report-parliament-immigration-2020.html).

The high immigration level combined with the aim of attracting skilled workers and business people, in particular, is intended to further enrich Canada's multicultural character and boost the Canadian economy by replacing an aging workforce population and filling employee shortages in the labour market (Statistics Canada, 2017b). Citing figures from the 2016 census showing that the number of people approaching retirement exceeded the number expected to join the workforce by some 600,000, Fields, Uppal, and LaRochelle-Côté, (2017) note that this gap fostered concerns that the Canadian labour market may not be supplemented with adequate numbers of skilled workers to maintain the contemporary Canadian standard of living and to support the country's growing aging population.

[2] At the time of finalizing this dissertation (summer 2021), data about actual numbers of immigrants admitted into Canada in 2020 were not publicly available.

Across much Government of Canada and external literature (see, for example, Statistics Canada, 2019; Okunola, 2015; Haight et al., 2015; Veenhof et al., 2008), the term 'recent immigrant' denotes a person born outside the host country who has been living in the host country as an immigrant for a period of less than five years.[3] More recently, *The Labour Force Survey,* a monthly household survey conducted by Statistics Canada, categorizes immigrants into three groups (Yssaad & Fields, 2018):

1. *very recent immigrants*: those who have lived in Canada as landed immigrants for a period of less than five years;
2. *recent immigrants*: those who have lived in Canada as landed immigrants for a period of 5 years but less than 10 years; and
3. *established immigrants*: those who have lived in Canada as landed immigrants for more than 10 years.

In this dissertation, I have adopted the definitions set out by *The Labour Force Survey.*

According to the *Immigration and Refugee Protection Act* (IRPA) (2001), the Government of Canada endeavours to promote the rapid and successful integration of immigrants into Canadian society. To this end, both it and its provincial and municipal counterparts have long viewed e-government initiatives as viable tools to assist in facilitating the integration of immigrants into life in Canada. However, some commentators (see, for example, O'Neill, Makaju, Shrestha, Tamrakar, Shrestha, & Sthapit, 2019; Kiziltan, 2016; Turcotte, 2015; Haight, et al., 2014; Kymlicka, 2011; Ros, 2010) maintain that despite the rollout of e-government services, very recent immigrants to Canada lag behind their recent and/or established immigrant counterparts— in terms of job opportunities and citizen engagement because of such factors as: lack of familiarity of Canada's e-government services, lack of information and communication technology (ICT) skills and knowledge, and lack of proficiency in either of Canada's two official

[3] Gilkinson and Sauvé (2010) refer to recent immigrants as people living in Canada for 10 years or less.

languages. Moreover, the UN e-Government Survey (UNDESA, 2016) reports that the availability and use of e-government services in most Asian and African countries is limited. It seems plausible, then, to hypothesize that very recent immigrants from these regions are less likely to be familiar with accessing government services through online channels. It is the desire to investigate this hypothesis, and the implications to which it gives rise, that fuels the research and discussion presented in this dissertation.

1.1 Canada's e-Government Service Program

The Canadian federal government, along with its provincial and municipal counterparts, have long focused on implementing modes of service delivery that aim to provide "easier access to government information and resources on the devices and platforms of their [citizens] choosing" (Government of Canada, 2014). In 1999, the federal government introduced its Government On-Line (GOL) program with the objective of reducing service delivery costs, improving government services, and making government information more accessible (Geist, 2013; Auditor General of Canada, 2013; Fraser, 2009). By 2005, 130 of the most common federal government services (e.g. passport service, licencing, employment insurance, Canadian pension plan) were accessible electronically, with 30% of overall federal government services conducted through online transactions (Auditor General of Canada, 2013, p.7).

However, in its 2003 assessment of the Government On-Line (GOL) program, the Auditor General of Canada (2003) identified a lack of collaboration across government departments, and a lack of online information sharing modality among government agencies at a time of increasing need for citizen-centric services. According to Roy (2006, p.113), the Auditor General's assessment warranted a redesign of the e-

government program. The termination of GOL program in 2005 coincided with the launch of the Service Canada online program – another complementary one-stop-shop digital platform (Brown, 2016). Initially, Service Canada was mostly informational, offering users only limited interactivity. Gradually, transactional options were incorporated for various government services including registering businesses, filing income tax returns, collecting various benefits, and making address changes (Auditor General of Canada, 2013; Reddick & Turner, 2012). Indeed, throughout the first decade of the 2000s Canada came to be recognized as the global leader in e-government initiatives (Geist, 2013).

More recently, the federal government's e-government service: (a) provides more customized and integrated services than ever before through users' personal accounts, such as the CRA login service[4] (Canadian Digital Service, 2017; Auditor General of Canada, 2013); (b) connects citizens through various apps for different purposes (see, UNDESA, 2020; 2018; 2016; Canadian Digital Service, 2017); and (c) fosters online public participation for co-production and co-creation of public services and policies, such as e-voting (see, Canadian Digital Service, 2017). The *Digital Operations Strategic Plan: 2018-2022* envisions three major outcomes of the digital government of Canada (Government of Canada, 2019a):[5]

1. Service-oriented government with a user-centred approach, which means the main priority of the government programs and policies should be people's needs;

[4] In 2017, 86% of federal tax filing (57% through service providers, 29% individual users) were submitted online, making it the most used e-government service provided by the Federal Government of Canada (CRA, 2017)

[5] Since 2018, the federal government's e-government activities have been integrated into its Digital Government Strategy, see, https://www.canada.ca/en/government/system/digital-government/government-canada-digital-operations-strategic-plans/digital-operations-strategic-plan-2018-2022.html#ToC5, and https://www.canada.ca/en/government/system/digital-government/digital-government-strategy/roadmap.html

2. Open and accessible government that is accountable to Canadian public, and collaborative government which engages the public in policy formation; and
3. Digital-first and digitally enabled government, which means government services are available anytime and anywhere on digital platforms. It does not mean 'digital only,' but that all government services are digitally available, accessible, and deliverable.

An additional hypothesized benefit arising from federal-level e-government programs is the cost savings generated for the government. For instance, the *2013 Fall Report of the Auditor General of Canada* notes that Canada's e-government service delivery was, at all time, some 30 times more cost-effective than an in-person visit to a physical office.[6] This said, there are several issues with which the federal government's e-government programs must contend when it comes to engaging very recent immigrants and other socio-economically disadvantaged groups. For instance, both Choi et al. (2014) and Ros (2010) note that very recent immigrants to Canada often lack access to computers and the Internet, the ability to fully understand digital content that is provided only in the country's two official languages, and in some cases the skills to operate and use ICT devices (e.g., personal computers, laptops, mobile apps, task-specific software such as tax return applications). According to Haight et al. (2014, p.515), when very recent immigrants shy away from online public services, this has far-reaching negative consequences for Canada's digital economy, including their further marginalization.

Echoing this concern, the *Auditor General of Canada* (2013) noted that federal-level e-government services often were too complex for most users because of a lack of

[6] Although I have not been able to find more recent figures, in 2011 the Treasury Board of Canada and Employment and Social Development Canada reported that the cost of an in-person transaction was $28.80 compared to only 13 cents for the online equivalent (Auditor General of Canada, 2013, p. 14). Whereas, in 2004, an in-person transaction cost was $30, a communication by mail cost was $20, a telephone interaction cost was $10, and an online transaction cost was $1 or less. In the light of these figures it is important to keep in mind that calculating cost savings generated from the implementation of e-government services is notoriously difficult. As such, cost-saving figures are best approached with a degree of caution.

consistency across government websites; a lack of interactive interfaces; a lack of integrated service delivery; and a lack of effective support services. Noting that only 38% of the 81% of Canadians who accessed e-government services successfully achieved their goal, the report observes that a large number of e-government users were returning to using traditional channels such as reliance on telephones and visiting physical offices to complete their transactions (Auditor General of Canada, 2013). To this end, the report called for two major improvements to the Federal Government of Canada's websites. First, that they should be made simpler and more interactive, and second, that inconsistencies in design and features across federal government and departmental websites should be addressed. The Auditor General's office has not released any follow-up reports to assess the implementation of these recommendations.[7]

Canada's provincial and territorial governments have their own e-government programs and initiatives, which makes the digital landscape of governance and service delivery more complex. The Government of Ontario, for instance, appointed Hillary Hartley in June 2017 as the first Chief Digital and Data Officer, and Deputy Minister responsible for handling digital government affairs, to oversee making government services more user-friendly and accessible through mobile devices (Rushowy, 2017). The government's Ontario Digital Service (ODS) integrates government services and information into a single platform; the *Ontario.ca* website (Government of Ontario, 2020, 2018, 2016). This platform also makes it easy for the government to collect feedback from the general public, to involve members of the public in Ontario government's

[7] On January 18, 2018, I emailed the Auditor General's Office to inquire if there had been any follow-up assessment of the *2013 Fall Report of the Auditor General of Canada* with respect to the access to e-government services. The Office replied to my email on January 23, 2018 with the statement that "No follow up audit has been conducted on *Access to Online Services*" in the past five years.

decision-making processes through online consultations, and to reduce administrative hurdles (Government of Ontario, 2020, 2018). The key priorities for the ODS include: (a) making *Ontario.ca* a fully integrated world class service platform; (b) delivering high-quality content and service experience for people; (c) creating more online opportunities and attracting digital talents; (d) creating a society in which all Ontarians can participate, and benefit from, digital technologies in their everyday lives; (e) connecting service design into policy formation and program development (Government of Ontario, 2020).

Numerous municipalities across Canada are also developing their own online programs to enhance their service delivery and citizen engagement (Delorme, 2016; Veronis & Ahmed, 2015). The cities of Vancouver and Calgary were among the early pioneers, launching digital strategies to ensure all city services would become digitally accessible, to enhance efficient service delivery, to encourage citizen engagement in municipal activities, and to implement municipal-level open government (City of Calgary, 2014; City of Vancouver, 2013).

At the beginning of the 21st century, the two largest municipalities in Ontario, Toronto and Ottawa, launched e-government services, each with their own respective priorities and working strategies. In 2002, Toronto launched its *eCity Strategy*, which sought to extend a service delivery channel and to connect Toronto city services to its residents (eCity Strategy, 2002). Eight years later, in 2010, this program was revitalized and given a new slogan: 'your local government anytime anywhere' (Auditor General's Office, 2012). The key features of this process were: (a) providing 24/7 access to city government's services; (b) allocating a regular budget for funding and updating these services; (c) adequately emphasizing the qualitative development of online platforms

(Auditor General's Office, 2012). Following the City's Auditor General's recommendation of further improvement in the e-government service delivery and information access, the City of Toronto incorporated the concept of open government into its Strategic Action #13. The strategy sought to make the City of Toronto technology-friendly, provide all residents accessible information, and enhance civic engagement through electronic channels by the end of 2018 (City Manager's Office, n.d., p.25).

Similarly, the City of Ottawa's Strategic Plan 2019-2022 shares the strategic objective of "enable[ing] [a] digitally connected city" to enhance municipal service deliveries in an instant, interactive, and efficient manner (City of Ottawa, 2019). In their study of multicultural media's role in connecting Ottawa's municipal government with immigrant communities, Veronis and Ahmed's (2015) identified the city's website as the second most popular information source among members of these communities.[8] Among the 1212 people from immigrant communities who participated in the study, municipal websites were accessed to seek out information about local government services relating to public housing, recycling and waste collection, public transit, healthcare, and cultural programs.

In Canada, there are three categories of e-government service available:

1. Completely digital: Users must engage with e-government service platforms to access government services such as tax submission, employment insurance, and childcare/ daycare registration.
2. Hybrid: Users must submit information online as well as submit paper copies to the government agencies.
3. Completely physical: Users must be physically present to use these services and/or to

[8] The most popular information sources among Ottawa's immigrant communities were local daily newspapers (54%). City of Ottawa website (40%), local TV stations (32%), local radio stations (30%), and ethnic language newspapers (21%). See, Veronis & Ahmed (2015, p.82).

submit physical documents.

This said, in Canada, most services, regardless of the level of government involved, tend to be delivered using multiple service delivery channels that include physical offices, telephone services, mail delivery, and e-government services. For example, if an immigrant applies for Canadian citizenship, they must fill out online forms, inquire via telephone if they encounter issues when completing the form, submit or mail printed copies of the forms to a designated office, and visit a physical office to take the citizenship exam. Despite this practical bricolage of delivery channels, the Government of Canada continues to emphasize the use of e-government service platforms as first among four service delivery channels (Clarke, Lindquist, & Roy, 2017).

With the advent of the COVID-19 pandemic, e-government services have become crucial to the general public (UNDESA, 2020). The United Nations Department of Economic and Social Affairs notes that e-government platforms have played a "central role as a necessary element of communication, leadership and collaboration between policy makers and society" during the unprecedented time of COVID-19 (UNDESA, 2020, p.215). Governments around the world have started to work on "rapid digital transformation" to address the public's expectations of their respective governments (UNDESA, 2020, p.215). In Canada, members of the general public have been encouraged to use e-government services as much as possible in order to minimize of the likelihood of being infected and/or transmitting the virus.

The above discussion suggests that Canada's federal, provincial and municipal governments are emphasizing the design, development, and implementation of e-government programs as viable means of effectively and efficiently delivering services to members of the general public. Given that Ontario welcomes the largest number of

immigrants among Canada's provinces and territories (29.1% of Canada's total immigrants live in Ontario), and that Toronto and Ottawa specifically welcome the largest numbers of immigrants among all of Canada's cities (immigrants comprise of 46.1% and 23.61% of the populations of Toronto and Ottawa, respectively) (Government of Canada, 2017), access to and use of e-government services by very recent and recent immigrants clearly is an important consideration to facilitate their integration into Canadian life.

1.2 Statement of the Central Research Question

A detailed reading of the digital divides literature suggests that recent immigrants, whether to Canada or other countries, frequently must contend with three types of challenges when attempting to use e-government services. First, they often are insufficiently familiar with the government services on offer, whether online or offline (Haight et. al., 2014). The claim here is that most very recent immigrants lack awareness of the ins and outs of government services, and the system of government institutions more broadly. Wayland (2006, p. v), for instance, found that immigrants to Canada were not receiving enough guidance about available government services to make effective use of them, noting that "the settlement experiences of many newcomers [to Canada] are characterized by isolation, vulnerability, and a lack of civic engagement." Six years later, a similar study by Reddick and Turner (2012) revealed that immigrants who were made aware of available government e-services tended to use government websites for information purposes, while resolving many matters such as submitting government forms and paying taxes by speaking with officials via telephone or visiting government offices in-person.

A second challenge pertains to difficulties arising from a lack of proficiency with official languages. Language barriers represent a persistent and serious challenge for immigrant-receiving countries like Canada, which structures its social policy of multiculturalism on an English/French bilingual framework (Winter, 2007). More than 7.74 million people in Canada speak mother tongues at home other than English, French or the many First Nations' languages. And, each of the 22 immigrant languages in the country has at least 100,000 speakers (Statistics Canada, 2016b). As part of a review of Canada's immigration system, Wayland (2006, p. vi) found that "communication barriers impede access to services and, for many [immigrants], are not remedied by available language instruction."

Based on her analysis of the experiences of very recent immigrants to Germany, Heisler (2008) argues that overcoming language barriers, and thereby facilitating more successful integration, requires government agencies to deliver services in a variety of international languages. The issues raised by Wayland and Heisler take on a particular salience within the contemporary Canadian context insofar as learning English or French is not mandatory for all types of immigrants entering the country. For instance, in 2015, Canada promised to receive 50,000 Syrian immigrants who will not be required to meet language obligations (Pagtakhan, 2016). On the whole, it appears that Canada's English/French bilingual system makes it quite challenging for immigrants to navigate and understand government content online and to comprehend government officials during in-person communications.

A third challenge centers on the digital literacy skills of recent immigrants. Digital literacy skills go beyond the scope of simple technology skills. In this dissertation, they

are defined as comprising "a deeper understanding of, and ultimately the ability to create a wide range of content with various digital tools" (MAN, 2010, p.4). Haight et al., (2014), for example, found that, the majority of the roughly 20% of Canadians who lacked access to computers and the Internet at the time of their study, were very recent immigrants. The authors warn that the persistence of such a gap can further marginalize very recent immigrants, who may also fall behind in developing abilities needed to use online public services and/or completely fail to engage with them.

Taken together, these challenges are seen as impeding the ability of very recent immigrants to integrate fully and smoothly into Canadian society, grasp available opportunities, and effectively contribute to the Canadian economy. In the light of these considerations, the central research question this dissertation sets out to address is:

> *What are the principal challenges Nepali immigrant users of federal, provincial, and municipal e-government service platforms encounter in seeking to engage with these online tools?*

In seeking to address this question the following sub-questions were used to guide the research:

(i) *What factors motivate Nepali immigrant users of e-government service platforms to engage with these online tools?*

(ii) *What are the main differences between very recent, recent, and established Nepali immigrant users with regard to their respective use of e-government service platforms provided by federal, provincial, and municipal governments?*

(iii) *What are the key factors perpetuating these differences?*

1.3 Dissertation Structure

This dissertation is divided into nine chapters. This first, introductory, chapter has provided a brief overview of the background and context for the research and set out research questions guiding the study.

Chapter 2 sets out the theoretical and conceptual foundations for the dissertation. The starting point for the discussion in this chapter is the evolution of the digital divide concept since the mid-1990s. From there, the discussion moves to an examination of the objectives, scope, and practices of e-government services in different countries around the world. The discussion wraps up by looking at claims advanced about the ways in which digital inequalities are experienced by very recent immigrants to Canada.

The third chapter introduces the dissertation's conceptual framework; the Capabilities Approach as first developed by Amartya Sen. The discussion begins by providing an in-depth review of the central tenets of the capabilities perspective. From there, it moves on to setting out how the Capabilities Approach can be used as a lens through which to examine Nepali immigrant users' engagement with, and use of, Canada's e-government service platforms.

Chapter 4 provides a review of the methodological approach used to conduct this study. The discussion begins with a brief overview of the mixed method approach that was used for this dissertation. This is followed by a discussion of the data collection strategies and methods used including a description of questionnaire survey and focus group discussion protocols, and the data sampling and data analysis techniques used.

The subsequent two chapters present the findings and analysis from the survey. Chapter 5 includes a synopsis of the survey respondents' socio-demographic characteristics, followed by descriptive and statistical analyses of their use of, and experience with, federal-, provincial-, and municipal-level e-government service platforms. Chapter 6 presents descriptive and statistical analyses of how the respondents conduct financial transactions, and engage in client service activities on these platforms.

The discussion in Chapter 7 focuses on explaining key issues identified by the survey data analyses that were deemed to require further investigation. The findings presented here are the result of information obtained from five focus group discussions, each comprised of five Nepali immigrant users to Canada. These discussions revealed three key observations that explain the key empirical findings from the survey.

Chapter 8 identifies three key findings of the overall dissertation study, presents a theoretical analysis of the key findings emerging from the survey and focus group discussions in relation to the Capabilities Approach. The chapter examines the role of two newly identified conversion factors (i.e., social support networks of family and friends, and perceived convenience) in interpreting the absence of difference between very recent and recent and established Nepali immigrant users in my sample, and inconsistent use of e-government service platforms across the federal, provincial and municipal governments. This chapter also offers critical reflections on the role of conversion factors in examining the Nepali immigrant users' experiences.

The discussion in Chapter 9 wraps up the dissertation. It includes a brief summary of the findings in response to the central research question and the sub-questions. This chapter also presents key contributions to knowledge, limitations of the study, and directions for future research. It ends with some concluding remarks.

Chapter 2: Digital Inequalities, e-Government, and Immigrant Experiences

The discussion presented in this chapter centers on theoretical and conceptual issues relating to various facets of digital inequalities, e-government services, immigrants' information and communication technologies (ICTs) adoption and use, and immigration to Canada. The first section of the discussion outlines the evolution of the digital divide concept since the mid-1990s, when the term began to be used widely. Section 2 describes the scope, objectives, and practices of e-government in different countries, along with the challenges that may limit users' ability to exploit digital opportunities. Section 3 considers the motivations of immigrants in different countries and contexts for adopting and using ICTs, including e-government services. This is followed, in Section 4, by a brief overview of the wider research context for this dissertation and a presentation of the central research question and sub-questions guiding the study. The chapter concludes with a brief summary of the overall discussion.

2.1 The Evolving Understanding the Digital Divide Concept

The manner in which the digital divide concept is commonly understood has remained largely unchanged throughout the past 30 years insofar as it continues to be widely equated with the presence of a "gap between individuals, households, businesses, and geographic areas at different socio-economic levels with regard to both their opportunities to access information and communication technologies and their use of the Internet for a wide variety of activities" (OECD, 2001, p. 5). What has altered across this span of time is the recognition of the myriad variables that contribute to fostering digital inequalities. The dominant assumption underpinning this view seems to be that access to digital media technologies is as important as access to radio and television, and that users

can operate these technologies without much effort. This, in turn, implies that merely improving mere physical access to ICT devices and the Internet is tantamount to ending digital inequalities.

In the 1990s, the concept of a digital divide was commonly understood in terms of a binary division between those having access to personal computers and Internet connections and those who did not (NTIA, 1999). Today, social scientists and policy makers have a more nuanced understanding of digital divides that extends beyond the original focus on technology and which now includes socio-economic, socio-cultural, and psychological considerations (See Table 2.1). Government and scholarly studies published during the 1990s largely interpreted the digital divide as an access gap. This was reflected in the various domestic and international strategies implemented to reduce this gap (see, for example, Norris, 2001, NTIA, 1999, 1995; Walton, 1999; Katz & Aspden, 1997). By the early 21st century, ICT-related skills and usage gaps had come to be seen as also constituting the so-called digital divides. After 2010, the digital divide increasingly came to be understood as a product of socio-economic and socio-cultural inequalities as well as contending cultural and psychological perceptions of ICT adoption and use.

Throughout the 1980s into the early 1990s, concerns about information inequality, knowledge gaps, and computer literacy were hot topics of public discussion in many quarters, with the disparities usually being considered in terms of unequal access to personal computers and email (see, for example, Yu, 2006; Anderson et al., 2001; Compaine, 2001). Coinciding with the mainstreaming of the Internet and introduction of the first Mosaic web browser in the mid-1990s, the focus shifted to concerns about the

negative consequences of disparities in access to computers and the Internet. Throughout this period, the National Telecommunications and Information Administration (NTIA), a division of the U.S. Department of Commerce, published a series of reports based on surveys of the American public's use of ICTs and the Internet.

Table 2.1: Evolution of the Digital Divide Concept

Period	Interpretations of the Digital Divide	Focus	Example Studies
1990s	Refers to a gap between the 'haves' and 'have-nots' with regard to computer and Internet access.	Access gap	Norris (2001), NTIA (2000, 1999, 1998, 1995), Walton (1999), Katz & Aspden (1997)
2000s	Also encapsulates: 1. disparities between haves and have-nots in terms of people's knowledge of and ability to use computers and the Internet to achieve desired outcomes; and 2. differences in the diversity and frequency of use, and content creation.	ICT skills and usage gaps	Hargittai & Hinnant (2008), Hohlfeld et al. (2008), Paré (2005), Selwyn et al. (2005), Hargittai (2003, 2002), Akhter (2003), Mossberger et al. (2003), Warschauer (2003)
2010s	Also encompasses long-rooted socio-economic and socio-cultural gaps among people due to disparities in income, education, cultures, and attitudes that influence decisions about the adoption and use of ICTs.	Socio-economic and socio-cultural gaps	Vartonova & Gladkova (2019), Bach, Wolfson & Crowell (2018), Ragnedda (2017), Alam & Imran (2015), Harambam et al. (2013), Sparks (2013), Nguyen (2012), van Dijk (2012)

The first report, *Falling Through the Net,* was published in July 1995 and revealed that people who were very young or very old, had low education, were members of minority groups such as African-Americans and Indigenous peoples, and those who lived in rural areas experienced difficulties in accessing ICTs and the Internet. A 1998 follow-up report showed that, by the date of publication, just over one-third of Americans (36.6%) had personal computers and one-fourth (26.3%) had access to the Internet. The

report also showed that the digital gap was continuing to grow among certain groups in accordance with income levels, geographic location, education levels, age, and ethnicity.

The NTIA's third report, published in 1999, revealed that Americans were by then more connected than ever before and that digital gaps relating to income, education, and ethnicity (e.g., white versus black) disparities had further widened. In response to these findings, the Clinton Administration opened several community access centers across the country, targeting those who could not afford personal computers and/or lacked access to the Internet (NTIA, 1999). The fourth NTIA report, *Falling through the Net: Toward Digital Inclusion*, was published in 2000. It revealed that 51% of American households now had access to personal computers and that 41.5% of households were connected to the Internet. Emphasizing an apparent shift toward the digital inclusion of the majority of the American public, the report's authors maintained that the divide in access had been significantly reduced but not closed. To this end, the report acknowledged that "*a digital divide […] expanded slightly in some cases, even while Internet access and computer ownership [were] rising rapidly for almost all groups.* […]" (emphasis original, NTIA, 2000, p.xvi)

The following year, the NTIA published *A Nation Online: How Americans Are Expanding Their Use of the Internet.* This report revealed that 54% of the American public were now connected to the Internet, whether at home or through community access centers. The launch of the report coincided with a shift in the U.S. government's attention away from provision of infrastructure toward developing the technical skills of users to help them find jobs and other opportunities in the new economy (Victory & Cooper, 2001, p. 3)

During the six year period in which the NTIA reports were published, much digital divide related academic research also focused on the access gap. Katz and Aspden (1997), for example, carried out a telephone survey focusing on the barriers to access with 2,500 Internet users across the U.S. Similar to the NTIA findings, these authors found that most people with low income, low education levels, and/or those of Black and Hispanic ethnicity were disadvantaged in accessing the Internet. In his review of the impact of technological innovation for African Americans, Walton (1999) focused on the financial constraints preventing many African Americans from being able to afford personal computers and Internet service, which, in turn, constrained their ability to fully participate in the so-called information society. Highlighting the impact of this divide, Walton argued that a lack of personal computers and access to the Internet served to further marginalize African Americans.

Norris (2001) examined Internet access and use in 179 countries, identifying three categories of divides:

1. a global divide pertaining to a gap between developing and developed countries in terms of ICT infrastructure and availability of Internet services;
2. a social divide pertaining to inequalities between socio-economic groups within countries resulting from the unequal distribution of resources, including Internet access; and
3. a democratic divide pertaining to differences across countries in the extent to which citizens are able to use online political resources to participate in public activities.

Despite Norris' (2001) contention that the digital divide is a consequence of long-existing socio-economic disparities, internationally oriented digital divide related research continued to primarily focus on gaps in access to ICT infrastructures between developing and developed countries.

By the end of the 20th century, the majority of the American public had access to a range of ICT devices including personal home computers, laptop computers, mobile telephones, and palm pilots, to name but a few (Victory & Cooper, 2001). Coinciding with the growing pervasiveness of diverse ICT devices, Hargittai's (2002) research examining differences in people's online skills was indicative a shift toward recognizing gaps in ICT skills as a key facet of digital inequalities. For her study, Hargittai conducted "in-person observations and interviews with a random sample of 54 Internet users from the suburban towns and boroughs of a New Jersey County" (http://firstmonday.org/ojs/index.php/fm/article/view/942/864), and found that age, gender, education, and past experience with technology were key factors differentiating users' ability to navigate the content of the Web. More specifically, she found: (a) older age negatively affected users' Internet skill; (b) that gender did not significantly affect people's ability to navigate Internet content; (c) that higher education and past experience with technology positively motivated users to access the Internet and to explore online content. These findings led her to argue that the digital divide could not be solved simply by making technology more pervasive. Overcoming the divide, she claimed, would be contingent upon access to both technology and capacity-building programs designed to motivate people to use available online services and opportunities.

Around this time, several other studies also identified ways in which the digital divide was manifest in users' technological competencies, and suggested strategies for tackling the skills-related divide. Akhter (2003), for instance, examined how various demographic characteristics such as gender, age, education, and income influenced people's likelihood of accessing and using the Internet. He found that higher educated,

higher-income, males of younger age were most likely to access and use Internet services, and that the likelihood of access and use was much less among those with less education, lower income, female, and of older age. In their book-length examination of the digital divide, Mossberger et al. (2003, pp. 1-2) lamented the relative absence, to date, of skills centered digital divide research, noting:

> Having access to a computer is insufficient if individuals lack the skills they need to take advantage of technology. Skills development has taken a backseat to the provision of wiring and hardware in most programs, and there is scant research evidence on skills.

From there, they distinguished four categories of digital divide: access divide, skills divide, economic opportunity divide, and democratic divide. According to these authors, economic opportunity and democratic divides are consequences of a skills divide that could be mitigated when a user became able to search for a job and government information online, participate electronically in community meetings, and use the Internet for voting.

Drawing from the findings of a case study of 12 Egyptian public schools that were equipped with computers and Internet access, Warschauer (2003) identified four resources—physical, digital, human, and social—as responsible for enabling access to, and use of, computers and Internet. According to Warschauer, information and relevant content are digital resources, while literacy, education and ICT skills are human resources, and community and institutional support are social resources. Based on the findings emerging from his study, he concluded that an emphasis on the presence of technology in a population without paying attention to skills transformation wastes resources and fails to mitigate the digital divide.

In addition to ICT skills, studies focusing on the frequency and purpose of Internet use began to inform ongoing digital divide related discussions in the first decade of the 2000s. For example, based on data from a household survey of 1001 adults in the west of England and South Wales, and 100 in-depth follow-up interviews with individuals from these regions, Selwyn et al. (2005) assessed factors influencing Internet use in people's everyday lives. Their study identified that users' interest, the relevance of the Internet to their everyday work, existing social structures, and personal circumstances, among other factors, motivated people to use (or not to use) the Internet. Their findings suggested that the impact of the Internet on adults in the U.K. was reflected in their ability to use online services and their motivation to participate online. This led the authors to advise government agencies to "ensure that the Internet is relevant and useful to the everyday lives of those who are expected to make use of it" (Selwyn et al., 2005, p. 23).

Similarly, Hargittai and Hinnant (2008, p.617) examined the capital-enhancing online activities of 270 young adults (aged 18-26) across the United States and found that those with higher education and ICT skills were "more likely to visit the types of Websites that may contribute to improving their life chances and from which their human and financial capital may benefit." They also found that the type of capital-enhancing online activities in which young adults engaged for more than three years depended largely on their school or college level education. This led them to call for more usage-focused studies to assess the impact of the digital divide among computer users.

In their study of 2345 public elementary, middle and high schools in Florida, Hohlfeld et al. (2008) measured the frequency and variety of uses to understand how school administrations were employing ICT devices and services. They identified

statistically significant differences in access to, and use of, a variety of software and ICTs between users from high and low socio-economic backgrounds, regardless of whether they were teachers or students. For instance, Hohlfeld et al.'s (2008) study found a significant increase in the availability of content software on student computers in elementary ($F(1,6948) = 6.96$, $p<.01$) and middle ($F(1,6948) = 5.21$, $p<.023$) schools in more affluent districts during the 2006-2007 school year. Similarly, statistically significant differences in teachers' use of 'technology software to deliver instruction' between high and low socio-economic status middle ($F(1,6948) = 17.48$, $p<.01$) and high schools ($F(1,6948) = 8.86$, $p<.01$) during the same year. This finding was the basis for their advancing several recommendations aimed at augmenting ICT use in schools and at home, including a call for schools to improve ICT infrastructure (i.e., high-speed internet, computers, variety of software programs) and support, and that regular ICT skill training be provided to teachers, students, and parents.

Taken together, the studies outlined above, along with many others not discussed here, contributed to growing recognition of use disparity (i.e., frequency of use of specific ICT devices, types of applications used, and the kinds of changes such use bring to users' lives) as contributing to the digital divide.

In the first decade of the 2000s, Paré (2005) and Warschauer (2003) were marginalized voices asserting that concentrating exclusively on the digital divides was diverting attention away from the socio-economic and socio-cultural disparities more fundamentally responsible for nurturing and fostering gaps in the diffusion and uptake of ICTs. It was not until the 2010s that researchers began exploring in earnest how the digital divide is perpetuated both through long-existing socio-economic and socio-

cultural disparities, and psychological differences among ICT users. For instance, Sparks (2013) examined three major traditions of research relating to various aspects of the digital divide: (a) issues relating to physical access; (b) issues relating to skills with respect to full utilization of ICTs; and (c) socio-cultural factors that play a decisive role in ICT adoption. Starting from the premise that the Internet is also responsible for reproducing social structures and hierarchies, Sparks (2013, p. 38) contends that:

> the digital divide remains a reality even in the most developed online economies. It is neither an artefact of the pattern of diffusion, nor of the relative scarcity of technical resources. Rather, it is a function of deep-seated and enduring social inequalities and [...] has come to act as a significant factor in the reproduction of these same inequalities.

In his view, it follows therefore that the digital divide will continue to appear in new forms in accord with the "changing social and economic positions of different groups in society" (Sparks, 2013, p. 42). His argument echoes that of Nguyen (2012, p. 251), who also argues that the digital divide is "a social rather than technologically driven phenomenon, caused by variation in many factors beyond access and skills."

Complementing this view, van Dijk (2012) posits that individual attitudes and motivations toward technology also serve as important components influencing digital inequalities insofar as they too are consequences of economic, social, political, cultural, and locational factors. To this end, van Dijk (2012) argues that, despite high income, good education, good health, and young age, some people may reject computers and Internet-based services due to negative attitudes or psychological reasons such as anxiety or technophobia. He further notes that in 2011, approximately 13% of Americans and 9% of the Dutch population expressed no interest in using computers and the Internet, claiming they did not need the Internet anymore.

Harambam et al. (2013) and Correa (2010) likewise argue that without understanding users' motivations, attitudes, and cultural perceptions of particular technologies, one cannot adequately understand the digital divide.[1] For example, Harambam et al. (2013) surveyed 251 Dutch citizens in an Internet-based community project and found that cultural attitudes (i.e., how people perceive and think about technological artefacts in their social life) influence users' decision-making as to whether they should and/or do use ICTs. According to these authors, the digital divide is a "reproduction […] of already existing [socio-economic] disparities, favouring the rich and aggrieving the poor" (Harambam et al., 2013, p. 1094), wherein technology adoption is an outcome of socio-economic disparities *and* culturally informed decisions.

Echoing this view, Eastin, Cicchirillo, and Mabry (2015) maintain that disparities in the use of ICT devices and the Internet among people occur because of their varying capabilities and preferences. This may help to account, in part, as for why age and fragile health have often been found to contribute to the elderly engaging less frequently with various ICTs than their younger counterparts (see, for example, Okunola, Rowley, and Johnson, 2017; Niehaves and Plattfaut, 2014; Olphert and Damodaran, 2013). Similarly, van Deursen and van Dijk (2015) observe that peoples' reasons for using the Internet (e.g., accessing information and news, social interaction, entertainment and/or gaming purposes) and their ICT preferences resemble their social values, cultural perceptions,

[1] The influence of cultural considerations in propagating and perpetuating digital inequalities was illustrated in the first decade of the 2000s by Tripp (2010, and Kabbar and Crump (2007). Their work revealed that some immigrants of Asian and African origin residing in the U.S., Australia, and New Zealand refrained from using computers and the Internet because they felt that content provided on various digital platforms conflicted with their social and cultural values. Kabbar and Crump (2007), for instance, observed that some Asian and African female immigrants in New Zealand were either culturally restricted or felt personally uncomfortable using computers and the Internet outside of their home.

and their ICT preferences resemble their social values, cultural perceptions, and relationships in the offline world.

Recent studies have begun to examine socio-cultural factors that might be responsible for the persistence of digital inequalities despite the higher-than-ever numbers of people who are able to access, navigate and use digital platforms and ICT devices. In his book, *The third digital divide: A Weberian approach to digital inequalities*, Ragnedda (2017) points out that the digital divide is not a technological disparity, but a phenomenon rooted in social inequalities. He further notes that the digital divide "should be discussed, understood and approached as a social issue and all its social consequences should be properly investigated" because the digital divide is associated with socio-demographic characteristics of the users (Ragnedda, 2017, p.19). Drawing from Weber's social stratification theory that interprets the relationship between physical wealth, social status, and political power, Ragnedda demonstrates how social inequalities reinforce unequal access to, skills in, and use of physical digital resources, creating similar inequalities in online platforms. Ragnedda concludes that digital inequalities further reinforce social inequalities in a vicious cycle that serves to widen existing gaps.

In their essay reviewing mainstream digital divide related literature, Bach, Wolfson & Crowell (2018) argue, over-ambitiously, that, to date, most studies have missed the connection between technological and socio-economic exclusions. They contend that poverty, inequality, and digital disparities go side by side insofar as they view digital disparity as "a symptom of social and economic marginalization that is exacerbated by policies and practices that further disenfranchise poor and working people" (Bach et al., 2018, p.36). Put simply, digital, social, and economic exclusion intersect and reinforce

each other.[2] Echoing the earlier arguments of Sparks (2013) and Nguyen (2012), these authors conclude that governments' initiatives aimed at elevating people from poverty by providing them with Internet access and ICT skills are destined to fail because the architects of such approaches have yet to grasp that escaping poverty requires more than a technological fix.

The discussion in this section has focused on the evolution of understanding the digital divide concept throughout the past three decades. One of the striking features of this exposé is the extent to which it reinforces the salience of the Organization for Economic Co-operation and Development (OECD)'s observation, published in 2000, that "there is no single, clearly defined divide, but rather a series of gaps, brought about by a variety of factors, which often come together, many of which do not have their roots in technology" (OECD, 2000, p. 51). In the next section, I provide a brief overview of both the evolution of e-government programs and the literature dealing with how these programs have been affected by various aspects of the digital divide.

2.2 Understanding e-Government

According to the 2020 United Nations e-Government Survey, all 193 UN member states have launched some form of e-government service platforms (UNDESA, 2020). The objectives behind these investments include providing services more efficiently at lower costs, to better serve their respective publics, to make it easier to interact with citizens and clients, and, in some cases, to make public institutions more inclusive, transparent,

[2] Their argument parallels that advanced by Alam and Imran (2015). The latter authors studied the effects of the digital divide on social inclusion by conducting four focus group meetings with 28 refugee migrants to Australia. The discussions in these meetings suggested that socio-economic disparities are primarily responsible for the disparities in ICT and Internet access, skills, and use experienced by the study participants. Alam and Imran argue that more must be done to promote digital inclusion, which they aver, has become a necessary condition for social inclusion.

and accountable (UNDESA, 2020, 2018, 2016). Among these countries, 40 have developed very sophisticated online portals to facilitate public services, 71 have implemented a reasonably sophisticated online service delivery system, 66 have a moderate level of online presence with limited service delivery, and 16 have only very limited presence on digital platforms (UNDESA, 2020).

2.2.1 Evolution of the e-Government Concept

The term 'e-government' was coined in the late 1990s by practitioners and research communities as an abbreviation for electronic government (Layne & Lee 2001; West, 2004). At the time, this term often was interpreted in accordance with specific features, such as "the delivery of governmental services and information electronically, 24 hours per day, [and] seven days per week" (Norris, 2001, p. 5). For instance, in 1993, former U.S. President Bill Clinton introduced a government program titled the *USA National Information Infrastructure Initiative* that sought, among other things, to develop a platform through which the U.S. government could benefit from rapid innovations in digital technologies to provide services to the public at the lowest possible cost (Garfield & Watson, 1997).

In Canada, in 1994, the Treasury Board published its *Enhancing Government Services Using Information Technology,* a policy document designed primarily to extend government service delivery online (Longford, 2000). Some 15 to 20 years later, the scope of e-government expanded from its early focus on service delivery to include public engagement and digital participation in various social, economic, administrative, and political sectors (Roman, 2013; Shareef et al., 2011). More recently, the scope of the term e-government has further expanded to include the promotion of democratic values

and citizen engagement in policy-making and increasingly is used as a synonym for digital government, Internet government, and government online services (see, Clarke, Lindquist, & Roy, 2017; Chadwick, 2016; de Sá Soares & Amaral, 2015).

E-Government programs are interactive and available 24/7. They also tend to carry lower administrative costs (de Sá Soares & Amaral, 2015; Auditor General of Canada, 2013; Layne & Lee, 2001). E-Government allows digital interactions between government and government (G2G), between government and businesses (G2B), and between government and citizens (G2C) (de Sá Soares & Amaral, 2015; Islam & Ehsan, 2015; Mostafa, & El-Masry, 2013; Chadwick and May, 2003). The visions motivating such initiatives often are rooted in the assumption that e-government offers the potential to "lead toward a more responsible, accountable, efficient and effective governance" and "considerable financial savings as a result of digitally-based operational efficiency" (Roman, 2013, pp. 137-138).

Table 2.2 presents nine conceptualizations of e-government offered by the United Nations Department of Economic and Social Affairs (UNDESA). Taken together, these definitions are illustrative of the evolution of the concept during the last twenty years. Initially, e-government was principally thought of as a tool for information dissemination and service delivery from government agencies to citizens and clients (UNDESA, 2001). Over time, the e-government came to be seen as a potential stimulus for improving public administration (UNDESA, 2003), and later, an instrument to promote equality and social inclusion, and as a facilitator of public participation and good governance (UNDESA, 2014; 2008; 2005; 2004). Most recently, it has come to be understood as a catalyst of citizen engagement, public empowerment, good governance, increased transparency on

government activities, and more inclusive platforms that can restore the trust of citizens on their governments (UNDESA 2020; 2018; 2016).

Table 2.2: Evolution of the e-Government Concept

Conceptualizations of e-Government	**Sources**
E-Government is a tool for information and service provision to citizens.	*2001 Benchmarking e-Government* (UNDESA, 2001)
E-Government enhances the capacity of public administration using ICTs to increase the supply of public value (i.e., to deliver the things that people want)	*2003 Global E-Government Survey* (UNDESA, 2003)
E-Government is defined as the use of all ICTs by government to provide information and services to the public.	*Global E-Government Readiness Report 2004* (UNDESA, 2004)
E-Government extends beyond 'government-to-government networking' and the 'use of ICTs by governments to provide information and services to the public' to encompass the role of the government in promoting equality and social inclusion.	*UN Global E Government Readiness Report 2005* (UNDESA, 2005)
E-Government is the continuous innovation in the delivery of services, public participation and governance through the transformation of external and internal relationships using information technology, especially the Internet.	*UN E-Government Survey 2008* (UNDESA, 2008)
E-Government can be referred to as the use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people.	*UN E-Government Survey 2014* (UNDESA, 2014)
E-Government can help connect individual systems and government functions, as well as public services, into a coherent system, thus enabling enhanced government service delivery in the economic, social and environmental areas.	*UN E-Government Survey 2016* (UNDESA, 2016)
E-Government can improve public services, citizen engagement, and transparency and accountability of authorities at the local level. It also strengthens resilience and sustainability and better aligns local government operations with national digital strategies.	*UN E-Government Survey 2018* (UNDESA, 2018)
E-Government can be defined as the use of ICTs to more effectively and efficiently deliver government services to citizens and businesses. It is the application of ICT in government operations, achieving public ends by digital means. The underlying principle of e-government…is to improve the internal workings of the public sector by reducing financial costs and transaction times so as to better integrate work flows and processes and enable effective resource utilization across the various public sector agencies aiming for sustainable solutions.	*UN E-Government Survey 2020* (UNDESA, 2020)

2.2.2 Service to Whom: Citizen or Clients?

A central debate about the essence of e-government is whether e-government programs treat users foremost as citizens or clients/customers. At issue here are concerns about the potential for e-government to constrain democratic participation and decision-making, and to transform citizen-government relations into government-client transactions. The Oxford Dictionary defines a citizen as: "a legally recognized subject or national of a state […], either native or naturalized"; a customer as "a person who buys goods or services from a shop or business"; and a client as "a person or organization using the services of a […] professional person or company." These definitions are central to ascertaining and assessing whether and how particular e-government programs measure effectiveness.

In the mid-1990s, when the U.S. government was preparing to launch electronic channels to deliver government services, former U.S. Vice President Al Gore set out the difference between customers and citizens as follows:

> By 'customer' we do not mean 'citizen.' A citizen can participate in democratic decision-making; a customer receives benefits from a specific service. All Americans are citizens. Most are also customers. [. . .] In a democracy, citizens and customers both matter. (NPR, 1993, Sec. 5, para. 10)

During the same period, Canada developed a policy called *New Public Management* for citizen-centered services that set out a framework by which government could work with citizens where they are, and adjust to how well they understand government services through electronic channels (Chadwick & May, 2003). Fafard et al. (2009) argue that even though the Canadian policy document stressed citizens' overall development, in practice, it turned into a client-centered service, as if the government were like a private bank that focused on cost and benefits.

Chadwick and May (2003) conducted a comparative analysis of the role of ICTs in the governments of the U.S., the U.K., and the European Union, and found that these governments focused theoretically on the democratic potential for ICTs to engage citizens with their governments, but that they were not effective in engaging citizens in decision-making processes. According to these authors, the governments assessed in the study were working with the priority of satisfying 'customers' by offering cost-effective and efficient service delivery. This leads them to conclude that, “the democratic possibilities of the Internet are likely to be marginalized” because government mechanisms focus more on providing satisfaction for 'clients' instead of for the citizenry as a whole (Chadwick & May, 2003, p.272). For Chadwick and May, the term 'client' denotes a narrower perspective of e-government when compared with the term 'citizen' because clients have specific concerns relating to payments, service delivery, and timely and quality service, and are excluded from decision-making processes. Writing about the Canadian context, Dutil et al. (2010, p.13) echo this view, arguing that “public service users are increasingly perceived and treated in Canada as customers, with lessening regard to the potential importance of client and citizen relationships.”

In their examination of citizen-centered federalism, Fafard et al. (2009) looked at e-government service delivery in the public sector of various European and North American countries. They observed that most European and North American countries focus on technology when developing electronic programs to serve citizens, thereby limiting the scope of citizenship to treating citizens as consumers or clients. Based on their review of literature about the concept and definitions of e-government, de Sá Soares and Amaral (2015, p. 89) adopt a somewhat different outlook, suggesting that e-

government services can increase public enfranchisement in two aspects: (a) citizens should be treated as clients of information and other services; and, (b) “citizens [will] play a role of auditors of administration's duties, rights and performance.” According to these authors, government's recognition of citizens as auditors rather than clients is more important for “the reform[ation], transformation and modernization of the overall state government activities” (de Sá Soares & Amaral (2015, p. 92).

Layne and Lee (2001) examined experiments and learnings of e-government initiatives in different countries and offered observations about a fully functional e-government program. West (2004) research government service delivery through online channels to enhance government's responsiveness to its citizens, and Roman (2013) evaluated the impacts of technology adoption and use in public sectors. Al-Khouri (2011) reviewed literature about e-government initiatives around the world and proposed a citizen-centric e-government model for the United Arab Emirates. The model outlines several characteristics of citizen-centric e-government that include: (a) transparent and convenience online channels, (b) collaborative works among departments and stakeholders, (c) shared information and infrastructures to avoid duplications, (d) service delivery in reduced cost and time, and (e) improved customer services to all citizens.

The common thread linking these five authors’ perspectives is the claim that e-government can improve public services by reducing costs and transaction times between government agencies and citizens. They also contend that e-government can foster opportunities for progressive transformations that integrate socio-economic potential, expand development projects, and create synergy through connectivity between government agencies and citizens. The assumption here is that an e-government system

can provide the public with a collaborative and empowering environment so that citizens can be fully involved and use vertically and horizontally integrated services available on various digital platforms.

In line with this view, the World Bank (2015) states that e-government connects citizens with government agencies, increases participation in government activities (such as e-voting and public consultation on policy documents), and facilitates digital interactions and information and service delivery between citizens and their governments. To this end, the World Bank (2015) identifies six key functions of e-government:

1. it reduces costs by putting services online that are accessible anytime from anywhere;
2. it fosters economic growth and creates a positive business environment by reducing administrative hurdles;
3. it promotes transparency in the decision-making process and enhances accountability among stakeholders;
4. it improves service delivery to meet the expectations of clients;
5. it makes public administration effective and efficient by integrating multiple services in a single platform; and
6. it promotes citizen engagement through regular and frequent government-citizen interactions.

The ability people to actualize the opportunities listed above is, of course, contingent upon intended the beneficiaries having access to the requisite technologies and infrastructure as well as the skills, resources, and motivation to use them.

2.2.3 E-Government Practices in Different Countries

E-Government service delivery is still a new phenomenon for many countries, and not surprisingly, distinctive experiences and learning are emerging in different countries.

Dugdale et al. (2005) studied the use of the Australian government's online service delivery by low income and marginalized people, including residents of remote areas, indigenous Australians, elderly and disabled people, and people of non-English speaking

backgrounds. These authors found that the low socio-economic status of marginalized people results in their experiencing difficulties interacting with the government as well as being less connected to potential opportunities afforded by e-government services. Middleton and Byus's (2011, p.98) study of the adoption and use of ICTs in 152 small and medium-sized business enterprises owned by Hispanic immigrants in the U.S. found that Hispanic immigrants "not only failed to adopt a full range of ICTs but also they were less likely to use ICTs for long-term" because of factors such as income, language, and community members' lack of facility with online channels. Barth and Veit (2011) looked at how digital inequalities impact the ways in which migrants to Germany used online public services. They found that the immigrants who participated in their study were not confident in using e-government services due to trouble understanding German language digital content, but that they did use the Internet for other, simpler activities such as online shopping. Drawing from the findings of a study about immigrants' behaviour in relation to using e-government services that involve some 239 participants from across Canada, Shareef et al. (2011) observed that the availability of multilingual content is important for immigrants, who may experience difficulties in understanding government information. In sum, the studies discussed above suggest that content provided on e-government platforms should be made available in languages that very recent immigrants are comfortable with in order to facilitate their ability to adapt their host-country environment as quickly and smoothly as possible.

Based on information gathered from 6743 survey respondents, Reddick and Turner (2012) examined service-delivery channel (i.e., physical offices, mail delivery, telephone

service, and online services) preferences in Canada.[3] They found that Canadian "government websites were most commonly used for information purposes, while the phone was most commonly used to solve problems" (Reddick & Turner, 2012, p. 1). Their study also revealed that socio-demographic factors such as age, income, gender, education, ICT skills, and geographic location created "a digital divide in accessing e-government [services]" (Reddick & Turner, 2012, p. 1).

Persaud and Persaud (2015) conducted literature review of 18 scholarly articles about e-government adoption that had been published in the preceding fifteen years. They found public awareness of e-government programs and services tends to be very low. They argue that if users can clearly understand the structure and functions of the system (e.g., the types of services available, and how easy and cost-effective the system is), they are more likely to use e-government services. These authors also maintain that the ability to access e-government websites does not guarantee people's ability to use e-government services unless they are able to understand the content. Ebbers, Jansen, and van Deursen's (2016) examination of ICT adoption and e-government use in the Netherlands examined the experiences of Dutch citizens' actual use of their state's e-government channel. They too found that ICT skills were not highly relevant factors, when it came to influencing Dutch citizens' motivation to adopt and use e-government services. Their study further found that users' trust and satisfaction with the services could motivate them to use e-government services in the long run, regardless of their own expertise in handling ICT devices or the degree of complexity of the e-government services. The studies discussed above suggest that socio-demographic factors, familiarity with the

[3] The survey was conducted using both Canadian official languages and questionnaires with provided through mail delivery and online across Canada.

services, and trust in e-government service platforms may influence immigrants' decision-making when it comes to using these platforms.

Okunola et al. (2017) examined factors affecting Nigerian citizens' ability to access and use the Nigerian Immigration Service web portal. They found that access to computing facilities, past experience with Internet use, and past use of e-government services were key factors affecting potential users' decisions regarding to the adoption and use of e-government services. In their research into e-government programs and services in Singapore, Baum and Mahizhnan (2015) found that cost, lack of ICT skills, health, age, and language were factors influencing Singaporeans' decisions to not adopt ICTs or access e-government services. According to these authors, Singapore's e-government program requires a high level of citizen engagement such as participation in policy-level discussion, "more than simply an online presence" (Baum & Mahizhnan, 2015, p.719). In their study of Spanish citizens, online engagement, Vicente and Novo (2014) also found that socio-economic factors such as ICT skills, gender, education, income and employment positively influence individuals to use the Internet, including e-government services.

Conteh and Smith (2015) examined e-government programs in Sub-Saharan Africa, with particular reference to Ghana and Kenya. They report that the lack of ICT infrastructure in both countries combined with ineffective strategies for making government services accessible through a single e-government platform, limited digital literacy, and people's hesitancy to use e-government channels for financial transactions are key challenges to implementing successful e-government programs. As noted by the United Nations E-Government Survey (UNDESA, 2016, p.iii), some of the principal

dilemmas include:

> [L]ack of access to technology, poverty and inequality prevent people from fully taking advantage of the potential of ICTs and e-government for sustainable development. For ICTs to truly transform the public sector into an instrument of sustainable development, efficiency in service delivery must be also coupled with social equity and ensuring that all people can access quality services.

The studies discussed above suggest that several factors/challenges, including socio-demographic characteristics, limited digital literacy and hesitancy affect immigrants' decision-making regarding the use of e-government service platforms.

The experiences reported from different countries suggest that several socio-economic and socio-demographic factors influence peoples' behaviour when it comes to accessing and using e-government services. These factors include, but are not limited to: language, ICT skills, age, gender, education, income, geographic location, past experience using e-government service platforms, the quality of such platforms' interactive design, how well the government integrated service delivery, the effectiveness of support services, whether digital content is available in users' primary language, and migration background (see Table 2.3). Additionally, the findings of the above-mentioned studies suggest that the success of e-government programs depends largely on the digital skills and competencies of potential users.

Table 2.3: Influence of Socio-demographic Characteristics on ICTs Use

Socio-demographic Characteristics	Key Observations	Studies of ICTs and e-Government Use
Immigrant's familiarity	• Past experience of, or familiarity with, ICTs and the Internet system is one of the key factors motivating people to adopt ICTs and use online services. • When users become familiar with how governments collect, store, and share information, they are more likely to use e-government services.	Okunola et al. (2017), Persaud & Persaud (2015), Haight et al., (2014)

Language proficiency	• Immigrants struggle with language barriers despite living in host countries for several years. • Limited understanding of digital content in host-country language makes immigrants less confident in using government services available online. • Immigrants tend to be less proficient in language(s) of the host-country, and, therefore, hesitant to use e-government services.	Okunola et al. (2017), Persaud & Persaud (2015), Baum & Mahizhnan (2015), Haight et al. (2014), Reddick & Turner (2012), Barth & Veit (2011), Middleton & Byus (2011), Shareef et al. (2011), Dugdale et al. (2005),
ICT skills	• Due to low incomes, difficulties in language, and lack of familiarity with e-government systems, immigrants frequently fail to adopt and use ICTs. • Immigrants tend to use government websites for information purposes, and telephone services for solving the problems. • The ability to access government websites does not ensure people's ability to handle ICT devices and use e-government services.	Okunola et al. (2017), Conteh & Smith (2015), Persaud & Persaud (2015), Baum & Mahizhnan (2015), Haight et al. (2014), Reddick & Turner (2012), Middleton & Byus (2011), Barth & Veit (2011)
Age group	• As age increases, the likelihood of a person having access to the Internet decreases. • Elderly people with high education levels can be positively motivated to adopt and use the Internet to facilitate their everyday activities. • Age affects elderly people in adopting ICTs.	Okunola et al. (2017), Baum & Mahizhnan (2015), Haight et al. (2014), Niehaves & Plattfaut (2014), Reddick & Turner (2012),
Gender	• Male are more likely to use e-government services than their female counterparts.	Okunola et al. (2017), Haight et al. (2014), Vicente & Novo (2014), Reddick & Turner (2012)
Education	• Highly educated individuals are more likely to use e-government services compared to those with low education. • Individuals with higher education are likely to use the Internet.	Okunola et al. (2017), Williams et al. (2017), Baum & Mahizhnan (2015), Haight et al. (2014), Vicente & Novo (2014), Reddick & Turner (2012)
Household income	• People with high-income levels are more likely to use ICTs and e-government services than their lower income counterparts. • There are large discrepancies in Internet access by income.	Okunola et al. (2017), Haight et al. (2014), Vicente & Novo (2014), Reddick & Turner (2012), Middleton & Byus (2011), Barth & Veit (2011), Dugdale et al. (2005)
Employment	• Employed individuals are more likely to use ICTs and e-government services than individuals who are not employed.	Okunola et al. (2015), Vicente & Novo (2014)

The discussion in the next section presents an overview of immigrants' ICTs adoption and use in host-country settings.

2.3 Immigrants' ICT Adoption and Use

Several studies reveal that immigrants in different countries tend to use ICTs as soon as they have opportunities for connecting with their loved ones in their country of birth and/or to assist in their adjusting into the host country environment (see, for example, Peile & Híjar, 2016; Yoon, 2016; Alam & Imran, 2015; Mikal & Woodfield, 2015; Haight et al., 2014; Selsky et al., 2013; Spaiser, 2013; Mesch, 2012; Barth & Veit, 2011; Chen, 2010; Tripp, 2010; Kabbar & Crump, 2007; Benitez, 2006; Tsai, 2006).

Drawing from a systematic literature review of 154 scholarly studies published between 2000 and 2017 about immigrants motivations for using ICTs, Acharya (2019) observed that immigrants tend to use ICTs for two key reasons: (a) they want to integrate in their new country, such as by seeking job opportunities, upgrading their education, developing social connections; (b) they want to stay in touch with families and friends in their country of origin. Immigrants' positive attitudes towards ICTs seems to be anchored in a desire to adjust and integrate into life within the new host-country within which they find themselves, to retrieve information required for everyday activities, to sign up for government benefits, to familiarize children with their new homes, and to enhance their level of education (Alam & Imran, 2015; Mikal & Woodfield, 2015; Mesch, 2012; Tsai, 2006). Several studies such as Mesch's (2012) study of Arab immigrants in Israel, Tsai's (2006) examination of Taiwanese immigrants in Washington D.C., USA, Mikal and Woodfield's (2015) research about Iraqi and Sudanese immigrants to the U.S., Mossberger et al.'s (2012) on Latino immigrants in Chicago, USA, and Peeters and

d'Haenens' (2005) study of Moroccan immigrants in the Netherlands all found that, among all the other motivations of immigrants, adjusting and integrating in their new home country is the most important.

A second important motivation for immigrants to use ICTs is that they allow immigrants to maintain connections with their family and friends in their countries of origin. This is especially important for individuals who are transitioning to life in a new country because it provides a means to bridge the geographical divide separating people from those they love, as well as enabling them to overcome social isolation and to reduce post-migration stress (Acharya, 2019; Bacigalupe & Lambe, 2011; Chen, 2010; Benitez, 2006). Chen (2010) found that very recent Chinese immigrants to Singapore were more likely to use ICTs to maintain connections in their country of origin than those who had been in the city-state longer. Yoon's (2016) study on South Korean female immigrants in Canada found that using ICTs to communicate with families and friends in their country of origin provided them "a sense of continuity and belonging" (Yoon, 2016, p. 373). According to Mesch (2012, p.317), homeland connection with families and friends through ICTs can "compensate for their [very recent immigrants] lack of social capital" in their host countries. However, Mesch (2012) warns that this type of increased digital engagement with families and friends back home may further isolate immigrants from integrating within their new host society environment.

In the age of ICTs, having a positive attitude and motivation towards technology adoption and use may be an important contributing factor in facilitating for a successful immigrant adjustment and integration in a new host country (see, for example, Acharya, 2019, Piele & Hijar, 2016; van Dijk, 2012). Both van Dijk (2012) and Liao et al. (2009)

maintain that technology adoption depends on an individual's socio-demographic characteristics as well as their personal attitude, willingness, and motivation to engage with the technology for specific purposes.

Persaud and Persaud (2015), Haight et al. (2014), Niehaves and Plattfaut (2014), and Roman (2013) contend that the success of various programs and initiatives aimed at mitigating or ending the digital divide is contingent upon users' behaviour with respect to technology adoption and use. These authors view peoples' technology adoption behaviours as being directly influenced by a combination of factors, including individual attitudes and motivations, socio-demographic variables (e.g., age, education, income, gender, language, geographic location), and ICT knowledge, skills, and experience. A logical corollary of this perspective is that the impact of various forms of the digital divide among users, as well as users' attitudes and motivation towards technology adoption, mitigates the extent to which individuals successfully actualize the online opportunities offered through various e-government programs and platforms.

To sum up, this section has presented a brief discussion on how immigrants' motivations to use ICTs, including e-government services, flow from their interests to settle in the host-country environment and to keep a constant connection with their families and friends in their country of origin. The next section offers an overview of the impact of the digital divide on immigrants to Canada and set outs the research question emerging from the discussion.

2.4 Context of the Study

Canadian census data from 2016 shows that nearly one-fourth (21.9%) of the country's population is comprised of immigrants (Statistics Canada, 2017a). Nearly one-third

(29.1%) of the population of Ontario, Canada's largest province, are immigrants. Between 2011 and 2016, Canada welcomed some 1.2 million immigrants, representing 3.5% of the country's population (Statistics Canada, 2017a). In 2015, Canada increased its annual threshold of immigrants by permitting more than 300,000 qualified individuals from across the globe to enter the country. On October 30, 2020, the Government of Canada announced a plan to receive 1.2 million immigrants between 2021 and 2023 to assist with the country's post-pandemic economic recovery (Immigration, Refugees & Citizenship Canada, 2020).[4]

To date, there appears to be relatively few Canada-centric studies investigating how very recent, recent, and established immigrants to Canada experience and deal with digital inequalities in relation to accessing and using federal-, provincial-, and municipal-level e-government service platforms. And, there certainly has not been any such work focusing exclusively on the experiences of members of the Nepali community in Canada.

According to the provisions of the *Employment Equity Act-1995* (Article 3), Nepali immigrants to Canada comprise a visible minority. The 2016 Census found 19,275 immigrants whose mother tongue is Nepali, making Nepali the 44th most spoken among 142 immigrant languages spoken in Canada. A recent estimate by the Non-Resident Nepali Association (NRNA) Canada suggests that the total Nepali-Canadian population numbers around 50,000, counting first and second generations (NRNA, 2021). Almost half reside in Ontario, with Toronto and Ottawa being the two principal recipients of Nepali immigrants.

There is a huge gap between Nepal and Canada when it comes to Internet access.

[4] See Supplementary Information for the 2021-2023 Immigration Levels Plan, https://www.canada.ca/en/immigration-refugees-citizenship/news/notices/supplementary-immigration-levels-2021-2023.html

The Nepal Telecommunications Authority (2021) reports that as of May 2021, access to broadband Internet for the Nepali public is 25.27% whereas, according to the Canadian Radio-Television and Telecommunications Commission (2021), 87.4% of the Canadians have such access. According to the UN E-Government Survey, Nepal's e-government ranking is 132nd in the world, a fall of 15 positions since 2018, whereas Canada ranks 28th, having fallen just five positions since 2018 (UNDESA, 2020). Acharya (2020) examined 22 federal-level ministry websites of Nepal's government, and found that they were primarily designed to disseminate information, rather than deliver services. As such, it seems plausible that the digital inequalities in their birth country may affect Nepali immigrants to Canada insofar as they may not be very familiar with e-government service delivery. Moreover, Canada, once a world leader in e-government, has been lagging behind in delivering government services to its citizens and permanent residents.

When reviewing the literature about e-government services, I found that most studies published during the last 20 years centered either on the federal level (such as Ebbers, Jansen, & van Deursen, 2016; Haight et al., 2014; Okunola, 2015; Reddick & Turner, 2012), provincial level (such as Boudreau & Bernier, 2017; Johnson & Sieber, 2012) or municipal level (such as Barth & Veit, 2011; Ebbers et al., 2016; Heisler, 2008). None dealt simultaneously with all three levels of government. However, the citizenship journey of immigrants to Canada requires them to interact with all three levels of government and their online services. With this in mind, my dissertation examines the experiences of recent Nepali immigrants in accessing and using Canada's e-government services at federal, provincial and municipal levels. The central research question guiding this dissertation is:

What are the principal challenges Nepali immigrant users of federal, provincial, and municipal e-government service platforms encounter in seeking to engage with these online tools?

In seeking to address this question I used the following sub-questions to guide the research:

(i) *What factors motivate Nepali immigrant users of e-government service platforms to engage with these online tools?*

(ii) *What are the main differences between very recent, recent, and established Nepali immigrant users with regard to their respective use of e-government service platforms provided by federal, provincial, and municipal governments?*

(iii) *What are the key factors perpetuating these differences?*

I hypothesize that the impact of digital inequalities impedes the ability of very recent immigrants to Canada to fully exploit services and opportunities made available to them via e-government platforms.

2.5 Conclusion

The discussion in this chapter has reviewed literature dealing with various aspects of the digital divide, programs and practices of e-government, and immigrants' motivations for using ICTs, including e-government service platforms as well as factors contributing to the fostering of digital divides domestically and internationally. The ability to adopt and use e-government programs and services is contingent upon people being able to afford ICT devices as well as being proficient in using these tools. Users' levels of education, income status, ability to understand the language, attitudes and motivations towards technology, and socio-cultural practices, all play an influential role in whether individuals decide to use a particular technology such as e-government. In the next chapter, my attention turns to the conceptual framework employed to guide the research design and data analysis in this dissertation.

Chapter 3: Employing the Capabilities Approach as a Conceptual Framework

The discussion presented in this chapter sets out the conceptual framework that informs this dissertation; the Capabilities Approach.[1] This framework is a well-established tool for evaluating the extent to which socio-cultural, socio-economic, and socio-political arrangements impact upon people's ability to lead the types of lives they value and have reason to value. The discussion in the second section reviews the notion of conversion factors, which is central to the Capabilities Approach. These factors constitute intersections of ability and circumstance and mediate the transforming of material and immaterial opportunities into valuable functionings. In the third section, my attention turns to the contending views of Amartya Sen and Martha Nussbaum regarding capabilities. Whereas Sen tends to emphasize individual freedom and wellbeing, Nussbaum focuses more on the role of nation-states in ensuring social justice. The fourth and final section of the chapter sets out the approach adopted in this dissertation to operationalize the Capabilities Approach.

3.1 Understanding the Capabilities Approach

The Capabilities Approach was first introduced by Amartya Sen in his *Tanner Lecture on Human Values* at Stanford University on May 22, 1979 and subsequently was expounded upon in his later publications[2] (Sen, 2005, 1999, 1992, 1990, 1985, 1984, 1979). Since the late 1980s, political philosopher Martha Nussbaum (2011, 2006, 2003, 2000, 1997,

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1 In seeking to specify the term 'capability approach' as set out in the writings of Amartya Sen, different variations such as 'Capabilities Approach' (Garnham, 1997; Nussbaum, 2011, 1997, 1995), 'capability theory' (Robeyns, 2005; Nussbaum, 2003), and 'capabilitarianism' (Robeyns, 2016a) have been employed by different authors. For consistency, the plural form 'capabilities' is used here.

2 The philosophical roots of the Capabilities Approach go back to Aristotle's theory of political distribution, Adam Smith's analysis of necessities, and Karl Marx's analysis of human freedom and emancipation. See, Nussbaum (2011) and Sen (1999).

1995, 1987) and a number of others (see, for example, Alkire, 2002; Garnham, 1997; Robeyns 2005, 2016a, 2016b) have further developed and expanded the capabilities concept.

The Capabilities Approach is rooted in Sen's efforts to redress perceived shortcomings in Jeremy Bentham's theory of utilitarianism and John Rawls' theory of justice (Sen, 2009, 1999, 1979). Bentham's (1772) theory of utilitarianism presents three key ideas:

1. any action is morally right if it maximizes happiness (i.e., act consequentialism);
2. any action relating to the wellbeing of individuals should be evaluated based on its consequences (i.e., welfarism); and
3. regardless of how a resource is distributed to concerned individuals, it is morally good if it maximizes welfare (goodness over badness; i.e., sum ranking).

Sen (1999, 1979) identifies two key shortcomings in Bentham's onus on maximizing happiness for the greatest number of people. First, Bentham fails to take into account the phenomenon of distributional injustice- i.e., the notion that allocation of resources may further create disparities in society. This can be observed, for example, in the premise that, female workers should not be paid a salary equal to that of their male counterparts as long as they are satisfied with lower salaries. This implies by extension that difficulties faced by Canadian immigrants in using e-government service platforms should not be addressed as long as they do not contest these challenges. The second shortcoming, according to Sen, is that Bentham's utilitarianism unjustifiably neglects individual rights and freedoms insofar as it advocates for the greatest amount of happiness for the greatest number of people.

In contrast to Bentham, John Rawls' (1971) theory of justice advocates the equal distribution of resources and opportunities to every member of society. Central to Rawl's

thinking is the notion that a society is an institution that should distribute resources (i.e., benefits and burdens) equally to all its members without prejudice. Hence, each individual, regardless of physical or socio-economic disparities, should have the same rights, the same basic freedoms, and the same opportunities. Sen (1999) challenges this view, by asserting that despite its emphasis on equality of resources, the Rawlsian theory of justice fails to properly acknowledge crucial differences between a typical person and a person with particular or special needs, such as disparities between those with disabilities and those without. In Sen's (1999, p. 3) view, a resource "may be the most prominent means of [securing] a good life without deprivation, but it is not the only influence in the lives we can lead."

In contrast to traditional conceptions of welfare and justice that are anchored to resource distribution (see, Smith, 2010; Rawls, 1971; Mill, 1895; Bentham, 1772), Sen (2005, 1999, 1984) emphasizes the importance of individual capabilities, freedoms, and opportunities in achieving the kinds of lives individuals value and have reason to value. To this end, a core facet of Sen's argument rests in the distinction between *functionings* and *capabilities*. According to Sen (1999, 1992), functionings comprise a combination of beings and doings. Here, 'being' refers to various states of a person, such as being healthy, being well-nourished, and being educated, whereas 'doing', on the other hand, refers to activities of the person, such as using government services, purchasing ICT devices, and learning languages. In short, functioning refers to what is done or achieved, and 'capabilities' refers to the freedom individuals have to choose opportunities for enhancing their wellbeing. In other words, capabilities are opportunities to achieve

functionings and using those functionings to generate a valued outcome. As Sen (1992, p. 40) puts it:

> [A capability] represents the various combinations of functionings (beings and doings) that the person can achieve. Capability is […] a set of vectors of functionings, reflecting the person's freedom to lead one type of life, or another. […] the 'capability set' in the functioning space reflects the person's freedom to choose from possible livings.

Put simply, capabilities refer to what people are effectively able to do and be, whereas functionings refer to a situation that mediates how one actually does something to generate important outcomes. For instance, very recent immigrants to Canada may have equal access to e-government service platforms and, as such, the freedom to achieve valued outcomes (i.e., capabilities). However, they may not be able to use the available services effectively because of their limited knowledge of Canada's official languages or, perhaps, because they lack requisite ICT skills and knowledge (i.e., functionings).

The concept of freedom lies at the core of the Capabilities Approach. According to Sen (2005, p.155), freedom refers to the ability to lead a life of one's choice and which one has reason to value, the absence of interference from any external actors (i.e., persons, institutions, or the state), and "the extent to which [a] person is free to choose particular levels of functionings." Sen (1999) outlines five instrumental freedoms that influence individuals' overall freedom and, as such, contribute to peoples' functionings:

1. political freedoms (e.g., civil rights, election and voting, freedom of speech);
2. economic facilities (e.g., adequate opportunities to produce, consume, and exchange goods and services);
3. social opportunities (e.g., availability of education and health care);
4. transparency guarantees (e.g., performance disclosures of public institutions, such as government activities); and
5. protective security (e.g., access to social support mechanisms).

Sen's notion of freedom centers on the availability of opportunities, and the ability of people to use (or reject) these opportunities. Put simply, he is interested in the extent to which people can realize their capabilities. For Sen (2005, p.155), development is "a process of expanding the real freedoms that people enjoy." To explain this idea, Sen (2005, 1999) recalls the fasting of Mahatma Gandhi during India's struggle for independence and the starvation of the Bengali famine victims in the 1940s. Gandhi, he points out, had the opportunity to eat and chose not to do so because of his specific political objective (i.e., an independent India). By contrast, because of poverty, the victims of the famine had no option to access food. Although individuals who are fasting or starving may have the same physiological status, in this example Gandhi enjoys the freedom of choice while the famine victims have no choice. In terms of this dissertation, Sen's perspective calls into question one to reject dominant mainstream narratives that suggest e-government platforms are service delivery channels with an inherent capacity to expand choices and freedoms for immigrants and other Canadians. What such rose tinted perspectives overlook, and which Sen's Capabilities Approach squarely focuses one's attention upon, is the factors mediating the extent to which the opportunities afforded by such platforms may be converted into valuable outcomes.

The concepts of means and ends are also very important to the Capabilities Approach. According to Sen (1999, 1984), means refer to resources such as goods, services, or any other asset that contributes to producing wellbeing and expanding freedoms. Ends, on the other hand, refer to the valuable functionings (or outcomes) that people can achieve by using those resources. This said, Robeyns (2016b) warns that one must be very clear when valuing something as a means or an end because some means

can play dual roles. For instance, 'English/French language proficiency' can be valued as an end by itself for new immigrants to Canada, and it can simultaneously be considered as a means to access services and opportunities provided on e-government service platforms. Sen (2005) maintains that even though individuals have equal access to means, they may not be able to achieve the same ends, or outcomes, because individuals differ greatly in their ability to convert resources into valuable functionings.

Viewed from a Capabilities Approach perspective, the use of technology is not just about accessing or possessing a technological product or service; rather it is about the extent to which individuals can use a technological product or service effectively to grasp opportunities to lead a life they value and have a reason to value (Ahmed, 2012; Oosterlaken, 2012; Sen, 1999). This view parallels that set out by Garnham (1997) in his reflection about the implications of the Capabilities Approach for communication policy issues. Garnham (1997, p. 34) argues that access to a particular technology or resource is not sufficient for "the range of options of being and doing a person has available." In order to maximize individual and social potentials, users must possess the necessary capabilities to handle the technology in a way that contributes to improving their wellbeing. This leads him to conclude that although access to ICTs is important, the distribution of social resources (such as technical support, skill-oriented training, and education) also plays a major role in influencing the extent to which people are able to lead the type of life they value.

Examining the relationship between ICTs and social justice through a capabilities lens, Paré and Smeltzer (2013) outline three conditions influencing how ICTs can potentially enable people to lead lives they value and have reason to value:

1. the extent to which the uses and consequences of ICTs interact in institutional and cultural contexts;
2. the extent to which people can exploit the opportunities ICTs offer to augment their wellbeing; and
3. the extent to which the general public can access a large quantity of quality information that promotes efforts toward social justice and fosters their choices and opportunities.

This view leads them to conclude that "the range of opportunities afforded by ICTs and the ability of people to actually employ those opportunities must shape any determination about the links between ICTs and social justice" (Paré & Smeltzer, 2013, p. 336). Paré and Smeltzer further argue that the Capabilities Approach offers a valuable framework for disentangling the complex relationship between ICTs and people precisely because it fosters recognition of the ways in which both individual-level and structural-level variables influence how, and the extent to which, people can harness the transformative potential of such things as e-government services to achieve desired outcomes.

Echoing Drèze and Sen's (2002, p. 6) claim that the Capabilities Approach is "people-centered" and "puts human agency at the center of the stage," Oosterlaken (2012) maintains that a key advantage of employing this perspective in technology-focused studies is that it puts people rather than technology at the center of the research. Oosterlaken (2012, p. 8) reviews nearly one dozen articles about the relationship between capabilities and technology, and notes that "technology can expand users' capabilities when […] embedded in wider social and physical structures." She maintains that the Internet is a process-related technology that can be useful to expand users' capabilities to achieve functionings such as having good education, participatory democracy, affordable entertainment, and good health. This serves as the basis for her suggestion that technological artefacts require capability sensitive design wherein the latter is understood

as a process for increasing the use of a technology by designing it from the perspectives of users' functional diversity, social values, and environmental conditions. Similarly, Ahmed (2012, p. 167) suggests that any technological artefacts or ICT systems "should be designed in such a way that they actually contribute to expanding the capabilities of […] citizens."

In terms of this dissertation, the significance of the claims advanced by the authors discussed above rests in their calling attention to the important role of social resources and institutional structures in mitigating the benefits that might be actualized from engaging with ICTs systems. Within in mind, the Capabilities Approach is used in this dissertation as a conceptual framework for assessing how the digital inequalities experienced by very recent, recent, and established Nepali immigrants conditions their ability to transform the opportunities afforded by federal-, provincial-, and municipal-level e-government service platforms into valuable functionings.

The discussion in the next section provides an overview of three core capabilities-related concepts that are of central importance to this dissertation: individual wellbeing, human diversity, and conversion factors.

3.2 Wellbeing, Diversity, and Conversion Factors

One of the anchoring concepts of the Capabilities Approach is the notion of wellbeing or quality of life. Relevant factors and indicators of the latter include having a healthy body, being able to work, being educated, having good employment, and being safe. For Sen (1999, 1984), wellbeing is a socio-political concept that is constituted in different socio-cultural contexts and which is affected by five distinct factors:

1. *Individual characteristics*. Every individual is different because of their physicality, mental health, age, gender, and other characteristics. For instance, a disabled person may need more resources for movement; an ill person may need more financial resources to purchase medicines and afford treatment; and a pregnant woman may need a higher nutritional intake than other women or men.
2. *Environmental diversities*. Differences in the environment or climatic situation, or the presence of communicable diseases, may require more resources to normalize the situation. Poor people in cold regions, for instance, may need more warm clothes than people of similar economic status in warm areas.
3. *Diversity in social climate*. Access to public education, health care, public facilities, and social safety are important issues that influence the wellbeing of a person.
4. *Differences in relational perspectives*. This reflects that relatively poor people in affluent countries may be restricted from participating in some events. In conveying this idea, Sen (1999, p. 71) quotes Adam Smith's phrase that, for poor people, to be able to "appear in public without shame," may require a high standard of clothing in a rich community.
5. *Resource distribution and use within the family*. Income and other resources earned by some members of the family may need to be distributed to other members. Thus, the material wellbeing of the family may dictate how much a family can afford and how they may spend the earnings.

Taken together, these five factors make clear that the Capabilities Approach acknowledges human diversity by recognizing every individual as a unique entity with their own personal views about the type of life they value and have reason to value. As

such, Sen's Capabilities Approach recognizes that individuals differ greatly in their abilities to effectively convert the same resources into valuable functionings (i.e., doings and beings). To this end, he explains the notion of wellbeing in relation to three interrelated concepts: usability, conversion factors, and adaptive preferences, as follows.

1. *Usability* refers to the quality of a product or resource (such as, in the context of this dissertation study, e-government service platforms) and how usable it is to intended beneficiaries. The usefulness of the product or resource is, in turn, contingent upon users' personal, social, and environmental conversion factors.
2. *Conversion factors* refer to all material and immaterial opportunities available at personal, social, and environmental levels that enable individuals to convert products or resources into functionings. They are the personal, social, and/or environmental variables that influence how a user can transform available products or resources into valuable functionings.
3. *Adaptive preferences* refer to a situation in which people, as a consequence of their long-term adjustment to an unfavourable environment, accept harsh realities of hostile socio-economic and socio-political situations and so adapt to them instead of expecting to improve their situation.

In explaining what a conversion factor is, Sen (1983) provides the example of a person interacting with a bicycle. An able-bodied person who can ride bicycles and move about efficiently possesses high bike usability, whereas a physically impaired person or someone lacking bicycle-riding skills is faced with very limited use of this device. Thus, the extent to which a bicycle contributes to a person's mobility depends, for one, on the person's physical condition. Sen notes that other social (e.g., traffic rules) and

environmental (e.g., gravel versus paved roads) dynamics may further constrain one's use of a bike or any other object in the environment.

Sen (1999) outlines three types of conversion factor: personal (such as knowledge, education, language, and physical ability), social (such as public regulation, social norms, and discriminatory practices), and environmental (such as location, infrastructure, service availability, and climate). Each is directly relevant to investigating the access and use of e-government service platforms by very recent, recent, and established immigrants to Canada. At a personal level, there is a need to consider issues such as health, age, education, income, ICT skills, and language abilities, and at a societal level, one needs to be sensitive to issues such as cultural restrictions, gender stereotypes, and familiarity with e-government services. Likewise, environmental considerations include ICT infrastructure and the availability of support services. Put simply, the usability of Canada's e-government service platforms—much like a bike—is constrained by the extent to which intended beneficiaries can convert the resources and opportunities they afford into valuable functionings.

Another consideration relating to individual wellbeing is the role of adaptive preferences in the realization of capabilities. Sen (1999, p. 62) notes that:

> Our desires and pleasure-taking abilities adjust to circumstances; especially to make life bearable in adverse situations. The utility calculus can be deeply unfair to those who are persistently deprived [...] The deprived people tend to come to terms with their deprivation because of the sheer necessity of survival; and they may, as a result, lack the courage to demand any radical change, and may even adjust their desires and expectations to what they unambitiously see as feasible.

When compared with other immigrants and native-born Canadians, very recent, recent, and established Nepali immigrants to Canada may have equal access to such resources as e-government service platforms. However, they may not be able to effectively and

efficiently use these tools because of such impediments as limited English and/or French language proficiency, poor ICT skills, and limited income. If e-government service platforms are not designed with sufficient consideration given to the needs of immigrants, these individuals may simply habituate themselves to the existing situation and give up any expectation of better service.

Emphasizing the role of institutions in transforming resources into functionings, Sen (2000, p.142) notes that:

> individuals live and operate in a world of institutions. Our opportunities and prospects depend crucially on what institutions exist and how they function.

According to Nambiar (2013, p.230), "capabilities cannot be improved without enabling institutions" because several important individual activities are facilitated by government agencies and institutions, such as strengthening community networks, establishing public libraries and community centers, and providing ICT support to users. To be specific, capabilities do not independently generate valuable functionings on their own; they are contingent upon socio-environmental contexts.

Having briefly reviewed the positioning of the notions of wellbeing, diversity, and conversion factors within the Capabilities Approach, the discussion in the next section contrasts Martha Nussbaum's arguments about capabilities with those advanced by Sen.

3.3 Nussbaum's View of Capabilities: A Social Justice Perspective

Martha Nussbaum's work on capabilities extends the relevance of the Capabilities Approach to the advocacy of social justice at the global level, emphasizing concepts of human dignity, fundamental capabilities, and threshold. These issues can be important in analyzing the challenging experiences of Nepali immigrants to Canada both as citizens and in terms of their right to enjoy a life with dignity. Nussbaum (2011, p. 18) prefers the

term 'capabilities' instead of its singular 'capability'. This, she claims, serves to highlight multiple elements that are important and qualitatively distinct to each person's wellbeing and quality of life. She notes that multiple aspects of a person's life, such as health, bodily integrity, education, and others cannot be reduced into "a single metric without distortion." According to Nussbaum (2011, p. 20), 'capabilities' refer to "the freedoms or opportunities created by a combination of personal abilities and the political, social, and economic environment."

Even though Nussbaum acknowledges Sen's influence on her work, she, in contrast to Sen's focus on individual wellbeing, focuses on social justice and public policy development (Nussbaum, 2011, 2003, 1997, 1995). In her book *Creating Capabilities,* Nussbaum (2011) posits that the Capabilities Approach can be analyzed from two main perspectives: (a) as an approach for comparative quality-of-life assessment, or (b) as a theory of basic social justice (pp. 18-19). She maintains that Sen's works are primarily centered on "identify[ing] capability […] for purposes of quality-of-life assessment, [and] changing the direction of the development debate" (p. 19), and that he does not give adequate attention to capability failures arising from various forms of discrimination such as caste, ethnicity, gender, race, and sex. In her 2000 book, *Women and Human Development,* she advances develops the Capabilities Approach by advancing the argument that racial and gender discrimination in society are consequences of capability failures,[3] which she defines as the failure of state agencies to ensure life with dignity for marginalized people, including women and immigrants, in the pursuit of economic growth. In this book, she focuses on social justice, understood in terms of *human dignity*

[3] She acknowledges Sen's influence on her works, stating, "I am grateful to Amartya Sen, who helped to formulate the project, and whose work has been, and continues to be, a source of insight and inspiration" (Nussbaum, 2000, p. xvi).

and *threshold*. Human dignity, in her view, is the ultimate goal for society, wherein every individual is treated equally and with dignity so that they can enjoy freedom and justice uniformly. Such equal treatment, she explains, requires a threshold for citizens—a basic level of capabilities, meaning "the innate equipment of individuals that are necessary for developing more advanced capabilities" (Nussbaum, 2000, p. 84)— below which no citizen should fall lest they find themselves unable to enjoy the advantages of a just society (Nussbaum, 2000). She further argues that nation-states should be responsible for ensuring in their laws a threshold for these capabilities for each citizen so that no one lags behind (Nussbaum, 2006).

Within the context of this dissertation, Nussbaum's capability theory of justice serves to highlight the role of nation-states with regard to ensuring that recent immigrants to Canada are not left lagging behind their recent and established and/or non-immigrant counterparts or fall below some minimum national threshold. Yet, under current circumstances it seems all too plausible to hypothesize that very recent Nepali immigrants to Canada may not be able to make full use of Canada's e-government service platforms at the federal, provincial, and municipal levels because of such constraints as lack of English language proficiency, ICT skills, or bodily health (i.e., personal conversion factors) and/or inadequate levels of support from government agencies to elevate their ability to use e-government service platforms to levels comparable with their recent and established immigrant and/or non-immigrant counterparts.

Nussbaum (2011, 2000, 1997) argues that Sen's interpretation of the Capabilities Approach is vague and difficult to apply to real-life situations. This leads her to introduce a list of central human capabilities that she posits can assist individuals and group

members to identify their capabilities and achieve wellbeing and social justice. Nussbaum's motive for introducing a list of central human capabilities is "to put forward something that people from many different traditions, with many different fuller conceptions of the good, can agree on as the necessary basis for pursuing their good life" (Nussbaum, 1997, p. 66). Nussbaum's (2011, 2000, 1997) list of 10 central human capabilities focuses on the following areas:

1. *Life*: being able to live a normal life of an average length
2. *Bodily health*: being able to have good health
3. *Bodily integrity*: being able to move freely from a place of choice to a place of choice
4. *Senses, imagination, and thought*: being able to use one's senses and be able to imagine, think, and reason
5. *Emotions*: being able to have attachments to things and people
6. *Practical reason*: being able to engage in critical reflection about life-planning
7. *Affiliation*: being able to live with friendship and respect
8. *Other species*: being able to live with concerns for other species and nature
9. *Play*: being able to enjoy recreational activities
10. *Control over environment*: being able to have political choices and to hold property

Nussbaum argues that each of the above human capabilities is equally important, and that no capabilities should be traded off against another. This said, it must be noted that Nussbaum's list is the subject of scholarly debate (see, e.g., James, 2018; Crocker, 2008; Robeyns, 2003; Alkire, 2002).

Sen (2005, p. 157), for example, questions "how the exact lists and weights would be chosen without appropriate specification of the context of their use (which could vary)." According to Sen (2005, p. 160), a 'fixed forever' list of capabilities can undermine the value of public reasoning and "deny the possibility of progress in social understanding." Nussbaum (2011) counters such claims by insisting that the capability list is open, flexible, and revisable at any time based on the circumstances of a particular

place, society, or culture, and that without the list, it is not possible to achieve one's full human potential or even to be worthy of being human at all.

Nussbaum (2000, p. 84) argues that access to the given list of central human capabilities matters for the dignified life of a person because these capabilities constitute the "moral entitlements of every human being on earth." Denial of access to any of the given capabilities creates a less dignified situation. She further notes that, both the list of central human capabilities and the concept of threshold can be democratically debated, determined, and implemented by state agencies who are seeking to meet their constitutional guarantees and international human rights obligations.

Nussbaum's framework of social justice posits that a society can only be considered just if people in the society enjoy at least a basic level of capabilities (Nussbaum, 2000). In other words, any individual action or government policy that leaves any member of a society below the threshold of justice is by definition unjust. In her view, every government should therefore ensure a minimum threshold for these capabilities in order to establish a just society that respects every person as a dignified human being (Nussbaum, 2011).

Nussbaum's version of the Capabilities Approach is considered to have more philosophical and theoretical rigour than Sen's (Robeyns, 2005). This view is anchored in the notion that, whereas Sen develops the Capabilities Approach as a flexible and multi-purpose moral framework applicable to different faculties of knowledge, Nussbaum develops it as a theory of social justice, connecting various philosophical perspectives, including Aristotle's view of moral judgement and modern liberalism (Nussbaum, 1997, 1995; Sen, 2005, 1999; Robeyns, 2016a, 2005). The information presented in Table 3.1

summarizes some key differences between Sen's and Nussbaum's versions of the Capabilities Approach.

Table 3.1: Key Differences between Sen's and Nussbaum's Capabilities Approach

Sen's Capabilities Approach	Nussbaum's Capabilities Theory of Justice
1. A general framework for assessing individual wellbeing	1. A normative theory of social justice
2. Specific focus on individual freedom and choices	2. Emphasis on human dignity and its minimum benchmark, i.e., 'threshold'
3. Built on a pragmatic approach, based on liberal political philosophy	3. Built on a philosophical approach, based on moral-legal-political philosophy
4. Argues that human capabilities can differ according to context	4. Identifies 10 central human capabilities, and argues that each is equally important
5. No clear discussion on capability failures arising from various social discriminations	5. Acknowledges capabilities failures arising from various forms of social discrimination
6. Focuses on individuals and the role of conversion factors	6. Focuses on the role of nation-states that should be responsible for addressing capability failures

Despite their contending arguments and theoretical/ philosophical underpinnings, Nussbaum (2011) observes that Sen's and her own perspectives share five essential characteristics. First, both treat individuals as having dissimilar capabilities, and needing specific capability sets to achieve their best functionings. Second, in order "to respect [. . .] people's powers of self-definition" (Nussbaum, 2011, p.18) both perspectives focus on choices and freedoms instead of achievements. Third, both perspectives maintain that people cannot be reduced to "a single numerical value" since they are different in quality and quantity, and that the Capabilities Approach should be able to "[understand] the specific nature of each" (Nussbaum 2011, p. 19). Fourth, both thinkers agree that the Capabilities Approach is concerned with issues relating to social injustice and inequality. Lastly, both perspectives posit that governments should employ the Capabilities Approach as an important public policy tool "to improve the quality of life for all people, as defined by their capabilities" (Nussbaum, 2011, p. 19).

Both Sen's focus on comparative wellbeing and Nussbaum's social justice perspectives are relevant to the purposes of this dissertation. Sen's approach is appropriate because the dissertation aims to assess the challenging experiences of individual Nepali immigrants to Canada with respect to their use of e-government service platforms at federal, provincial, and municipal levels. Similarly, Sen's notion of conversion factors and his recognition of human diversity are crucial considerations for investigating the lived experiences of very recent, recent, and established Nepali immigrants to Canada. Likewise, Nussbaum's list of capabilities and her concept of threshold may help to inform the interpretation of research findings from a social justice perspective.

3.4 Operationalizing the Capabilities Approach

The major concerns of the Capabilities Approach, according to Sen (2005, 1999) and Nussbaum (2011, 2003, 1997) are: (a) whether people actually are able to do something they value; (b) whether people have adequate choices for what they would like to be; and (c) whether real opportunities are available to them. Operationalizing the Capabilities Approach requires a large amount of socio-demographic information for each individual of the research population. According to Sen (2005, 1999), every individual needs a unique set of capabilities to achieve valuable functionings because of their unequal physical and mental abilities, diverse social structures, and different environments. Owing to the requirement for a large amount of individual data, some scholars such as Lessmann (2012) and Martinetti (2006) maintain that operationalizing the Capabilities Approach is far from easy. However, despite its challenging nature, there are dozens of empirical studies (e.g., Anand & Van Hees, 2006; Alkire, 2002; Nussbaum, 1997, 1995;

UNDP, 1990) employing the Capabilities Approach to assess poverty and wellbeing, along with a wide range of labour and development-related topics. The United Nations Development Programme's (UNDP) *Human Development Index (HDI)* is a landmark achievement in this regard.

Since 1990, the UNDP has used the Capabilities Approach as an evaluative tool for measuring the state of human development in different countries under the auspices of its HDI (2016b).[4] The HDI empirically evaluates progress toward human wellbeing in accord with income, education, health, life expectancy, and decent standards of living (Anand & Sen, 1993). These variables are used as indicators to calculate an overall HDI indexing score that ranges from zero to one, where one represents the highest state of wellbeing. For example, Canada's 2020 HDI (0.929) is calculated based on: (a) life expectancy at birth (82.4 years); expected years of schooling (16.2 years); mean years of schooling (13.4 years); and GNI per capita (US$ 48,527) (Human Development Report, 2020). Based on HDI analysis, Canada stood in the 16th position worldwide in 2020.

Layne and Lee (2001) developed a four-stage e-government development model for assessing e-government service platforms based on the opportunities and features they afford for users. The four stages are:

1. accessing e-government service platforms for information purposes;
2. navigating e-government service platforms to search for information and services;
3. conducting financial transaction activities on e-government service platforms to purchase services and products; and
4. users' interactivity with government agencies on e-government service platforms regarding service quality and performance.

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[4] Prior to 1990, human development was most often assessed on the basis of per-capita national income. See, for example, the *Human Development Report 1990*, in which UNDP acknowledges that its previous reports interpreted the notion of human development merely based on the Gross National Product (GNP) (UNDP, 1990).

In outlining the dynamics of a typical e-government service platform, this model also draws attention to digital inequalities such as access gaps, ICT skills gaps, usage gaps, and socio-cultural gaps.

Based on the views set out in the above discussion and keeping in mind the central research question guiding this study — *What are the principal challenges Nepali immigrant users of federal, provincial, and municipal e-government service platforms encounter in seeking to engage with these online tools?* — I elected to use four capability indicators for my project:

1. Immigrants' ability to access and use e-government services at the federal, provincial, and municipal levels.
2. Immigrants' ability to navigate e-government service platforms at the federal, provincial, and municipal levels.
3. Immigrants' ability to conduct financial transaction activities on e-government service platforms at the federal, provincial, and municipal levels.[5]
4. Immigrants' ability to engage in client service activities on e-government service platforms at the federal, provincial, and municipal levels.

These four indicators represent both Layne and Lee's (2001) the four stages of e-government development and Nussbaum's central human capabilities. The first and second indicators assess digital access and ICT skills gaps. The third indicator assesses use gaps, and the fourth deals with Nepali immigrant e-government users' engagement in decision-making or policy-making activities when using these platforms. Collectively, these capability indicators are designed to address different forms of digital inequalities that affect users' ability to convert resources and opportunities offered on e-government service platforms into valuable functionings. The information presented in Table 3.2

[5] The *2013 Report of the Auditor General of Canada* found that many Canadian users felt hesitant to conduct financial transactions via online channel, and often relied on telephone conversations and visits to physical offices. Given there has been no follow-up study in the past five years, it seemed relevant to assess immigrant e-government platform users' ability to conduct financial transaction activities on e-government service platforms.

outlines how these four indicators were operationalized for this project. Four capability indicators broadly cover four major functions that users can perform on e-government service platforms at federal, provincial, and/or municipal levels. For example, at the federal level, the government of Canada, through its *canada.ca* portal, offers various public services relating to permanent residence card applications and renewals, citizenship applications, tax submissions, passport applications, and employment insurance applications. At the provincial level, the government of Ontario's portal *ontario.ca* offers services relating to driver's licenses, vehicle plate renewals, health card renewals, identity card applications, birth certificate and name change applications, and registrations and/or renewals of business licenses. Similarly, the official websites of municipalities in Ontario (e.g., the City of Toronto's *toronto.ca* and City of Ottawa's *ottawa.ca*) offer various online services including parking, property taxes, recreational facilities, health and safety, and water and sewage.

Moreover, a number of public inquiries through traditional channels (such as in-person visits, mail delivery, and telephone services) with regard to government services may also be conducted through e-government service platforms. For example, a client visiting any Service Canada office may be asked to search for more information on the e-government service platform to fill out a form, make an online payment, or send documents or updates via email.

Table 3.2: Capability Indicators of Using e-Government Service Platforms

Capability indicators	Functionings (Beings & Doings)	Variables
• Ability to access and use e-government service platforms at the federal, provincial, and municipal levels	• Being able to search for information for permanent resident card renewal • Being able to download forms for Canada's passport application • Being able to apply for employment insurance, birth certificates • Being able to submit tax information • Being able to renew driver licences/ health cards/ car license plate stickers • Being able to search for government job opportunities • Being able to pay property taxes/ utility bills, parking tickets • Being able to submit service requests	• Using any of the services provided on e-government service platform at the federal level • Using any of the services provided on e-government service platform at the provincial level • Using any of the services provided on e-government service platform at the municipal level
• Ability to navigate e-government service platforms and services at the federal, provincial, and/or municipal levels	• Being able to understand available information (reading/writing/typing) • Being able to search for government opportunities and services • Being able to locate specific webpages on e-government service platforms • Being able to decide the best key words to search for information on e-government service platforms	• Rating experiences of navigating e-government service platforms at the federal level • Rating experiences of navigating e-government service platforms at the provincial level • Rating experiences of navigating e-government service platforms at the municipal level
• Ability to conduct financial transaction activities on e-government service platforms at the federal, provincial, and/or municipal levels	• Being able to conduct financial transaction activities (such as paying service fees) • Being able to trust financial transactions through online channels • Being able to submit annual taxes through e-government service platforms	• Conducting financial transaction activities on e-government platforms at the federal level • Conducting financial transaction activities on e-government platforms at the provincial level • Conducting financial transaction activities on e-government platforms at the municipal level

• Ability to engage in client service activities on e-government service platforms at the federal, provincial, and/or municipal levels	• Being able to participate in government-hosted online polls within the last five years • Being able to complete customer satisfaction online surveys with government agencies to provide feedback • Being able to participate in government hosted online discussions	• Participating in client-service activities on federal e-government service platforms • Participating in client-service activities on provincial e-government service platforms • Participating in client-service activities on municipal e-government service platforms

Each of the four capability indicators in Table 3.2 can be converted into functionings (beings and doings) contingent upon the personal, social, and environmental conversion factors mediating users engagements with e-government service platforms. This relationship can be displayed as a formula:

Capability indicator X *Conversion factors* = *Functionings*.

The conversion factors examined for the study are presented in Table 3.3.

Table 3.3: Conversion Factors Potentially Affecting the Use of e-Government Services

Levels	Conversion Factors
Personal	• Motivations to use e-government service platforms • Good health/able-bodied to use e-government service platforms • Access to ICT devices/ Internet/ e-government service platforms • ICT knowledge/skills (reading/writing/typing) to use the Internet • Information navigation skills on e-government platforms • Ability to understand e-government content in the given languages
Social	• Trust in e-government service platforms with regard to protecting users' personal information • Familiarity and awareness of the available services and resources at the federal, provincial, and municipal levels • Use of family or friends for resolving issues and decision-making • Public policies, social norms, and practices (gender, income, employment) • Cultural approval to use e-government service platforms
Environmental	• Access to digital infrastructure, including ICT devices, high-speed Internet, and e-government service platforms • Access to community centers and public libraries with computer and Internet facilities • Access to technical support for users while using e-government service platforms • Availability of e-government content in multiple languages

Suppose some Nepali immigrants to Canada want to pay for their monthly water and sewage bills using the municipal e-government service platform (i.e., capability to conduct financial transactions). Whether these individuals can actually make use of this service is contingent upon personal, social, and environmental conversion factors. At the personal level, those who want to use municipal-level e-government services to pay utility bills must be motivated to use these particular platforms: one of several transaction channels available for doing so. If they lack such motivation, they can visit a physical office or make contact via telephone to pay their monthly water and sewage bills. They also need to be in good enough health to use the service on a municipal e-government platform. Users with poor eyesight or fragile health are less likely to be able to use the platform. They also need to be able to afford ICT devices and services and have the skills to use them effectively. These hypothesized immigrants also must also possess the necessary ability to understand the English and/or French language content provided on the platform(s).

At the social level, our hypothesized immigrants must trust that their personal information will be safe and protected, and that information provided will not be used other than the stated purpose(s). As well, these individuals must not be restricted from using computer and Internet services on the basis of any socio-cultural grounds, such as gender or ethnicity.

At the environmental level, they should have access to digital infrastructure (e.g., high-speed Internet, 24-hour service) and trust that the personal information they share will be both protected and safe so that financial transactions can be successfully carried

out on the e-government service platforms. They also should have access to a technical support system when conducting financial transactions.

The investigation of the above four capability indicators of immigrants is, therefore, important in terms of assessing the research participants' ability to access and use e-government service platforms.

3.5 Conclusion

The discussion in this chapter has reviewed the Capabilities Approach, as proposed by Sen (2005, 1999, 1984) and Nussbaum (2011, 2000, 1997). It is this perspective that serves as the conceptual framework guiding the research design and data analysis at the core of this dissertation. In the next chapter, I turn my attention to the research methodology and the strategies and techniques for data collection and data analysis.

Chapter 4: Research Methodology

The discussion in this chapter sets out the research methodology used to assess the experiences of Nepali immigrants to Canada who are users of e-government service platforms at the federal, provincial, and municipal levels. The chapter is divided into five sections. The first sets out the parameters of the mixed-methods research explanatory sequential design (ESD) used for this project. The discussion in the second section traces the first stage of data collection, including the participant selection process. The survey questionnaire and the survey data analysis process also are discussed. The third section deals with the second stage of the project and elaborates on the data collection strategy used for the focus group sessions as well the means by which the data were analyzed. The final section concludes the chapter.

4.1 Research Design

A mixed-methods explanatory sequential design was used to conduct the research for this dissertation (see Figure 4.1). According to Creswell (2013, 2014), mixed-methods ESD entails conducting research in two stages. For this project, it involved designing and conducting a questionnaire survey to gather quantitative data about the experiences of Nepali immigrants to Canada who are users of federal-, provincial-, and/or municipal-level e-government service platforms. Once the survey data had been collected and analyzed, focus group discussions were conducted to assist with interpreting the survey findings. Ethics clearance for conducting my research was obtained from the Research Ethics Board of the University of Ottawa (see Appendix 4.1).

Figure 4.1: A Visual Model for the Mixed-methods Explanatory Sequential Design Procedures (Adapted from Ivankova et al., 2006)

Stages	Procedures	Product
Quantitative data collection	• Questionnaire survey with Nepali immigrants to Canada living in Ontario	• Numeric data
Quantitative data analysis	• Performing data cleaning • Analyzing data using the SPSS/Stata software • Preparing descriptive and inferential analyses	• Descriptive statistics • Regression results
Connecting quantitative & qualitative stages	• Identifying key ideas/issues of the quantitative analysis that need further explanation	
Qualitative data collection	• Developing Focus Group Discussion (FGD) questions • Conducting two pilot tests of the FGD questions and finalizing the questions • Conducting focus group discussions	• Focus group discussion transcripts
Qualitative data analysis	• Preparing a thematic analysis	• Codes • Themes • Quotes
Integration of qualitative and qualitative results	• Interpreting quantitative and qualitative results	

The strengths of the mixed-methods ESD approach include:

1. it allows for a more complete and synergetic understanding of a research problem from qualitative and quantitative perspectives;
2. the two-stage approach allows researchers to build upon and further interrogate findings from the first stage; and
3. issues that cannot be interpreted quantitatively may be interpreted by qualitatively.

4.1.1 Rationale for Using Nine Socio-demographic Variables

Given that the Capabilities Approach is the conceptual anchor of this dissertation, nine socio-demographic variables – identified from past studies and government reports focusing on immigrants' use of ICTs – were investigated as potential factors influencing the ability of Nepali immigrants to Canada to successfully access and engage with federal-, provincial-, and municipal-level e-government service platforms. These variables were:

1. Immigration status: This variable categorizes the respondents as either very recent immigrants (i.e., living in Canada for less than five years) or recent and established immigrants (i.e., living in Canada for five years or more). Several studies (see, for example, Popova, 2019; Zaidi et al., 2015; Haight et al., 2014; Chen, 2010) suggest that length of stay in a host country's environment influences the likelihood of immigrants' using ICTs and e-government services. Based on these findings, I hypothesized that the length of stay of Nepali immigrants to Canada may be a predictor of their use of e-government service platforms because the longer an individual lives in Canada, the higher are the chances that they will have had opportunities to familiarize themselves with the government services available online. Seen through the lens of the Capabilities Approach, immigration status may be categorized as a personal conversion factor.
2. Language proficiency: Mensah, Vera, and Mi (2018), Idris (2016), Mikal and Woodfield (2015), Barth and Veit (2011), Chen (2010), and Heisler (2008) all report that immigrants' proficiency with their host country's language(s) influences how likely individuals are to access and use online services. In accord with these findings,

I hypothesized that levels of English and/or French language proficiency would likely be predictors of Nepali immigrants' use of federal-, provincial-, and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, language proficiency may be categorized as a personal conversion factor.

3. ICT skills: Williams et al. (2017), Barth and Veit (2011), and Tsai (2006) found that immigrants with strong ICT skills were more motivated to use online services. Similarly, Reddick and Turner (2012) noted that a large proportion of the Canadian public preferred using traditional channels such as telephone calls and in-person visits to public offices to access government services as opposed to accessing them online. In the light of these findings, I hypothesized ICT skills would likely predict whether Nepali immigrants to Canada use federal-, provincial-, and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, ICT skills may be categorized as a personal conversion factor.
4. Immigrant category: Statistics Canada (2019) classifies immigrants into four categories: economic-class, family-class, refugee-class, and other. These categories reflect, among other things, the particular life circumstances of individual immigration applicants. Based on the differing merit-based criterion upon which these categories are defined, I hypothesized that immigration category would likely be a predictor of whether Nepali immigrants to Canada use federal-, provincial-, and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, immigration category may be categorized as both a personal and an environmental conversion factor because a person’s immigration category

depends on the government's criteria for given classifications, which is beyond their individual control.

5. Age group: Age has been shown to influence peoples' behaviour in using ICTs and online services (see, for example: Haight et al., 2014; Mensah, Vera, & Mi, 2018; Okunola, et al., 2017; Yoon, 2016; Tripp, 2010). It also is an important criterion in Canada's immigration system, which assesses how well immigrants can integrate into the Canadian labour market and contribute to the domestic economy. As such, I hypothesized that, here too, age would be a predictor of whether Nepali immigrants to Canada use federal-, provincial-, and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, age may be categorized as a personal conversion factor.
6. Gender: Kabbar and Crump (2006) note that in some cultures female family members are restricted from using computers and the Internet, especially outside of their own home or in public places. The findings of Hong and Choi (2020), Mensah, Vera, and Mi (2018), and Okunola et al. (2017) also show how gender can either negatively or positively affect a person's access to computing facilities and the Internet. Based on these findings, I hypothesized that gender would be a predictor of Nepali immigrants' use of federal-, provincial-, and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, gender may be categorized as both a personal and a social conversion factor given that it is a social construct.
7. Level of education: Okunola et al. (2017) found that education level affects immigrants' access to computing facilities, the Internet, and e-government services. Likewise, Hong and Choi (2020), Mensah, Vera, and Mi (2018), Williams et al.

(2017), Alam and Imran (2015), and Haight et al. (2014) also demonstrate that 'level of education' influences immigrants' behaviour in using online and government services. As such, I hypothesized that the level of education of Nepali immigrants to Canada would be a predictor of their use of federal-, provincial-, and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, level of education may be categorized both a personal and a social conversion factor.

8. Household income[1]: Hong and Choi (2020), Okunola et al. (2017), Haight et al. (2014), and Selsky et al. (2013) all report finding income to be a predictor of users' behaviours in accessing ICT devices, affording Internet services, and using e-government services. Based on these findings, I hypothesized household income would be a predictor of Nepali immigrants' use of federal-, provincial-, and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, household income may be categorized as a social conversion factor because it is a group income.
9. Employment status: Okunola (2017) found that employed people were more likely to access and use computing facilities, the Internet, and e-government services than those who were not employed. More recently, Hong and Choi (2020) have similarly noted that South Korea's baby boomer populations are likely to use e-government services if they are employed. With this in mind, I hypothesized that employment status would likely be a predictor of Nepali immigrants' use of federal-, provincial-,

[1] The survey respondents were categorized in terms of their annual household incomes in accordance with Canada's Federal Personal Tax brackets for 2019 and 2020: low-level income: 0 to $47,630 per year; mid-level income: $47,630 to $95,259 per year; and high-level income: over $95,260 per year. See https://www.taxtips.ca/taxrates/canada.htm

and/or municipal-level e-government service platforms. Seen through the lens of the Capabilities Approach, employment status may be categorized as both a personal and an environmental conversion factor because employment opportunities are associated with external institutional settings and economic factors.

In sum, the above socio-demographic characteristics are, for the purposes of this dissertation, understood as conversion factors that mediate an individual's ability to convert opportunities into meaningful functionings. Given that personal conversion factors can have overlapping associations with social and environmental conversion factors, they represent both personal strengths and weaknesses as well as externally imposed social and environmental paradigms.

The discussion in the next section outlines the processes and procedures involved in the first stage of data collection for the dissertation.

4.2 Stage 1: Questionnaire Survey

The first stage of the research involved designing a questionnaire and conducting a survey to collect quantitative data about the use of e-government services at federal, provincial, and municipal levels by Nepali immigrants to Canada. Questionnaire surveys are a widely used means of gathering information about immigrants' experiences (see, for example, Veronis & Ahmed, 2016; Okunola, 2015; Reddick & Turner, 2012). The survey questionnaire designed for this dissertation was loosely based on a questionnaire developed by Okunola (2015) for their Ph.D. dissertation *Users' experience of e-government services: A case study based on Nigeria Immigration Service (NIS)*, submitted to Manchester Metropolitan University, U.K. Okunola used a questionnaire

survey to investigate the experiences of 351 respondents regarding their use of the NIS website,[2] and the impact of digital inequalities among the website's users.

The rationale for my using a questionnaire survey as a data-gathering tool was the need to reach as many Ontario-based Nepali immigrants as possible within a limited timeframe. Given the large geographical dispersion of this target population, the voluntary nature of the research, and resource constraints under which this project was being conducted, the questionnaire survey was made available for completion by respondents in both online and offline formats.

The data for this stage of the project was gathered using purposive sampling. This is a type of non-probability sampling technique that relies on the judgment of the researcher when selecting research units (such as people, events, or data) that need to be investigated further (Creswell, 2014). This strategy allowed me to identify and approach potential participants who possessed a pre-defined shared set of characteristics, and to obtain a sufficient representation of my target population (Creswell, 2013). The sought after characteristics in this instance were Nepali immigrants to Canada who had used the country's federal-, provincial-, and/or municipal-level e-government service platforms or any combination thereof, within the previous five years. In addition, potential survey participants had to be first-generation immigrants (i.e., foreign born), 18 years of age or older, and residents of Ontario. International students and temporary workers were not included in the sample because they are not immigrants, and Canadian governments are not accountable to them in the same manner or to the same extent as permanent residents.

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[2] The Nigeria Immigration Service (NIS) is an agency of the Nigerian government that provides both on- and off-line government services to Nigerians living abroad and immigrants to Nigeria. Like Immigration and Citizenship Canada, the NIS provides several services via a centralized e-government service platform. See, https://immigration.gov.ng/#.

4.2.1 Participant Selection and Data Collection Process

I chose to focus on users of e-government service platforms as the research population in order to assess different skills and usage levels and patterns with regard to both accessing and navigating online government services. By excluding non-users from the research process, I recognize that my research overlooks a segment of the Nepali immigrant community whose experiences may nonetheless have implications for findings of my dissertation. To this end, I acknowledge that the findings set out in the subsequent chapters reflect, in part, a survivor bias— i.e., a tendency to view those who have voices, and to ignore the voiceless (Vansteelandt, Dukes, & Martinussen, 2018).

There is an additional facet of bias in the sampling process that I also must acknowledge. Specifically, the issue of positionality and how my being a male member of the Nepali immigrant community in Canada may have impacted my data collection process. Being a male researcher operating in a South Asian cultural milieu, it is plausible that I may have unknowingly gravitated more toward other male Nepali immigrants during my visits to community gatherings at which my project was being discussed and at which community members were invited to participate. Likewise, individuals who spoke on my behalf about my work at other community events I was unable to attend were predominantly male. Furthermore, the majority of subscribers to the NRNA mailing-list that was used to electronically distribute my call for survey participants are male. In this context, it is important to recognize the issue of positionality precisely because in a South Asian cultural context, females are often observed to be hesitant to participate in activities facilitated by males. Taken together, it seems plausible, therefore, that these factors may help account, in part, for the gender imbalance in the number of survey

respondents as well as having potentially influenced the observed research findings.

The following is an outline of the steps taken to identify potential respondents and to collect data using the questionnaire survey.

First, I contacted several Nepali community centers and organizations in Ontario to help me disseminate the call for survey participants. Given my membership in the Non-Resident Nepali Association of Canada (NRNA), the largest network of Nepali immigrants to Canada, I benefitted from being able to request that information about my survey be circulated among its members. The NRNA sent an email to its approximately 800 Ontario-based members inviting them to participate in my project. The email message, which was sent in English and Nepali, provided a brief description of the project (i.e., objectives, participation criteria, deadline for survey submission), and a digital link to the online version of the questionnaire that was posted on *Qualtrics.com.* It also informed potential participants that hard copies of the questionnaire were available from the NRNA office in Toronto and other Nepali community centers in Brampton, Mississauga and Ottawa. Interested individuals were given a two-week period (February 17 to March 3, 2019) to compete the questionnaire. On February 24, 2019, the NRNA sent a follow-up email reminding members about the survey questionnaire and the submission deadline. Other Nepali organizations who also assisted in disseminating information about my project were: the International Nepali Literature Society-Ottawa, Nepalese-Canadian Association of Ottawa, Nepal Embassy of Canada, Canada Foundation for Nepal, Association of Nepali Students at the University of Ottawa, Canadian Bhutanese Association (CABTAS), Non-Resident Nepali Association-Canada, Nepalese Canadian Heritage Center, Malton Nepali Samaj, and Concerned Nepal. These

organizations helped disseminate the recruitment information by publishing a digital poster about the project on their websites and social media pages, and by also distributing printed copies of the poster.[3]

During this same period, I also conducted four short information sessions (two in Ottawa and two in the Greater Toronto Area) at different community gatherings to let members of the Nepali immigrant community know about my project. Of the four community gatherings, the first was an Ontario-wide community sports event organized by NRNA Canada in Toronto. The remainder were cultural gatherings, with one in Toronto and two in Ottawa on different dates, organized by different community organizations (i.e., NRNA Canada, Nepali Cultural Association of Ottawa, and International Nepali Language and Literary Society). Given that my research has to do with the wellbeing of the Nepali society in a broad sense, I was provided the opportunity at each event to speak about my work and to invite community members to participate.

Of the 281 questionnaire surveys received by the deadline, 274 were submitted digitally. The seven remaining paper-based surveys were transcribed into digital versions and incorporated into the database used to analyze the survey data. Twenty of the 281 responses were removed from the sample because the respondents did not meet the inclusion criteria. More specifically, nine responses were submitted from outside Ontario,[4] and four were from international students of Nepali origin living in the province. Seven responses were received either with 'no' or 'prefer not to specify' as answers to all the questions. These also were removed from the sample. After this triage,

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[3] The poster distribution service provided by NRNA is completely free for its members. A copy of the recruit poster used for this project is provided in Appendix 4.2.

[4] The location of the nine respondents in question was identified using information provided by the *Qualtrics.com* platform.

there remained 261 questionnaires whose data were suitable for analysis.

According to the 2016 Census, the last year for which census data were available,[5] there were 19,285 immigrants of Nepali origin living across Canada. Unfortunately, I could not find any information about the total population of Nepali immigrants living in Ontario. In order to estimate of the in-province Nepali population, I calculated it as a proportion of Ontario's population in Canada. The total population of Canada in 2016 was 35,151,728, 38.7% of which was accounted for by Ontario's population. Extending this proportion to in-province Nepalis equates to 7,458 people. Given that my survey sample size (n= 261 respondents) accounts for approximately only 3.5% of my calculated estimate of the in-province Nepali immigrant population. I acknowledged the need for caution in seeking to generalize any findings.

4.2.2 Structure of the Questionnaire Survey

The questionnaire survey consisted of 40 closed-ended questions, including multiple-choice statements, yes/no questions, and 5-point Likert Scale-based questions (see Appendix 4.3). These questions were structured in accord with the themes set out below:

Socio-demographic information: Ten socio-demographic questions/statements[6] asking about the respondents' year of immigration to Canada, the municipality in which they lived, their immigration category, age, gender, level of education, household income, employment status, language proficiency, and ICT skills.

Access to and use of e-government services: Nine questions about the respondents' use of e-government services and their motivations for doing so; three for each level of government (i.e., federal, provincial, and municipal).

Ability to navigate e-government services: Four questions focusing on the respondents' ability to navigate federal, provincial, and municipal e-government service platforms.

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[5] The most recent Canadian census took place in the Spring of 2021.

[6] One of the ten socio-demographic questions asked about the municipality in which the respondent lived. The answers to this question were used only to ensure the respondents resided in Ontario.

Ability to conduct transaction activities: Nine questions—three for each level of government—dealing with the respondents' involvement in conducting financial transaction activities (such as paying service fees and submitting government taxes) on e-government service platforms.

Ability to engage in client service activities: Eight questions dealing with the respondents' engagement in client service activities, and interaction with government employees via federal, provincial, and municipal e-government service platforms.

Prior to being publicly distributed, the survey was pilot-tested with 22 individuals who met the inclusion criteria (see Appendix 4.4). The objective of this exercise was to ensure the clarity of the questions posed in terms of simplicity of language and appropriateness of terminology, to identify missing information, and to assess the applicability of the survey data in SPSS software. Once the data from the pilot exercise had been gathered, a preliminary analysis of the collected pilot data was conducted using the SPSS software. The objective here was to ensure the effectiveness of the study in accomplishing the research objectives.

Ideally, the survey questionnaire would have been prepared in both of Canada's official languages, English and French. However, given my lack of French language proficiency, and the Nepali fluency of the target respondent population, the questionnaire was prepared only in Nepali and English.

4.2.3 Data Analysis of the Survey

Once the survey had been piloted, copies were disseminated via email, and physically distributed, with the potential respondents given a 15-day period (February 17 to March 3, 2019) to complete and return them. After all the survey responses had been received and downloaded from *Qualtrics.com*, the data were cleaned and prepared for analysis, including merging hard copy data into the database, removing data that did not meet

submission criteria, removing outliers, and coding and recoding variables (combining some categories that had limited responses) to simplify the process of data analysis. Then, the 'clean' data were loaded into the SPSS software suite (IBM SPSS Statistics, Version 23) to conduct descriptive, statistical, and regression analyses. Outputs of the survey analysis helped inform the questions that served as the basis for Stage 2 of the project.

4.3 Stage 2: Focus Group Discussion

Stage 2 of the project involved conducting five virtual focus group discussions[7] with members of the Nepali immigrant community in Ontario. The purpose of these meetings was to leverage the participants' experiences in assisting to interpret the survey findings and their implications. Lederman (1990) maintains that participants in focus group discussions can share their common experiences with more willingness than if interviewed individually. According to Glibbs (1997), a focus group provides an opportunity for participants to recall and reconsider their own ideas based on peers' arguments and experiences. By listening to their peers' opinions and thoughts, participants can recall their own memories, share relevant incidents, and confront or criticize peers' ideas and arguments. Due to the outbreak of the global COVID-19 pandemic in 2020, public health guidelines restricted in-person physical meetings.[8] The virtual focus group context, like the one necessitated by the pandemic, enabled me to meet virtually with small groups of members of the Nepalese immigrant community to

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[7] Originally, Stage 2 was intended to involve semi-structured interviews with 15-20 government officials, policymakers, and technical experts. However, after analyzing the data gathered in Stage 1, it became clear that follow-up discussions with members of the Nepali immigrant community would be better suited to addressing the issues raised by the findings emerging from the survey data.

[8] See, https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/mass-gatherings-risk-assesment.html

Canada without having to travel or gather at a specific venue. An additional advantage of this modification is that, as noted by Hennink (2014), when individuals are participating from their own places of comfort (i.e., in the case of this project, their homes), focus group participants are likely to be more willing to share their experiences. Moreover, the, issues and personal experiences they raise are likely to be important for them to understand in relation to other participants. Lederman (1990, p. 119) maintains that "the data generated [in focus group discussions] are often richer and deeper than data elicited in a one-to-one interview situation." Hence, rigorous interactions among focus group participants could help in interpreting and analyzing the issues identified in the survey.

Table 4.1: Strategies to Address Shortcomings of the Focus Group Discussions

General Shortcomings of Focus Groups	Responses to the Shortcomings
1. Focus groups are not effective in small sample sizes. They are not good representations of a large population (Hennink, 2014)	The use of focus group discussions was a complementary data collection method to address key issues identified in a sample of 261 participants.
2. Some participants may dominate the discussion, and others may feel pressure to provide similar answers. (Hennink, 2014)	All participants were asked to speak in turn, scheduled in alphabetical order. Each focus group participant was encouraged to respond to each question and the follow-up questions in order to have an interactive discussion.
3. Some participants may be hesitant to share personal experiences with others in a group setting. (Hennink, 2014)	Participants were informed prior to the event that: a) the discussions were about the difficulties they faced when using e-government services; b) no personal information would be requested; c) they were under no obligation to respond to any of the questions posed.
4. Some participants may lead group discussions onto non-relevant topics. (Hennink, 2014)	If any off-topic issues were raised, the researcher guided the discussion back to the topic of focus.

In conducting focus group meetings, there are a number of potential data collection shortcomings that need to be mitigated (Hennink, 2014; Glibbs, 1997; Morgan, 1996). The information presented in Table 4.1 lists four of the most salient challenges (Hennink, 2014), and the strategies I employed to address them.

Before conducting the focus group meetings, two pilot focus group events were held, each with five participants, to test the effectiveness of the focus group discussion questions, as well as to understand the issues to be raised. After the first pilot focus group meeting, two sub-questions were removed and other questions were improved in their clarity and precision. The second pilot focus group discussion helped to further improve the group discussion protocol by indicating additional ground rules aimed at making the focus group discussion more effective and focused.

4.3.1 Participant Selection and Data Collection Process

Participants for the focus group meetings were identified via convenience sampling and snowballing techniques.[9] In order to recruit participants, I called upon the NRNA's services a second time to assist me in identifying 25-30 potential participants from among its membership who, in a virtual focus group setting, could share their experiences of using federal-, provincial-, and/or municipal-level e-government service platforms. The recruitment message for this stage of the research also included a synopsis of the project along with information about the objectives of the focus group discussions, participant inclusion criteria, and my contact details. The criteria for identifying and selecting participants for the focus group discussions were the same as those for the questionnaire survey.

Within one week of the call for participants having been circulated, I received enough responses from interested persons who met the inclusion criteria to proceed. I then emailed all focus group participants with a brief synopsis of the survey findings, a

[9] The snowballing technique is a process of selecting participants through referrals from confirmed participants from among their acquaintances. This technique is used when sample population is limited and/or hard to find (Neuman & Robson, 2012).

list of issues to be discussed, and a link to a doodle poll that allowed individuals to identify meetings dates and times that were most convenient for them. Once all participants had identified their preferred dates/times, I grouped them accordingly and emailed each individual the scheduled dates and time of their session along with a Zoom link (with an ID and password). Each of the five focus group meetings had five participants, and each participant engaged in only one session.

The focus group discussion protocol guide consisted of five open-ended questions based on the key findings of the questionnaire survey that were deemed as needing further exploration, explanation, and/or interpretation. Three categories of findings from Stage 1 were deemed as requiring further discussion:

1. findings that stood in contrast to those set out in existing literature and/or which identified unique trends;
2. issues that needed further explanation and interpretation to assist the researcher ascertain the factors accounting for the findings; and
3. issues relating to trust-related considerations that the quantitative nature of the questionnaire survey could not adequately address.

The rationale for using open-ended questions was that these types of questions enable a researcher to collect participants' ideas, perceptions, and experiences as opposed to collecting data, facts, or statistics (Oppenheim, 1992), and enable the participants to "express their own ideas spontaneously in their own words" (Oppenheim, 1992, p. 70). The questions used for the focus group sessions were designed to elicit information about the challenges experienced by Nepali immigrants to Canada in relation to their English language proficiency, ICT skills, motivations for using e-government service platforms, engagement with e-government service platforms, and their trust in the capacity of these platforms to protect their personal information (see Appendix 4.5).

Each of the five focus group events was organized via the Zoom online conferencing platform and conducted in the Nepali language, since all participants were native speakers of that language. Although I took every precaution to maintain the confidentiality of the participants' data, I was aware of the fact that the nature of focus groups prevents one from guaranteeing confidentiality among the participants of individual groups.[10] So, I asked the participants in each group to respect the privacy of their fellow participants. By signing the informed consent form, the participants provided written confirmation of their agreement: (i) not to disclose any information discussed in the focus group sessions; and (ii) and to having the focus group discussion recorded on my laptop via the Zoom online conference platform. The video-recording was important for accuracy and clarity when transcribing each discussion.

In line with Lederman's (1990) observation that 45-90 minutes is an ideal period for a semi-structured focus group discussion, each meeting lasted approximately one hour in duration.

4.3.2 Data Analysis of Focus Group Discussions

The following steps were followed in transcribing and analyzing the focus group data.

First, and in accord with the suggestion of Strauss and Corbin (1990), once each virtual focus group event was completed, a verbatim transcription of the recorded discussion was prepared in Nepali and then translated into English. A unique code was assigned to each participant when transcribing the data in order to protect their privacy and ensure their anonymity. Each participant was coded with 'FGD' followed by two

[10] Prior to the start of each focus group meeting, the participants were asked to carefully read and sign an informed consent form they had each already received via email with a link to the DocuSign software, which allows users to read and sign agreements, consent forms, legal documents electronically. Once each party signs the document, they can keep a copy of the document as a default.

numerical digits, of which the first digit represented the group number and the second represented the alphabetical order of the participant in the group. For example, the code 'FGD13' represents a focus group participant from Group 1 whose name placed them third among the group members in terms of alphabetical order. Likewise, the code 'FGD45' represents a focus group participant from Group 4 whose name placed them fifth among the group members in terms of alphabetical order.

Second, the focus group participants' responses to each question were collated in a separate table to understand the extensiveness and intensity of their responses to the particular questions. Then, the participants' responses were rearranged where necessary into a particular sequence of questions and sub-questions, because each question's discussion included multiple additional questions to ensure clarity. Rearranging the responses was important to ascertaining which information the participants deemed more relevant when addressing the issues raised in the focus group discussions.

Third, after a careful examination of the available data, I started coding the data manually, following Strauss and Corbin (1990), in three stages: open coding, in which I coded small units of data, axial coding in which similar codes were connected and grouped into categories, and selective coding in which I identified and developed key themes by connecting different categories (see, for example, Tables 4.2). I began by identifying small units of ideas (e.g., ideas pertaining to software, hardware, jargon, or legal terms) as well as sentences or small paragraphs that could help me describe, interpret, or classify key issues from the survey findings.

Table 4.2: Sample of Data Coding Process of the Focus Group Question 2

Q: Have you experienced any ICT skills-based difficulties/challenges when it comes to accessing and using e-government service platforms?

Open codes ⇒	**Axial codes ⇒**	**Selective code**
• Buying cheap computers • Not having scanners/printers • Not being able to afford ICT devices	Hardware-related issues	ICT skills-based difficulties
• Not knowing about program specifications • Not knowing about how to convert Word document into PDF format • Not knowing how to upgrade software online	Software-related issues	
• Browser not supporting • Not opening CRA account • Having multiple accounts	Website-related issues	

This process of open coding helped me formulate preliminary concepts and ideas about the issues discussed in the focus group meetings. Then, I started connecting multiple open codes, identifying certain kinds of relationships, and grouping them into different categories (e.g., software-related issues, hardware-related issues, and website-related issues). This process of axial coding enabled me merge scattered ideas, develop basic concepts, and create linkages among the data gathered from the focus group meetings. I then connected these axial codes to identify major themes that helped interpret or explain the key issues from the survey findings that were contrary to the existing literature or that showed inconsistent behaviour across federal-, provincial-, and/or municipal-level e-government service platforms. This process of selective coding helped me to group together relevant experiences and arguments put forward by the of focus group participants regarding their experiences using e-government service platforms.

After completing the coding processes, the most striking or relevant quotes were included in different sections to represent different themes. Then, multiple thematic sections were prepared for each of the five focus group questions, based on the participants' experiences and challenges and the strategies they reported using to resolve them.

4.4 Conclusion

The discussion in this chapter set out the methodology used to conduct the empirical component of this dissertation. Two complementary data collection methods were used. Stage 1, which was quantitatively oriented, involved designing and conducting questionnaire survey to collect data about the experiences of Nepali immigrant users to Canada regarding their use of federal-, provincial-, and/or municipal-level e-government service platforms. Stage 2, which was qualitatively oriented, involved conducting five focus group meetings with Nepali immigrant users to Canada aimed at interpreting and explaining key issues identified by the questionnaire survey.

The discussion in the next chapter presents an analysis of the data obtained from the questionnaire survey and the resultant findings.

Chapter 5: Survey Findings: Immigrants' Use of Canada's e-Government Service Platforms

The discussion in this chapter uses descriptive and inferential statistics to provide an analysis of the survey participants' responses to questions about their ability to use, and experiences with using, federal-, provincial- and municipal-level e-government service platforms. The chapter is divided into four sections. The first presents a descriptive overview of the survey respondents on the basis of their socio-demographic characteristics. The second provides an overview of the respondents' use of federal-, provincial- and municipal-level e-government service platforms.[1] The third offers a descriptive analysis of respondents' experiences while navigating these platforms. The chapter concludes with a brief summary of the findings.

5.1: Socio-demographic Information

A total of 261 respondents, comprised of 70.1% (n=183) males and 29.5% (n=77) females completed the survey (see Appendix 5.1). All the respondents were first-generation Nepali immigrants to Canada who reside in 16 different cities[2] across the province of Ontario. The vast majority of these individuals (84.3%, n=220) immigrated to Canada in 2014 or earlier. In other words, the vast majority of respondents are, as per Yssaad and Fields' (2018) definition, recent immigrants.[3] Slightly more than half (51.7%,

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[1] I would like to thank Prof. Dinesh Gajurel, Faculty of Business Administration, University of New Brunswick, for his for his assistance and guidance with the statistical analysis.

[2] The 16 cities are: Brampton (n=47), Brantford (n=1), Cambridge (n=2), Guelph (n=2), Hamilton (n=2), Kingston (n=3), Kitchener (n=2), London (n=1), Milton (n=1), Mississauga (n=29), Oshawa (n=3), Ottawa (n=104), Thunder Bay (n=5), Toronto (n=44), Waterloo (n=1), and Windsor (n=14).

[3] Recall, Yssaad and Fields (2018) categorizes immigrants in three groups:
very recent immigrants: those who have lived in Canada as landed immigrants for a period of less than five years;
recent immigrants: those who have lived in Canada as landed immigrants for a period of 5 years but

n=135) identified themselves as economic class[4] immigrants. The two next largest immigration categories were comprised of individuals who self-identified as refugee class[5] (24.9%, n=65) and family class[6] immigrants (13.4%, n=35). It was not particularly surprising to find approximately one-quarter of the respondents self-identified as refugee class immigrants given that, in 2017, Canada set out a multi-year immigration level plan in which 310,000 immigrants were expected in 2018, 330,000 in 2019, and 340,000 in 2020 (Government of Canada, 2017). Across these years, the proportion of immigrants (per immigration category, targeted in 2020) was meant to breakdown as follows: economic class 57.6% (n=195,800), family class 26.8% (n=91,000), refugee class 14.3% (n=48,700), and others 1.3% (n=4500) (Government of Canada, 2017).[7] Within my sample, however, the proportion of refugee class immigrants whose mother tongue is Nepali was almost double the government estimate. That is, 24.9% of the survey respondents self-identified as refugee class immigrants. According to the 2016 Census, there were 19,285 people living in Canada whose mother tongue was Nepali (Statistics

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less than 10 years; and *established immigrants:* those who have lived in Canada as landed immigrants for more than 10 years.

4 Statistics Canada (2019) defines economic class immigrants as individuals "who have been selected for their ability to contribute to Canada's economy through their ability to meet labour market needs, to own and manage or to build a business, to make a substantial investment, to create their own employment or to meet specific provincial or territorial labour market needs."

5 Statistics Canada (2019) defines refugee class immigrants as individuals "who were granted permanent resident status on the basis of a well-founded fear of returning to their home country…for reasons of race, religion, nationality, membership in particular social group or for political opinion (Geneva Convention refugees) as well as persons who had been seriously and personally affected by civil war or armed conflict, or have suffered a massive violation of human rights."

6 Statistics Canada (2019) defines family class immigrants as individuals: "who were sponsored by a Canadian citizen or permanent resident and were granted permanent resident status on the basis of their relationship either as the spouse, partner, parent, grand-parent, child or other relative of this sponsor."

7 I compared the annual estimates and the actual admission of immigrants to Canada in 2018, 2019, and 2020. According to Statistics Canada (2019), a total of 321,065 immigrants, including all categories (no category-specific breakdown available), were admitted to Canada in 2018. There are 11,065 more immigrants than the target estimate. Likewise, a total of 373,677 immigrants were admitted in 2019; 43,677 more than the target estimate. Comparable data for the year 2020 was not available at the time of writing (May 2021). See https://www150.statcan.gc.ca/n1/en/catalogue/91-002-X

Canada, 2017a). This figure includes 6500 (33.7% of 19,285) Bhutanese refugees of Nepali ethnicity who have been brought to Canada on humanitarian grounds since 2007 as a part of the federal government's third country settlement program (UNHCR, 2020).

The largest proportion of respondents was between 38 and 47 years of age. Individuals in this category comprised slightly more than one-third (37.2%, n=97) of the sample. Almost one half (47.5%, n=114) of respondents reported having completed graduate-level education. Indeed, individuals holding a Master's degree make up the largest portion of the total respondents (41%, n=107), followed by undergraduate degree holders (19.5%, n=51) and secondary school graduates (11.9%, n=31). This finding may be explained, in part, by the fact that university education plays a vital role in qualifying for economic class immigrant status, i.e., higher education levels award higher scores when applications for permanent residency are assessed by Immigration, Refugees, and Citizenship Canada (Government of Canada, 2019b).[8]

With respect to annual household income levels, some 43.3% (n=113) of respondents self-identified as being in households in the low-income tax bracket (i.e. 0 to $47,630 per year), and slightly more than one-third (36%, n=94) indicated belonging to the mid-level household income category (i.e. $47,631 to $95,259 per year).

[8] Immigration, Refugees and Citizenship Canada evaluates the applications of economic class immigrants based on a comprehensive ranking system (CRS) in which scores are calculated on the basis of 1200 points. An applicant with spouse obtains 30 points if they have completed secondary education, 120 points if they have completed a four-year bachelor degree, 135 points for having completed a two-year Masters degree, and 150 points (the maximum) for having completed a PhD degree. The scoring is somewhat different for applicants without a spouse. See, https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/express-entry/eligibility/criteria-comprehensive-ranking-system/grid.html

Slightly less than one half of the survey respondents (47.1%, n=123) reported being employed in the private sector, with 10.7% (n=28) reporting being government employees, and 9.2% (n=24) identifying as self-employed. Students and other types of jobholders (such as part time employment) comprised 16.1% (n=42) of the sample.

An overwhelming majority of respondents expressed greater comfort speaking English than French (see, Appendix 5.2), with some 60% (n=155) rating their English language proficiency as either excellent or very good. The average English language proficiency score of respondents was 3.71.[9] By contrast, more than 90% (n=244) of respondents identified their French language ability as poor or very poor. The average French language proficiency score among respondents was 1.31.[10]

The respondents, by and large, reported being familiar with using ICT devices; with more than 57% (n=158) rating their ability to use such devices as very good or excellent (see, Appendix 5.3). The average ICT skills score of the respondents was 3.79.[11]

In sum, a majority of the respondents were males, living in Canada for five or more years, who came to the country as economic class immigrants, possess university-level education, are proficient in English language, and tend to be employed in low earning jobs.

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[9] The average composite score of English language proficiency was calculated as the sum of scores (based on a Likert scale where very poor=1 and excellent=5) of the individual components (writing, speaking and comprehension) divided by 3. For example, if a respondent had 5 in English writing, 4 in English speaking and 3 in English Comprehension, the average score was calculated as: (5+4+3)/3=4.

[10] The average composite score of French language proficiency was calculated as the sum of scores (based on a Likert scale where very poor=1 and excellent=5) of the individual components (writing, speaking and comprehension) divided by 3. For example, if a respondent had 5 in French writing, 4 in French speaking and 3 in French Comprehension, the average score was calculated as: (5+4+3)/3=4.

[11] The average composite score of ICT skills was calculated as the sum of scores ((based on a Likert scale where very poor=1 and excellent=5) of the individual components (computers, smartphones, others) divided by 3. For example, if a respondent has 5 in computer, 4 in smartphone and 3 in others, the average score is (5+4+3)/3=4.

5.2 Respondents' Use of e-Government Service Platforms

More than two-thirds (72.8%, n=190) of respondents affirmed using federal-level government services within the last five years via the www.canada.ca platform. Slightly more than one-quarter (25.7%, n=67) of respondents indicated that they had not used federal-level e-government service platforms, and the remaining 1.5% (n=4) did not specify their situation. The information presented in Table 5.1 sets out the findings regarding the specific services respondents reported using. The three topmost activities reported by the 190 respondents comprising this user group were: searching for information about Canadian citizenship (75.3%, n=143), downloading Canadian passport application (62.1%, n=118), and searching for information for Permanent Resident (PR) Card renewal (60.5%, n=115).

Table 5.1: Respondents' Use of the www.canada.ca Platform (N=190) [12]

Federal e-Government Service Used	Yes (%)	No (%)	# of responses
Search for information about Canadian citizenship.	75.3	17.6	182
Download forms for Canadian passport application.	62.1	27.4	176
Search for information for Permanent Resident (PR) Card renewal.	60.5	30.0	175
Search for federal-level job opportunities.	48.9	43.7	180
Submit income tax oneself.	45.3	46.8	179
Apply for a Canada Student Loan.	43.7	45.3	175
Download application forms to sponsor a family member from the country of birth.	41.1	49.5	177
Apply for Employment Insurance (EI).	39.5	51.1	179

Slightly more than two-thirds (66.3%, n=173) of respondents indicated using provincial-level government services within the previous five years via the www.ontario.ca platform. Slightly less than one-third (31.4%, n=82) reported not having

[12] The list of services presented in Table 5.1 was set out *a priori* in the survey.

used this platform, with some 2.3% (n=6) not responding to the question. The information presented in Table 5.2 sets out the findings regarding the specific services respondents reported using at this level. Among the 173 respondents comprising this user group, the three most frequently used services were: renewing driver's licenses (68.2%, n=118), renewing Ontario Health Cards (66.5%, n=115), and renewing automobile licence plate stickers (61.8%, n=107).

Table 5.2: Respondents' Use of the www.ontario.ca Platform (N=173) [13]

Provincial e-Government Service Platforms Used	Yes (%)	No (%)	# of responses
Renewed driver's license.	68.2	28.3	168
Renewed my Ontario health card.	66.5	30.1	167
Renewed my car's license plate sticker.	61.8	31.2	165
Searched for provincial-level job opportunities.	52.6	42.8	167
Applied for childcare benefits.	48.0	43.4	164
Applied to the Ontario Student Assistance Program	44.5	47.4	166
Applied for my child's birth certificate.	37.0	35.3	166

Slightly more than two-thirds (67.4%, n=176) of respondents affirmed using municipal-level e-government services within the previous five years via official online platforms such as www.ottawa.ca. The remaining nearly one-third of respondents (30.3%, n=79) reported not using any such services during this period, with some 2.3% (N=6) not responding to the question. The information presented in Table 5.3 sets out the findings regarding the specific services respondents reported using at this level. Among the 176 respondents comprising this user group, the three most frequently used services were: paying monthly utility bill (88.6%, n=156), updating mailing address (86.4%, n=152), and paying property tax (68.8%, n=121).

[13] The list of services presented in Table 5.2 was set out *a priori* in the survey.

Table 5.3: Respondents' Use of Municipal-level e-Government Platform *(N=176)* [14]

Municipal e-Government Service Platforms Used	Yes (%)	No (%)	# of responses
Paid a monthly utility bill.	88.6	9.1	172
Updated mailing address information.	86.4	11.4	172
Paid property tax.	68.8	26.7	171
Searched for municipal level job opportunities.	46.0	48.9	171
Paid a fine.	35.8	58.5	170
Submitted a service request.	26.1	67.6	169
Registered a complaint.	14.8	75.6	167

Overall, the most frequently used services across all three levels of government appear to be very much connected to the settlement needs and priorities of recent immigrants.

5.2.1 Motivations For Using e-Government Service Platforms

Respondents who self-identified as having used e-government service platforms at some point in the last five years were also asked to rate possible motivations for doing so in accordance with a five-point Likert scale.

The 190 respondents who reported using the federal-level e-government service platform expressed being comfortable with doing so (composite score 4.25), and indicated they could afford the technology required to access the available services (composite score 4.25).[15] The responses also suggest these individuals were motivated to use the federal-level e-government service platform because they were comfortable with the language used for the service offerings (composite score 4.21), being able to access the services offered any time they wished (composite score 4.18), and being able to save

[14] The list of services presented in Table 5.3 was set out *a priori* in the survey.

[15] The composite score for each of the motivation statements was computed as: $\sum fw/\sum f$ where *f* refers to frequency (count) for each Likert scale and *w* refers to weight. The following weighting scheme was followed: *strongly agree*=5; *agree*=4; *undecided*=3; *disagree*=2, and *strongly disagree*=1. For example, the average score for the statement "I am comfortable with using the FGOS" was computed as (80*5+82*4+17*3+7*2+1*1)/(80+82+17+7+1)=4.25.

time by using these online services (composite score 4.17) (see Table 5.4).

Table 5.4: Motivations for Using e-Government Service Platforms

Motivation Statements	Composite Scores		
	Federal (n=190)	Provincial (n=173)	Municipal (n=176)
I am comfortable with using e-government service platform	4.25	4.32	4.23
I can afford the technologies needed to use e-government service platform	4.25	4.31	4.26
I understand the language used in the e-government service platform offerings.	4.21	4.25	4.17
I can access e-government service platforms at any time I wish.	4.18	4.26	4.15
Using e-government service platforms saves me time.	4.17	4.33	4.25
The types of e-government service platforms I want to access are available online.	4.15	4.28	4.18
I have adequate technology skills to use e-government service platforms.	4.14	4.28	4.25
I can access the e-government service platform from any place of my choosing.	4.09	4.20	4.16
I am inclined to use e-government service platforms given my past experiences.	3.97	.4.09	3.96
I can locate relevant content I need among the e-government service platform offerings.	3.95	4.13	4.02
The e-government service platforms are easy to use.	3.91	4.20	4.07
I prefer to speak with an e-government service platform representative via telephone.	3.62	3.60	3.63
I prefer to visit an actual office.	3.26	3.60	3.35

As shown in Table 5.4, the 173 respondents who reported using the provincial-level e-government service platform, also expressed being comfortable doing so (composite score 4.32), and being able to afford the technology required to access the available services (composite score 4.31). The responses also suggest individuals were motivated to do so because they were comfortable with the language used for the service delivery offerings (composite score 4.25), able to access the services offered any time they wished (composite score 4.26), and able to save time by using these online services (composite score 4.33).

The 176 respondents who reported using the municipal-level government service platforms likewise expressed being comfortable doing so (composite score: 4.23) and being able to afford the technology required to access the available services (composite score: 4.26). The responses suggest these individuals also were motivated to use municipal government platforms because they were comfortable with the language used for the service delivery offerings (composite score: 4.17), able to access the services any time they wished (composite score: 4.15), and able to save time by using these services (composite score: 4.25).

In sum, the most common variables identified by the respondents as motivating their use of federal-, provincial-, and municipal-level e-government service platforms include: the ability to understand the language used to deliver content; the ability to afford and handle ICT devices; the ability to find the services wanted; being comfortable with using online services; wanting to save time; and desiring to access services from anywhere at any time. The discussion in the next sections looks at these considerations in more detail.

5.2.2 Examining Challenges to Immigrants in Using e-Government Service Platforms

Haight et al., (2014) Veenhof et al., (2008), Winter (2007), and Wayland (2006) all suggest that recent immigrants to Canada face three major challenges in using e-government service platforms:

1. not being adequately familiar with the government services available online;
2. limited proficiency with either of Canada's official languages; and
3. limited ICT skills which, in turn, impede one’s ability to potentially benefit from opportunities available at e-government service platforms.

In this sub-section, I examine these challenges in relation to the context of Nepali immigrants to Canada. My guiding assumption is that the first two of the above challenges are applicable to very recent Nepali immigrants to Canada. There are two reasons for this. First, they have been in the country for five years or less. Second, online government services are limited in Nepal, suggesting that very recent Nepali immigrants to Canada may have limited prior experience with this form of service delivery. I hypothesize that the third assumption (i.e. limited ICT skills) is less likely to be manifest because in the years since the above studies were published, mobile phones and other ICTs have become increasingly pervasive throughout Nepal.[16] Furthermore, the scoring criteria applied for categorizing economic class immigrants to Canada directly and indirectly align with the likelihood of having some level of proficiency in using various ICTs.[17]

In testing the first of the three challenges listed above, I used the respondents' reported number of years in Canada as a proxy for their familiarity with e-government service offerings at the federal, provincial and municipal levels.[18]

Respondents who reported using the federal-level e-government service platform within the past five years had, on average, been living in Canada for 8.6 years whereas

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[16] According to the Nepal Telecommunications Authority (2021), in May 2021 the mobile penetration rate in Nepal was 128.08%, with mobile phone subscriptions outnumbering Nepal's total population. Official data from the Nepal Telecommunications Authority shows that as of October 2017, Nepal was adding 250 Internet users every hour, connecting 16.67 million Nepalis. See Neupane (2018).

[17] The Federal Skilled Worker Program (Express Entry) has six selection factors: (a) English and French language skills (maximum 28 points); (b) Level of education (maximum 28 points); (c) Work experience (maximum 15 points); (d) Age (maximum 12 points); (e) Arranged employment in Canada (maximum 10 points); and (f) Adaptability (maximum 10 points). Applicants for economic class status need to score at least 67 points out of a possible 100 from the six selection factors. For more information, see https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/express-entry/eligibility/federal-skilled-workers/six-selection-factors-federal-skilled-workers.html

[18] Here, my assumption was that the longer a respondent has been in Canada, the more likely they are to be familiar with government services on and offline.

those who reported not doing so during the same period had been living in the country for an average of 7.9 years. I conducted a paired t-test using number of years living in Canada as a proxy for the use of e-government service platforms at the federal (t-stat: -0.87, df=255, p>0.05), provincial (t-stat: 0.70, df=253, p>0.05), and municipal (t-stat: -0.76, df=253, p>0.05) levels. The findings suggest that there is no statistically significant difference between those who reported using, and those who reported not doing so in terms of their length of stay in the country. In other words, within my sample, the respondents' length of stay in Canada did not predict their use of federal-, provincial-, or municipal-level e-government service platforms.

In order to investigate this matter further, I used a bivariate logistic regression analysis. A simple regression analysis, or linear regression, was not an appropriate tool to use here because I was working with binary dependent variables (i.e., the response category is coded as 1 (yes) and 0 (no)) and nine independent variables with multiple categories in each (Pallant, 2007). Using a linear model is meant to be contingent on the dependent and independent variables being continuous and the quantitative distribution of all variables used for the models should be normal. However, the dependent variables I was working with are categorical and the quantitative distribution of the dependent variables used is not normal (Pallant, 2007). Put simply, I could not assume the presence of a linear relationship between variables. As such, bivariate logistic regression analysis was the most appropriate tool to use precisely because it assumes a non-linear relationship between variables.

I began my analysis by examining the respondents' likelihood of using e-government service platforms based on their immigration status (i.e. very recent

immigrants (n=220) versus recent and established immigrants (n=41). The results, measured in terms of an odds ratio[19] (OR), revealed that recent and established immigrants were less likely to report having used federal-level e-government service platforms than their recent immigrant counterparts (OR=0.29, $p<0.05$, 95% CI: 0.146-0.584). Put simply, Nepali immigrants who have been in Canada for less than five years were found to be more likely to use federal-level e-government service platforms than their recent and established immigrant counterparts. This finding seemingly contradicts those of Haight et al. (2014), and Chen (2010) who found that early immigrants are more likely to use ICTs and host-country websites than their 'recent' counterparts.[20] Three plausible explanations for differences between their findings and those presented here are:

1. very recent immigrants have prior experience using the federal government's online platform insofar as the process of applying to immigrate to Canada is exclusively administered by an online application system;
2. the immigration settlement process is handled by the federal government of Canada, and necessary information and services for new immigrants are available on the federal-level e-government service platform;
3. the rapid worldwide growth of mobile phone users throughout the last decade has served to make certain ICT skills more pervasive internationally.

In terms of the likelihood of having used provincial (OR=1.21, $p>0.05$, 95% CI:0.500-2.100) and/or municipal (OR=0.51, $p>0.05$, 95% CI: 0.257-1.010) e-government service platforms, no statistically significant differences were identified between very recent and

[19] An Odds Ratio (OR) is a statistical quantifier that measures the strength of association between a dependent variable (e.g., respondents' use of federal-level e-government service platforms) and an independent variable (e.g., immigration status). Tabachnic and Fidell (2007, p. 461) define the odds ratio as "the change in odds of being in one of the categories of outcome when the value of a predictor increases by one unit."

[20] Haight et al. (2014) use the term 'recent' immigrants to describe those who immigrated to Canada within less than five years, and 'early immigrants' for those (immigrants living in Canada five years or more). Chen's (2010) study used three timeframes (very recent immigrants: less than 5 years; recent immigrants: 5 to less than 10 years, and early immigrants: 10 years and more).

recent and established immigrants. Taken together, the above findings are noteworthy because they point to the presence of differences in usage patterns across the three levels of government being investigated. To this end, it seems plausible that the differences may be linked in some way to the types of services offered across differing levels of government.

In order to interrogate the notion that limited language proficiency constrains the use of e-government service platforms, I began by conducting a two-tailed t-test for equality of the average composite English language proficiency scores of very recent immigrants (composite score: 3.487) and recent and established immigrants (composite score: 3.750). The findings showed no statistically significant difference between these two groups (t-stat: 1.614, df=259, $p>0.05$). The results of a two-tailed t-test results French language proficiency scores also showed no statistically significant difference (t-stat: 1.1242, df=259, $p>0.05$) in the average composite scores of these two groups.

Given the absence of any statistically significant difference in the English language proficiency of the very recent and recent and established immigrants in the sample, I then treated the two groups as one to conduct Chi-squared, t-test, and logistic regression analyses examining the impact of English language proficiency on the respondents' use of federal-, provincial-, and municipal-level e-government service platforms. First, I performed a Chi-squared test using the composite English language proficiency scores of the individual respondents to examine whether an association could be identified between their scores and their reported use of the federal-level e-government service platforms. The test identified a statistically significant association between these two variables (χ^2 = 67.302, df=12, $p<0.05$). Then, I performed a one-tailed t-test using the composite English

language proficiency scores[21] to assess whether there was a statistically significant difference between the language proficiency of respondents who reported using the federal-level e-government service platforms in the last five years and those who did not. The findings suggested that English language proficiency scores of respondents who reported using the federal-level e-government service platforms were higher than those who reported not using them to a statistically significant extent (t-stat: -8.129, df =255, $p<0.05$). Similar results were obtained for provincial (t-stat: -6.527, df =253, $p<0.05$) and municipal (t-stat: -8.528, df =253, $p<0.05$) levels.

The last step involved performing a bivariate logistic regression analysis to examine how well English language proficiency predicts the likelihood of respondents' reporting having used online government service platforms. For this regression, the aggregate English language proficiency scores of the respondents were treated as an independent variable, and the reported use of e-government service platforms as a dependent variable (i.e., binary outcome (Yes=1; No=0)). The result showed that respondents with higher English language proficiency were more likely to report having used federal- (OR = 3.47, $p<0.05$, 95% CI: 2.369-5.089), provincial- (OR=2.52, $p <0.05$, 95% CI: 1.823-3.474), and municipal-level (OR=3.53, $p<0.05$, 95% CI: 2.433-5.130) e-government service platforms than those reporting lower English language proficiency. Taken together, these findings offer support to the claim that limited English language proficiency may impede the ability of very recent and recent and established Nepali immigrants to use e-government service platforms at all three levels of government in Canada.

[21] The mean score of English language proficiency was 3.97 (S.E.=0.057) for respondents who reported using the federal-level e-government service platforms, and 2.98 (S.E.=0.127) for those who reported not using the services

With respect to the challenge of limited ICT skills impeding Nepali immigrants' use of e-government service platforms, I began by performing a two-tailed t-test to compare the mean ICT skills scores of very recent and recent and established immigrants using mean composite scores (very recent immigrants: 3.772, and recent and established immigrants: 3.792). The test result showed no statistically significant difference between the average ICT skills of these two groups (t-stat: 0.112, df=259, $p>0.05$). This finding supports my assumption about very recent immigrants not having limited ICT skills compared to their recent and established immigrant counterparts.

Given that the very recent and recent and established immigrant groups within my sample were found to have similar ICT skills levels, I treated the two groups as one to conduct Chi-squared, t-test, and bivariate logistic regression analyses examining the impact of the respondents' ICT skills on their reported use of e-government service platforms. First, I conducted a Chi-squared test to examine whether an association could be identified between these two variables. The findings identified a statistically significant relationship between ICT skills and reported use of e-government service platforms ($\mathcal{X}^2$= 80.418, df=11, $p<0.05$).

Then, I conducted a one-tailed t-test comparing the mean ICT skills score of respondents who reported using the federal-level e-government service platform within the last five years (average score=4.087) with those who reported not doing so (average score=2.99). The findings showed that respondents who reported using these services within the last five years at the federal level reported having ICT skills stronger to a statistically significant extent than those who reported not using these services in the

same period (t-stat: -8.299, df=255, $p<0.05$). Similar results were obtained for provincial (t-stat: -9.247, df =253, $p<0.05$) and municipal (t-stat: -9.665, df =253, $p<0.05$) levels.

Lastly, I used a bivariate logistics regression to assess the impact of ICT skills on the likelihood of respondents' reporting having used federal-, provincial-, and municipal-level e-government service platforms within the last five years (see Appendix 5.4). The findings suggest that respondents with higher ICT skills were more likely to report having used online government services at the federal- (OR=3.03, $p<0.05$, 95% CI: 2.179-4.222), provincial- (OR=3.31, $p<0.05$, 95% CI: 2.377-4.609), and municipal-level (OR=3.54; $p<0.05$, 95% CI: 2.510-4.978) than those who reported having lower ICT skills. This finding is in line with those of others who have identified connections between differences in ICT skills and the likelihood of using e-government service platforms (see, for example, Baum & Mahizhnan, 2015; Okunola, 2015; Reddick & Turner, 2012; Bwalya, 2009).

From here my attention turned to examining how well the six other socio-demographic variables (i.e., immigration category, age group, gender, level of education, household income, and employment status) predict the likelihood of respondents' reporting having used e-government service platforms within the last five years. This assessment is important because each of these variables may influence the likelihood of respondents using federal-, provincial-, and/or municipal-level e-government service platforms. Moreover, in the light of finding differences in the propensity of very recent and recent and established immigrants to use the federal-level e-government service platforms, it seemed plausible that some of these socio-demographic variables might also

have differing use-related impacts across the three levels of government being investigated.

In this dissertation, the immigration category was used as a separate variable because I hypothesize that different immigration categories (i.e., economic class, family class, and refugee class) may predict the likelihood of respondents' use of Canada's e-government service platforms. For example, it seems plausible that applicants for the economic class category may be more competent in using e-government service platforms than their family class and refugee class counterparts because the economic class immigrants are selected after assessing their socio-demographic merits (e.g., their ability to comprehend Canada's official languages, having post-secondary education, age). Those applying to the family class and refugee class categories are brought to Canada on family sponsorship or humanitarian grounds rather than giving priority to their perceived socio-demographic merits.[22]

The logistic regression analysis of the influence of immigration category found that economic class and family class immigrants were more likely to report having used federal- (economic class: OR=10.96, $p<0.05$, 95% CI: 5.278-22.769; family class: OR=2.99, $p<0.05$, 95% CI: 1.253-7.130), provincial- (economic class: OR=7.70, $p<0.05$, 95% CI: 3.937-15.061; family class: OR=4.46, $p<0.05$, 95% CI: 1.853-10.891), and municipal-level (economic class: OR=11.56, $p<0.05$, 95% CI: 5.691-23.462; family

[22] Government of Canada. (2019, September 6). *Assessment of an application for permanent residence.* See, https://www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/permanent-residence/non-economic-classes/family-class-application-permanent.html#how

class: OR=3.23, p<0.05, 95% CI: 1.369-7.619) e-government service platforms than their refugee class counterparts.[23]

When examining age as a predictor of using of e-government service platforms, a statistically significant relationship was identified with regard to the 58-67 age group. Respondents in this group were found to be less likely to report having used federal-level e-government service platforms within the last five years than their counterparts in the 18-27 age group (OR 0.23; p<0.05, 95% CI: 0.051-0.980).[24] This finding is consistent with Haight et al.'s (2014) observation that, as the age increases, the likelihood of using ICTs and Internet decreases among immigrants to Canada. Within my sample, however, age does not appear to predict the likelihood of respondents' using provincial and municipal-level e-government service platforms (see Appendix 5.4).

In terms of the predictive power of gender,[25] the males in my sample were found to be more likely than females to report having used federal- (OR = 3.13, p<0.05, 95% CI: 1.736-5.624), provincial- (OR=3.33, p<0.05, 95% CI: 1.893-5.969), and municipal-level (OR=4.13, p<0.05; 95% CI: 2.323-7.348) e-government service platforms. This finding is consistent with Haight et al.'s (2014) observation that immigrant women in Canada were less likely to report their online activity than their male counterparts.

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[23] The survey questionnaire included three immigration categories plus the options ‘other’ and ‘prefer not to specify.’ Seven responses were received with the ‘other’ option selected. This category of responses was dropped from the logistic regression analysis because it predicted success perfectly. In other words, it is not mathematically possible to determine the coefficient and standard errors for such a covariate.

[24] The survey questionnaire contained six age group categories, starting from 18 and divided into 10-year intervals up to a final category of 68 and older. The 68 and older age group was dropped from the regression analysis because it predicted failure perfectly. In other words, it is not mathematically possible to determine the coefficient and standard errors for such a covariate.

[25] I acknowledge that the term ‘gender’ is not a dichotomous concept; it is more of a socio-cultural concept than a biological one. Within this dissertation, however, the manner in which the term 'gender' is used represents biological sex: male and female.

The respondents' education level[26] was also found to be a predictor of using federal-level e-government services. The findings showed that respondents with graduate level (OR=14.54, p<0.05, 95% CI: 6.474-32.633), professional/vocational level (OR=3.77, p<0.05, 95% CI: 1.671-8.509), and undergraduate level (OR=5.03, p<0.05, 95% CI: 1.603-15.779) education were more likely to report having used federal-level e-government service platforms than respondents with secondary-level education or lower. Similar findings were observed at the provincial and municipal levels (see Appendix 5.4). This observation is consistent with those of Okunola (2015), Haight et al., (2014), and Vicente and Novo (2014) who all found level of education to be a predictor of respondents' use of ICTs and/or online government services.

In examining whether annual household income was a predictor of the respondents' use of the federal-level e-government service platform, those in the high-income (OR=4.76, p<0.05, 95% CI: 1.722-13.165) and middle-income (OR= 9.75, p <0.05, 95% CI: 2.637-31.584) categories were found to be more likely to report having used this platform than respondents in the low-income category. Similar findings also were observed with regard to use of provincial-, and municipal-level e-government service platforms (see Appendix 5.4). These findings are consistent with those of Okunola (2015) and Vicente and Novo (2014) who report that respondents with a high level of household income are more likely to use ICTs, Internet and online government services.

Lastly, employment status also was found to predict of the respondents' use of the

[26] The survey questionnaire contained nine categories for the level of education variable (including 'prefer not to specify'). Considering the limited sample frequency and aiding logistic regression, this variable was re-grouped into four categories: secondary level or lower; undergraduate level; professional and vocational degree; and graduate level. When running the logistic regression with original categories 'no formal education', 'elementary school level', secondary level', and 'doctorate degree' were dropped because of these categories predicted the success/failure perfectly. In other words, it is not mathematically possible to determine the coefficient and standard errors for such a covariate.

federal-level e-government service platform.[27] Specifically, those who identified as self-employed (OR= 34.37, $p<0.05$, 95% CI: 6.588-179.352), employed (OR=17.26, $p<0.05$, 95% CI: 6.934-42.938), and students (and other) (OR=6.49, $p<0.05$, 95% CI: 2.305-18.724) were found to be more likely to report having used this platform than those who identified as unemployed. Similar results were obtained with regard to using provincial-, and municipal-level e-government service platforms (see Appendix 5.4). This finding is consistent with those of Okunola (2015) and Vicente and Novo (2014) who report that employment status predicts respondents' likelihood of using ICTs and online government services.

To sum up, each of the nine socio-demographic variables examined was found to predict respondents' use of e-government service platforms at the federal level. However, only seven of the nine variables (excluding immigration status, and age) were found to also predict use at provincial and municipal levels. These findings suggest that the predictive value of the socio-demographic variables examined cannot be taken as given across platforms at the three levels of government investigated. The findings also suggest that immigration category, a variable introduced by the researcher, does have predictive value insofar as individuals falling in the economic and family class categories were found to be more likely to have used e-government service platforms than their counterparts in the refugee category.

The discussion in the next section sets out how I used multivariate regression analysis to assess how groups of socio-demographic variables might be simultaneously

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[27] The survey questionnaire contained six categories of employment, that were regrouped into 4 categories for the purpose of the logistic regression: unemployed, students (includes others), self-employed, and employed (includes government and private-sector employee). There is no distinction between private sector and government sector employees in terms of full time employment.

influencing the respondents' use of e-government service platforms. For this analysis, I used the following multivariate regression model:

$$eGovt = \beta_0 + \beta_1 ImmigrationStatus + \beta_2 EngLgProf + \beta_3 ICTSkills + \beta_4 ImmigrationCategory + \beta_5 Age + \beta_6 Gender + \beta_7 Education + \beta_8 Income + \beta_9 Employment + \varepsilon$$

where,

eGovt = if use of e-government service platforms equals 1, 0 otherwise (base category),

ImmigrationStatus= if recent and established immigrants equals 1, 0 otherwise (base category),

EngLgProf= English language proficiency,

ICT Skills= ICT skills,

ImmigrationCategory= if refugee immigrants equals 0 (base category), family immigrants equals 1, economic immigrants equals 2,

Age= if age group 18-27 equals 0 (base category), 28-37 equals 1, 38-47 equals 2, 48-57 equals 3, 58 and over equals 4,

Gender= if male equals 1, 0 otherwise (base category),

Education= if secondary or lower equals 0 (base category), professional/vocational equals 1, undergraduate equals 2, graduate equals 3,

Income= if low income equals 0 (base category), mid income equals 1, high income equals 2,

Employment= if unemployed equals 0 (base category), others equals 1, self-employed equals 2, and employed equals 3, and

ε = error term

This kind of analysis is important for identifying patterns and relationships among multiple variables. It also contributes to understanding the effect of change in one variable on other variables.

5.2.3 Respondents' Use of e-Government Service Platforms

The first step in conducting the multivariate logistic regression analysis involved performing a Spearman correlation[28] to evaluate the degree of association between the nine socio-demographic variables examined[29] (see Appendix 5.5). The test results identified positive statistically significant associations between:

- English language proficiency and ICT skills (r_s =0.711, p<0.05);
- English language proficiency and level of education (r_s =0.455 p<0.05);
- ICT skills and level of education (r_s =0.435, p<0.05); and
- Level of education and immigration category (r_s =0.536=8, p<0.05).

These findings pointed to the potential presence of a multicollinearity problem. According to Pallant (2007, p. 149), multicollinearity exists "when the independent variables are highly correlated" with one another. Multicollinearity is problematic because it contributes to weakening and/or diminishing the predictive value of some of the independent variables. In the presence of multicollinearity, estimates of associations between independent variables and the outcomes will have relatively large standard errors, making the estimates likely to lose statistical significance (Pallant, 2007).[30] For example, if two independent variables, X^1 and X^2, are included in a multivariate

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[28] Spearman's correlation is a non-parametric measure that assesses monotonic relationships between two categorical variables. Although Kandel's tau and Spearman's rho may be used in similar situations, the former often is used for smaller sample sizes, whereas the latter is used for larger values. I chose to use Spearman's rank correlation because it is more sensitive to errors and discrepancies in data, and is more widely used than Kandel's tau. See, Pallant (2007).

[29] Given that the socio-demographic variables are categorical, I was not able to rank or otherwise weigh differences in the influence they exert on the use of e-government service platforms.

[30] The standard error of the estimate is a measure of the accuracy of predictions. When the standard error is large relative to the estimate, the estimate is likely to be non-significant.

regression model where Y is a dependent variable, the regression coefficients for X^1 and/or X^2 may lose their statistical significant due to larger standard errors.

In order to avoid this issue, a logistic regression analysis model was developed, spanning three separate columns within which each column excluded strongly correlated variables (see Table 5.5). All three columns are the extension of the same model but exclude certain variables so as to avoid the problem of multicollinearity. For example, Column 1 presents the findings regarding the predictive value of the respondents' English language proficiency and the other six controlling variables on the respondents' use of federal-level e-government service platforms. In this column, the variables ICT skills (r_s =0.711, p<0.05), and level of education (r_s =0.455, p<0.05) are excluded because each has a statistically significant association with English language proficiency. Column 2 sets out the findings dealing with the predictive value of ICT skills, and six other controlling variables, with regard to the respondents' use of the federal-level e-government service platform. In this column, the variables English language proficiency (r_s =0.711, p<0.05) and level of education (r_s =0.435, p<0.05) are excluded because they each share a statistically significant association with the ICT skills. Column 3 presents the results pertaining to the predictive value of the respondents' level of education, and five other variables, on their use of the federal-level e-government service platform. In this column, English language proficiency (r_s =0.455, p<0.05), ICT skills (r_s =0.435, p<0.05) and Immigration category (r_s =0.538, p<0.05) are excluded because they each have a statistically significant association with the level of education variable.

It is important to note that the variables were considered as predictors only when they were statistically significant in all three columns because each column is an

extension of the same model. For example, in Table 5.5, the gender variable was examined in all three columns. The results were statistically significant in the first and second columns only. Therefore, gender is not considered to be a predictor of the respondents' likelihood of using the federal-level e-government service platforms.

Table 5.5 presents the findings of a multivariate logistic regression analysis of the relationship between the nine socio-demographic variables and the respondents' use of federal-level e-government service platform. The findings suggest that:

- Respondents, who immigrated to Canada in 2015 or later (i.e., very recent immigrants), were more likely to report having used Canada's federal-level e-government service platform, than respondents who immigrated to Canada in 2014 or earlier (i.e., recent and established immigrants) (Column 1: OR=0.16, p<0.5, 95% CI: 0.047-0.511; Column 2: OR=0.14, p<0.05, 95% CI: 0.042-0.048; Column 3: OR=0.21, p<0.05, 95% CI: 0.071-0.642).
- Respondents with stronger ICT skills were more likely to report having used Canada's federal e-government service platform than their less skilled counterparts (Column 2: OR 1.91, p<0.05, 95% CI: 1.089-3.354).
- Economic and family class immigrants were more likely to report having used federal e-government service platforms compared to their refugee class counterparts (Column-1: Economic class: OR=8.96, p<0.05, 95% CI: 2.795-28.721; Family class: OR=7.01, p<0.05, 1.546-31.771; Column-2: Economic class: OR=9.41, p<0.05, 95% CI: 2.988-29.650; Family class: OR=5.50, p<0.05, 95% CI: 1.214-24.952).
- Respondents with graduate degrees (OR=17.73, p<0.5, 95% CI: 4.634-67.870), undergraduate degrees (OR=4.99, p<0.05, 95% CI: 1.365-18.302) and professional/ vocational degrees (OR=7.38, p<0.05, 95% CI: 1.552-35.132) were more likely to report having used the federal-level e-government service platforms than respondents having secondary-level education or lower.
- Self-employed (Column-1: OR=20.24, p<0.05, 95% CI: 1.609-254.475; Column-2: OR=26.20, p<0.05, 95% CI: 1.971-348.311; Column-3: OR=37.88, p<0.05, 95% CI: 3.145-456.246) and employed (Column-1: OR=6.16, p<0.05, 95% CI: 1.459-26.008; Column-2: OR=6.59, p<0.05, 95% CI: 1.492-29.057; Column-3: OR=7.94, p<0.05, 95% CI: 1.976-31.914) respondents were more likely to report having used the federal-level e-government service platforms compared to respondents without employment.
- English language proficiency, age group, and household income were not found to predict respondents reporting that they had used the federal-level e-government service platform within the last five years.

Table 5.5: Respondents' Use of Federal-level e-Government Service Platform

Variables	No.	%	Use of Federal e-Government Service Platform											
			Column 1				Column 2				Column 3			
Immigration status			OR	P-value	95% CI		OR	P-value	95% CI		OR	P-value	95% CI	
Very recent	41	15.7	1.00		L.B.	U.B.	1.00		L.B.	U.B.	1.00		L.B.	U.B.
Recent & established	220	84.3	0.16**	0.002	0.047	0.511	0.14*	0.002	0.042	0.048	0.21*	0.006	0.071	0.642
Language proficiency														
English	261	100	1.79	0.066	.963	3.327								
ICT skills														
ICT Skills	261	100					1.91*	0.024	1.089	3.354				
Immigration category														
Refugee	65	24.9	1.00				1.00							
Family	35	13.4	7.01*	0.012	1.546	31.771	5.50*	0.027	1.214	24.952				
Economic	135	51.7	8.96***	0.000	2.795	28.721	9.41***	0.000	2.988	29.650				
Age group														
18-27	25	9.6	1.00				1.00				1.00			
28-37	89	34.1	0.53	0.498	0.084	3.326	0.47	0.426	0.072	3.033	0.28	0.156	0.047	1.631
38-47	97	37.2	0.27	0.175	0.423	1.772	0.30	0.212	0.046	1.975	0.16	0.064	0.028	0.955
48-57	27	10.3	0.23	0.254	0.019	2.829	0.21	0.219	0.017	2.520	0.08	0.053	0.007	0.810
58-67	13	5.0	0.18	0.198	0.013	2.446	0.22	0.279	0.015	3.326	0.09	0.102	0.005	1.597
Gender														
Female	77	29.5	1.00				1.00				1.00			
Male	183	70.1	4.69**	0.003	0.167	13.226	3.58*	0.019	1.236	10.357	2.107	0.171	0.738	5.517
Level of education														
Secondary or lower	46	21.5									1.00			
Professional /vocational	21	8.0									7.38*	0.012	1.552	35.132
Undergrad	51	19.5									4.99*	0.015	1.365	18.302
Graduate	124	47.5									17.73***	0.000	4.634	67.870
Household income														
Low	113	43.3	1.00				1.00				1.00			
Middle	94	36.0	2.24	0.183	.682	7.357	2.23	0.184	0.683	7.267	2.64	0.098	0.835	8.326
High	35	13.4	0.39	0.209	.088	1.702	0.35	0.164	0.082	1.529	0.59	0.461	0.146	2.389
Employment status														
Unemployed	33	12.6	1.00				1.00				1.00			
Others	42	16.1	2.16	0.363	.412	11.281	2.41	0.158	0.430	13.457	2.75	0. 220	0.545	13.884
Self-employed	24	9.2	20.24*	0.020	1.609	254.475	26.20*	0.007	1.971	348.311	37.88**	0.004	3.145	456.246
Employed	151	57.8	6.16*	0.013	1.459	26.008	6.59*	0.005	1.492	29.057	7.94**	0.003	1.976	31.914
Number of observations			210				210				221			

*Level of significance: * = p<0.05, **=p<0.01, ***=p<0.001*

- Gender could not be considered as a predictor of respondents' use of the federal-level e-government service platform because it was not found to be statistically significant across all three columns.

To sum up, five of the nine variables (i.e., immigration status, ICT skills, immigration category, level of education, and employment status) were identified as predictors of the respondents' likelihood of using the federal-level e-government service platform. English language proficiency was not found to predict the respondents reporting that they had used federal-level e-government service platform within the last five years. The findings regarding the predictive value of the ICT skills, level of education, and employment status variables were consistent with those past studies (e.g., Okunola, 2015; Haight et al., 2014). The findings regarding anticipated differences in use levels between very recent and recent and established immigrants did not corroborate those of previous studies (such as Okunola et al., 2017; Okunola, 2015; Haight et al., 2014). Interestingly, immigration category, a variable introduced by the researcher, was identified as a predictor of respondents' use of the federal-level e-government service platform.

Table 5.6 presents the findings of the multivariate logistic regression analysis of the relationship between the nine socio-demographic variables and the respondents' reported use of provincial-level e-government service platform. The findings suggest that:

- Respondents with stronger English language proficiency were more likely to report having used provincial-level e-government service platform when compared to their less English language proficient counterparts (Column-1: OR=1.81, $p<0.05$, 95% CI: 1.061-3.077).
- Respondents with stronger ICT skills were more likely to report having used the provincial-level e-government service platform than those with limited ICT skills. (Column-2: OR=2.88, $p<0.05$, 95% CI: 1.725-4.796).

Table 5.6: Respondents' Use of Provincial-level e-Government Service Platform

Variables	No	%	Use of Provincial e-Government Service Platform											
			Column 1				Column 2				Column 3			
Immigration status			OR	P-value	95% CI		OR	P-value	95% CI		OR	P-value	95% CI	
Very recent	41	15.7	1.00		L.B.	U.B.	1.00		L.B.	U.B.	1.00		L.B.	U.B.
Recent & established	220	84.3	1.31	0.601	0.473	3.641	1.34	0.603	0.444	4.043	1.51	0.394	0.587	3.859
Language proficiency														
English	261	100	1.81*	0.029	1.061	3.077								
ICT skills														
ICT Skills	261	100					2.88***	0.000	1.725	4.796				
Immigration category														
Refugee	65	24.9	1.00				1.00							
Family	35	13.4	9.99**	0.001	1.214	24.952	7.60*	0.004	1.887	30.608				
Economic	135	51.7	3.97**	0.004	2.989	29.650	3.56**	0.008	1.398	9.536				
Age group														
18-27	25	9.6	1.00				1.00				1.00			
28-37	89	34.1	0.45	0.333	0.091	2.251	0.30	0.074	0.053	1.702	0.26	0.085	0.059	1.198
38-47	97	37.2	0.57	0.492	0.116	2.816	0.63	0.587	0.116	3.377	0.32	0.125	0.072	1.380
48-57	27	10.3	0.60	0.600	0.089	4.031	0.55	0.565	0.073	4.177	0.27	0.150	0.045	1.603
58-67	13	5.0	0.34	0.360	0.034	3.402	0.51	0.589	0.044	5.901	0.27	0.281	0.024	2.958
Gender														
Female	77	29.5	1.00				1.00				1.00			
Male	183	70.1	3.59**	0.004	1.500	8.585	2.25	0.093	0.873	5.805	1.99	0.091	0.894	4.472
Level of education														
Secondary or lower	46	21.5									1.00			
Professional /vocational	21	8.0									3.91*	0.046	1.026	14.906
Undergrad	51	19.5									3.91*	0.014	1.315	11.653
Graduate	124	47.5									7.66***	0.000	2.666	21.999
Household income														
Low	113	43.3	1.00				1.00				1.00			
Middle	94	36.0	1.37	0.504	0.548	3.402	1.25	0.642	0.488	3.200	1.51	0.341	0.644	3.559
High	35	13.4	2.58	0.202	0.601	11.164	1.67	0.497	0.379	7.373	3.16	0.110	0.771	12.994
Employment status														
Unemployed	33	12.6	1.00				1.00				1.00			
Others	42	16.1	1.77	0.443	0.412	7.560	2.17	0.348	0.430	10.983	2.56	0.243	0.575	8.862
Self-employed	24	9.2	2.64	0.298	0.425	16.349	3.14	0.247	0.452	21.793	5.23	0.063	0.915	29.922
Employed	151	57.8	1.70	0.419	0.470	6.133	1.89	0.381	0.454	7.891	2.05	0.237	0.623	6.760
Number of observations			209				209				220			

*Level of significance: * = P<0.05, **=P<0.01, ***=P<0.001*

- Economic and family class immigrants were more likely to report having used the provincial-level e-government service platform than refugee class immigrants (Column-1: Economic class: OR=3.97, p<0.05, 95% CI: 2.989-29.650; Family class: OR=9.99, p<0.05, 95% CI: 1.214-24.952; Column-2: Economic class: OR=3.56, p<0.05, 95% CI: 1.398-9.536; Family class: OR=7.60, p<0.05, 95% CI: 1.887-30.608).
- Respondents with graduate degrees (OR=7.66, p<0.5, 95% CI: 2.666-21.999), undergraduate degrees (OR=3.91, p<0.05, 95% CI: 1.315-11.653), and professional/ vocational degrees (OR=3.91, p<0.05, 95% CI: 1.026-14.906) were more likely to report having used the provincial-level e-government service platform than those with secondary level education or lower.
- Immigration status, age group, household income, and employment status were not found to predict respondents reporting that they had used the provincial-level e-government service platforms within the last five years.
- Gender could not be considered as a predictor of respondents' use of the provincial-level e-government service platform because it was not found to be statistically significant across all three columns.

To sum up, only four of the nine variables (i.e., English language proficiency, ICT skills, immigration category, and level of education) were identified as predictors of the respondents' likelihood of using the provincial-level e-government service platform. Of these, the results regarding the association between ICT skills, level of education, and employment status, and the respondents' use of the provincial-level e-government service platform were found to be consistent with those for the federal level.

Table 5.7 presents the findings of a multivariate logistic regression analysis of the relationship between the nine socio-demographic variables and the respondents' use of municipal-level e-government service platforms. The findings suggest that:

- Respondents with stronger English language proficiency were more likely to report having used the municipal-level e-government service platform than their counterparts with weaker English language proficiency (OR=1.93, p<0.05, 95% CI: 1.105-3.378).
- Respondents with better ICT skills were more likely to report having used the municipal-level e-government service platform than respondents with limited ICT skills. (OR 2.51, p<0.05, 95% CI: 1.489-4.242).

Table 5.7: Respondents' Use of Municipal-level e-Government Service Platform

Variables	No.	%	Use of Municipal-level e-Government Service Platform											
			Column 1				Column 2				Column 3			
Immigration status			OR	P-value	95% CI		OR	P-value	95% CI		OR	P-value	95% CI	
Very recent	41	15.7	1.00		L.B.	U.B.	1.00		L.B.	U.B.	1.00		L.B.	U.B.
Recent & established	220	84.3	0.46	0.138	0.162	1.285	0.39	0.092	0.130	1.166	0.52	0.186	0.201	1.366
Language proficiency														
English	261	100	1.93*	0.021	1.105	3.378								
ICT skills														
ICT Skills	261	100					2.51**	0.001	1.489	4.242				
Immigration category														
Refugee	65	24.9	1.00				1.00							
Family	35	13.4	5.22**	0.007	1.560	17.483	3.58*	0.043	1.038	12.358				
Economic	135	51.7	5.02**	0.001	1.855	13.569	4.79**	0.002	1.748	13.096				
Age group														
18-27	25	9.6	1.00				1.00				1.00			
28-37	89	34.1	2.20	0.330	0.450	10.717	1.95	0.428	0.372	10.271	1.06	0.938	0.251	4.457
38-47	97	37.2	2.95	0.185	0.596	14.662	3.72	0.127	0.686	20.259	1.19	0.805	0.285	5.021
48-57	27	10.3	3.86	0.223	0.439	33.967	4.76	0.185	0.474	47.902	1.05	0.964	0.148	7.415
58-67	13	5.0	1.23	0.867	0.110	13.708	1.88	0.622	0.151	23.497	0.41	0.511	0.029	5.767
Gender														
Female	77	29.5	1.00				1.00				1.00			
Male	183	70.1	4.01**	0.004	1.574	10.192	2.61	0.059	0.965	7.061	2.47	0.511	1.023	5.982
Level of education														
Secondary or lower	46	21.5									1.00			
Professional /vocational	21	8.0									7.25**	0.007	1.702	30.889
Undergrad	51	19.5									3.32*	0.028	1.1373	9.705
Graduate	124	47.5									11.84***	0.000	3.870	36.275
Household income														
Low	113	43.3	1.00				1.00				1.00			
Middle	94	36.0	1.58	0.336	0.622	4.013	1.47	0.427	0.567	3.809	2.18	0.093	0.877	5.438
High	35	13.4	Empty				Empty				Empty			
Employment status														
Unemployed	33	12.6	1.00				1.00				1.00			
Others	42	16.1	1.39	0.664	0.313	6.187	1.63	0.553	0.323	8.248	1.63	0.514	0.372	7.210
Self-employed	24	9.2	0.73	0.729	0.117	4.472	0.79	0.811	0.115	5.411	2.54	0.296	0.441	14.619
Employed	151	57.8	1.37	0.638	0.368	5.092	1.48	0.582	0.359	6.167	1.66	0.433	0.466	5.954
Number of observations			176				176				187			

*Level of significance: * = P<0.05, **=P<0.01, ***=P<0.001*

- Economic and family class immigrants were more likely to report having used the municipal-level e-government service platform than refugee class immigrants (Column-1: Economic class: OR=5.02, $p<0.05$, 95% CI: 1.855-13.569; Family class: OR=5.22, $p<0.05$, 95% CI: 1.560-17.483; Column-2: Economic class: OR=4.79, $p<0.05$, 95% CI: 1.748-13.096; Family class: OR=3.58, $p<0.05$, 95% CI: 1.038-12.358).
- Respondents with graduate level education (OR=11.608, $p<0.05$, 95% CI: 3.870-36.275), undergraduate degrees (OR=3.32, $p<0.05$, 95% CI: 1.137-9.705), and professional/ vocational degrees (OR=7.25, $p<0.05$, 95% CI: 1.702-30.889) were more likely to report having used the municipal-level e-government service platform than those with secondary level or lower education.
- Immigration status, age group, household income, and employment status were not found to predict respondents reporting that they had used the municipal-level e-government service platform within the last five years.
- Gender could not be considered as a significant predictor of respondents' use of the municipal-level e-government service platform because it was not found to be statistically significant across all three columns.

To sum up, only four of the nine variables (i.e., English language proficiency, ICT skills, immigration category, and level of education) were identified as predictors of the respondents' likelihood of using municipal-level e-government service platforms. These results were found to be consistent with those identified at the provincial level. However, the results for regarding immigration status, English language proficiency and employment status as predictors of the respondents' use of municipal-level e-government service platforms were not consistent with the federal-level results.

5.2.4 Synopsis of the Results

The results of the bivariate logistic regression analyses suggested that each of the nine variables examined are stand-alone predictors of respondents' likelihood of using certain e-government service platforms. Seven of the variables (i.e., English language proficiency, ICT skills, immigration category, gender, level of education, household income and employment status) were found to be predictors of use at all three levels of

government. However, within my sample, immigration status and age appear to only predict use of the federal-level e-government service platform.

The results of the multivariate logistic regression analysis differed from those obtained in the bivariate analysis insofar as they suggest only three variables (i.e., ICT skills, immigration category, and level of education) are predictors of respondents having used online government services at the federal, provincial and municipal levels. According to Marill (2004, p. 94), multivariate logistic regression analysis allows the investigator "to account for all of potentially important [variables] in one model," which may lead to "a more accurate and precise understanding of the association of each individual [variable] with the outcome." To be specific, when investigators suspect that the dependent variable may be associated with more than one independent variable, they can employ multivariate logistic regression analysis to examine the influence of two or more independent variables on a dependent variable. This kind of regression analysis may produce different results than of the results of bivariate regression analysis because of strong correlation among independent variables.

The immigration status and employment status variables predict use at the federal level only, whereas English language proficiency is found to be a predictor of the respondents' use of e-government service platforms at provincial and municipal levels (but not the federal level). These findings indicate that Nepali immigrants to Canada, in my sample, have different preferences regarding the use of e-government service platforms across the three levels.

Moreover, very recent Nepali immigrants to Canada were found to be more likely to use federal-level e-government service platforms than their recent and established

immigrant counterparts. However, there was no difference identified between very recent and recent and established immigrant groups at the provincial and municipal levels in terms of using e-government service platforms. Likewise, no difference was identified between very recent and recent and established immigrant groups in using e-government service platforms with respect to their English language proficiency and ICT skills. Both of these socio-demographic characteristics, however, were found to be influencing the likelihood of respondents, regardless of their immigration status, using federal-, provincial-, and municipal-level e-government service platforms. It merits noting that the multivariate analysis found English language proficiency to be a predictor of use at the provincial and municipal levels, but not at the federal level. This stands in contrast to the findings of past studies (see, Okunola, 2015; Mikal & Woodfield, 2015; Haight et al., 2014; Chen, 2010).

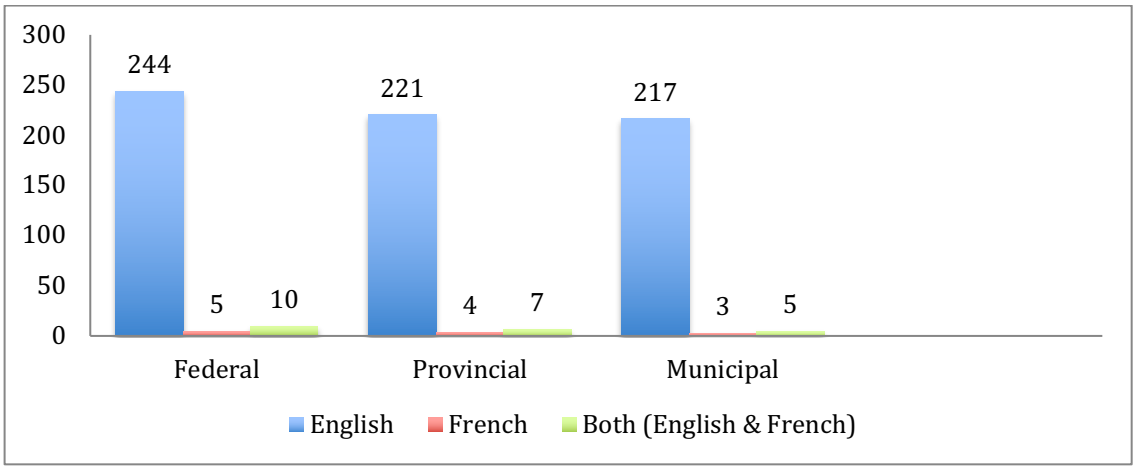
The findings from my analysis show that the respondents in the sample do not use the platforms in the same way or for the same purposes across the three levels of the government. The varying degree of predictability of the socio-demographic variables may be linked with the various capabilities and functionings of the respondents. Put simply, every user of e-government service platforms has a unique set of capabilities for handling these interactions based, in part, upon their socio-demographic characteristics. Each of these characteristics is, in Sen's (2005, 1999, 1984) terminology, a conversion factor that mediates peoples' use of e-government service platforms across the three levels of government examined. The discussion in the next section deals with respondents' ability to navigate federal, provincial, and municipal-level e-government service platforms.

5.3 Respondents' Navigation on e-Government Service Platforms

The discussion in this section sets out the findings pertaining to the respondents' reported experiences when navigating federal, provincial and municipal-level e-government service platforms.

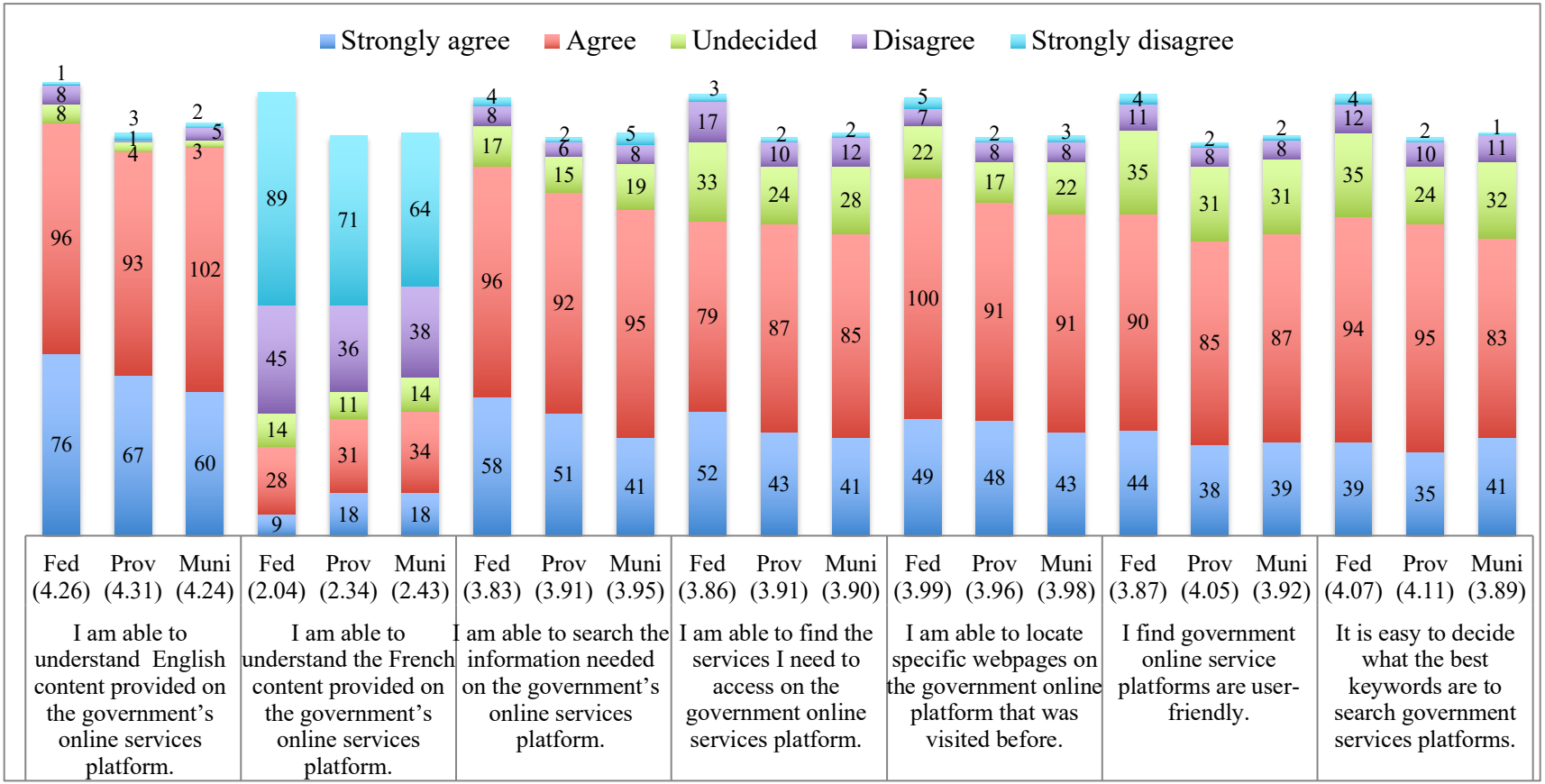
As noted earlier, an overwhelming majority of respondents indicated that English was the language they used when engaging with e-government service platforms at the federal (93.5%, n=244), provincial (84.7%, n=221) and municipal (83.1%, n=217) levels (see Figure 5.1).

Figure 5.1: Language Used While Navigating e-Government Service Platforms



Respondents who reported using federal-, provincial- and/or municipal-level e-government service platforms within the last five years were asked to rate their navigation experiences on the basis of a five-point Likert scale. Figure 5.2 provides a breakdown of the responses across the three levels of government examined. Those who reported having used e-government service platforms within the last five years were, in general, able to employ English language skills to navigate for services on federal- (composite score: 4.26), provincial- (composite score: 4.31), and municipal-level

Figure 5.2: Respondents' Ability to Navigate Federal-, Provincial-, and Municipal-level e-Government Service Platforms[34]



[34] The numerical values in parentheses at the end of each statement represent the average composite score for each level of government. This score was computed using $\sum fw/\sum f$, where f refers to frequency and w refers to weight. The following weighting scheme has been followed: *strongly agree=5, agree=4, undecided=3, disagree=2, strongly disagree=1.* For example, "I find the federal-level e-government service platforms designed to be user-friendly" was computed as (44*5+90*4+35*3+11*2+4*1)/ (44+90+35+11+4) = 711/184 = 3.86.

e-government service platforms (composite score: 4.24). This was not the case with regard to navigating these services in French.

Most respondents reported being able to search for information they needed on the federal- (composite score: 3.83), provincial- (composite score: 3.91), and municipal-level e-government service platforms (3.95). They also reported being able to find the services they needed on federal- (composite score: 3.86), provincial- (composite score: 3.91), and municipal-level (composite score: 3.90) e-government service platforms, and locate specific webpages they previously had visited on the federal (composite score: 3.99), provincial (composite score: 3.96) and municipal (composite score: 3.98) levels. They indicated that federal- (composite score 3.87), provincial- (composite score 4.05) and municipal- level (composite score 3.92) e-government service platforms were user-friendly. They also reported finding it easy to decide which keywords were best to use when searching for specific information at federal (composite score 4.07), provincial (composite score 4.11) and municipal levels (composite score 3.89).

The above composite scores suggest the respondents' experiences when navigating e-government service platforms are pretty much the same across all three levels of government. For example, a large majority of respondents declared that they were able to understand English content (but not French) on these platforms. To dig deeper, an F-test[32] was conducted to examine the respondents' seven experience statements for each level of e-government service platform in order to assess if there was any statistically significant statements across the levels. The results revealed that of the seven experience statements, responses for only two statements differed in a statistically significant manner across the

[32] An F-test is the test for equality of mean for given statements among the three levels of e-government service platforms.

three levels of government:

1. I am able to understand the French language content provided on the government's online service platform (f-stat: 2,127=6.53; p-value 0.002); and
2. I am able to search for the information I need on the government's online service platform (f-stat: 2,127=3.50, p-value: 0.033).

I then performed another F-test for each of the two statements to identify where the differences occur across the three levels of government. With regard to the first statement (composite scores — federal: 2.04; provincial: 2.34, and municipal: 2.43), the F-test results for each pair (federal and provincial (F-stat(1,146):11.54, $p<0.05$), federal and municipal (F-stat(1,149): 11.98, $p<0.05$), provincial and municipal (F-stat(1,141): 0.13, $p>0.05$) indicate that the respondents were experiencing difficulties understanding French language content at all levels of government, with the problem being more evident at the federal level than at the provincial and municipal levels. With regard to the second statement (composite scores — federal: 3.83; provincial: 3.91, and municipal: 3.95), the F-test results for each pair (federal and provincial (F-stat(1,145): 0.04, $p>0.05$), federal and municipal (F-stat(1,149):6.77, $p<0.05$), provincial and municipal (F-stat (1,141):8.78, $p<0.05$) indicate that the respondents are able to search for information on e-government service platforms easily at all levels, and that the information search at the municipal level is even easier than on the federal- and provincial-level e-government service platforms.

Taken together, the descriptive analysis presented above suggests that a majority of the respondents found that e-government service platforms were user-friendly. They were able to understand English language content, search and find necessary information, and locate specific webpages by using key words.

5.4 Conclusion

The discussion in this chapter has presented a descriptive and inferential analysis of the data obtained from a survey completed by 261 Nepali immigrants to Canada. The findings showed that the most sought-after services by very recent Nepali immigrants were related to settlement necessities offered by federal, provincial and municipal governments on their official online service platforms. Similarly, the most common motivating factors for using e-government service platforms included the ability to understand the language used on these platforms, ability to afford, and handle ICT devices, and to locate the required services.

Table 5.8: Predictors of Respondents' Use of e-Government Service Platforms

Variables	Bivariate logistic results			Multivariate logistic results		
	Federal	Provincial	Municipal	Federal	Provincial	Municipal
ICT skills	√	√	√	√	√	√
Level of education	√	√	√	√	√	√
Immigration category	√	√	√	√	√	√
Language proficiency	√	√	√		√	√
Employment status	√	√	√	√		
Immigration status	√			√		
Gender	√	√	√			
Household income	√	√	√			
Age group	√					

As shown in Table 5.8, each of the nine variables investigated were found to have predictive value in a bivariate logistic regression analysis, whereas the results of multivariate logistic regression analyses demonstrated that only ICT skills, immigration category, and level of education were predictors of the respondents' likelihood of having used federal-, provincial-, and/or municipal-level e-government service platforms. The findings about ICT skills and level of education as predictors of use at the federal level

were found consistent with those of past studies (such as Williams et al., 2017; Okunola, 2015; Haight et al., 2014; Tsai, 2006). This said, and whereas these past studies limited their investigations to federal-level analyses, I extended the examination of the predictability of these variables to also include provincial-, and municipal-level e-government service platforms. In addition, a newly introduced variable—immigration category—was also found to be a predictor of use of e-government service platforms across all three levels of government.

Previously, Chen's (2010) study of Chinese immigrants residing in Singapore found that the longer immigrants live in a host-country, the more likely they were to use host-country websites. Chen associated this finding with immigrants' increased familiarity with the host-country's system over time. The findings from my questionnaire survey stand in stark contrast to Chen's observation insofar as they suggest very recent Nepali immigrants to Canada were more likely to use the federal-level e-government service platform than their recent and established immigrant counterparts. However, both categories of immigrants (i.e., very recent and recent and established) were found to be similarly equipped in terms of English language proficiency and ICT skills.

Furthermore, each individual in my sample was found to use the federal-, provincial-, and municipal-level e-government service platforms differently despite the common purpose these tools serve. The next chapter will examine additional findings from the questionnaire survey with respect to financial transaction activities and digital engagements of Nepali immigrants on e-government service platforms.

Chapter 6: Survey Findings: Immigrants' Financial Transactions and Engagement on e-Government Service Platforms

The discussion in this chapter uses descriptive and inferential statistics to provide an analysis of the survey participants' responses to questions about their experiences conducting financial transaction activities and other types of engagements on federal-, provincial-, and municipal-level e-government service platforms. The chapter is divided into three sections. The discussion in the first section offers an overview of the respondents' ability and willingness to conduct financial transactions on these platforms. This is followed, in the second section with an analysis the respondents' ability to engage with other types of service activities via e-government platforms. Section 3 concludes with a brief summary of the findings, and the relation they share with those presented in Chapter 5.

6.1: Examining Transaction Activities on e-Government Service Platforms

Slightly less than 60% (n= 152) of the 261 survey respondents reported having participated in one or more financial transaction activities (see Table 6.1) within the last five years on the federal government's online service platform. The number of respondents who engaged in financial transaction activities on provincial (49.8%, n= 130) and municipal-level (54.0%, n=141) e-government service platforms was somewhat lower. Respondents most frequently reported that paying service fees was their most frequent financial transaction conducted on these platforms across the three levels of government (see Table 6.1). Respondents who reported conducting financial transaction activities on federal-level e-government service platform within the last five years were also asked to rate their experience in accordance with a five-point Likert scale. These

individuals reported trusting the information available (composite score 4.19), considered the platform to be a safe venue on which to conduct financial transaction activities (composite score 4.24), and expressed confidence that their personal information was being protected (composite score 4.19).[1] Similar findings were observed with regard to respondents' perceptions of provincial- and municipal- level e-government service platforms (see, Table 6.1).[2]

Table 6.1: Types of Financial Transaction Activities[3]

Federal level	**Number of responses**	**% (N=152)**
Paying service fee	87	57.2
Submitting annual taxes	83	54.6
Paying fines/charges	38	25.0
Other	7	4.6
Provincial level	**Number of responses**	**% (N=130)**
Paying service fee	94	72.3
Submitting financial information	51	29.2
Paying for provincial offence	35	26.9
Other	6	4.6
Municipal level	**Number of responses**	**% (N=141)**
Paying service fee	81	57.4
Paying for parking tickets	80	56.7
Paying property taxes	74	52.5
Other	6	4.2

[1] The composite score for each of the experience statements was computed as: $\sum fw/\sum f$ where *f* refers to frequency (count) for each option on Likert scale and *w* refers to weight. The following weighting scheme was followed: *strongly agree*=5; *agree*=4; *undecided*=3; *disagree*=2, and *strongly disagree*=1. For example, the average score for the statement "I trust the information available at the federal e-government service platform regarding the conducting of financial transactions" was computed as (80*5+82*4+17*3+7*2+1*1)/(80+82+17+7+1)=4.25.

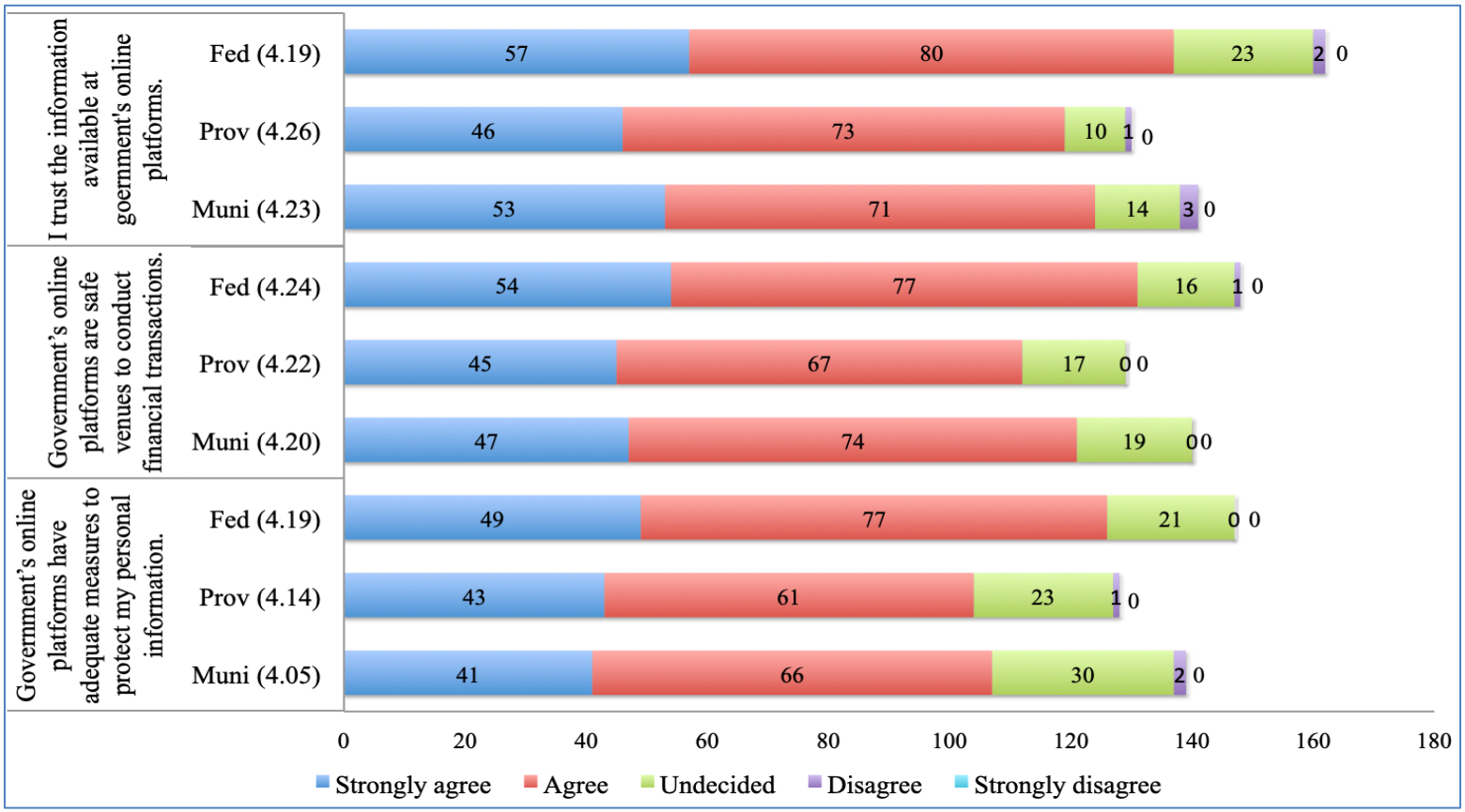
[2] An F-test also was conducted to examine the respondents' three experience statements (each statement was asked at the federal, provincial and municipal levels) in order to identify if there was any statistically significant difference across three levels of e-government services platforms while experiencing financial transaction activities (see Figure 6.1). The results revealed that the level of trust of the survey respondents on e-government service platforms did not significantly differ across three levels of e-government service platforms.

[3] The list of services presented in Table 6.1 was set out *a priori* in the survey.

These findings differ somewhat from Reddick's (2010) examination of users' channel preferences while using public services in Canada. Specifically, he found that service recipients were skeptical of conducting financial transactions on Canadian government websites, preferring instead to visit physical offices or to use telephone services when paying service fees. Reddick and Turner (2012) likewise found that people still tended to use traditional service delivery channels for financial transactions and were hesitant to use e-government service platforms for such purposes. In contrast, the findings obtained from my sample suggest that most of the respondents trust federal, provincial, and municipal e-government service platforms, and consider them safe venues with adequate protection measures. This said, it is important to note that in the intervening decade since Reddick and Turner's study was published, digital technologies and online transactions have become a much more normalized aspect of day-to-day life in Canada. Moreover, options and opportunities for in-person interactions between citizens and public servants have declined during this period (CIRA, 2019; Statistics Canada, 2019).

For this dissertation, it was deemed important to assess the issue of trust in e-government service platforms on the basis that users' trust in such services can potentially motivate their use of these platforms. The Auditor General of Canada (2013) noted that one of the objectives of Canada's then e-government program was to build trust and confidence among users of e-government service platforms by making electronic transactions secure in order to facilitate cost-effective service delivery. From the Capabilities Approach perspective, Canada's e-government service platforms can be considered as a public service tool with the potential to enhance

Figure 6.1: Participants' Experiences in Conducting Financial Transaction on e-Government Service Platforms



respondents' individual wellbeing and quality of life provided social and institutional resources are in place to facilitate the transformation of capabilities into functionings. Trust plays a role in this process insofar as the extent to which Nepali immigrants to Canada trust the safety and efficacy of Canada's e-government service platforms plays a mediating role in determining whether to conduct financial transaction activities on e-government service platforms.

More than one-third (n=97) of the respondents reported not having participated in any kind of financial transaction activity on federal-, provincial-, or municipal-level e-government service platforms within the last five years (see, Appendix 6.1).

It seems plausible that the longer immigrants live in a host-country setting, the more likely they are to become familiar with government services and delivery channels. Therefore, I conducted a bivariate regression analysis to examine whether immigration status was a predictor of the respondents – both very recent and recent and established immigrants – reporting having conducted financial transaction activities on federal-, provincial-, and/or municipal-level e-government service platforms. The findings make clear that it is not (Federal: OR=0.62, p>0.05, 95% CI: 0.315-1.211; Provincial: OR=0.67, p>0.5, 95% CI: 0.340-1.328; Municipal: OR=0.57, p>0.05, 95% CI: 0.286-1.118).

When conducting financial transaction activities online, one should, ideally, be able to understand the language in which the exchange is taking place. To this end, the ability of immigrants to make informed decisions when conducting financial transaction activities online is contingent, in part, on their proficiency with the host-country language (Mikal & Woodfield, 2015; Tripp, 2010). With this in mind, I sought to assess if the

respondents' English language proficiency[7] was a predictor of their having conducted transactions on federal-, provincial-, and/or municipal-level e-government service platforms. The findings suggest it is (Federal: OR=2.80, p<0.05; 95% CI: 2.012-3.903; Provincial: OR=2.06, p<0.05, 95% CI: 1.536-2.764; and Municipal: OR=2.09, p<0.05, 95% CI: 1.556-2.807).

The findings from a bivariate logistic regression analysis[8] suggest that respondents with strong ICT skills were more likely to report having conducted financial transaction activities at the federal- (OR=2.80, p<0.05, 95% CI: 2.069-3.798), provincial- (OR=2.21, p<0.05, 95% CI: 95% CI: 1.669-2.916), and municipal-level (OR=2.35, p<0.05, 95% CI: 1.772-3.123) e-government service platforms than those with limited ICT skills.

I also conducted a bivariate logistic regression analysis to examine the predictive value of immigration category, age group, gender, level of education, household income, and employment status variables with regard to the respondents' propensity to report having conducted financial transaction activities on Canada's e-government service platforms (see Appendix 6.1). The findings regarding immigration category showed that economic class immigrants were more likely to report having conducted financial transaction activities on federal (OR=5.01; p<0.05, 95% CI: 2.632-9.548), provincial- (OR=3.20, p <0.05, 95% CI: 1.686-0.075) and municipal-level (OR=5.28, p<0.05, 95% CI: 2.736-10.191) e-government service platforms than their refugee class counterparts.

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[7] Recall, no statistically significant difference was found in the reported English language proficiency of the respondents and their respective immigration status. Therefore, very recent and recent and established immigrants were treated as a single group for this particular analysis (see, Section 5.2.2).

[8] Recall, no statistically significant difference was found in the reported ICT skills of the respondents and their respective immigration status (see, Section 5.2.2). Therefore, very recent and recent and established immigrants were treated as a single group for this particular analysis.

However, family class status did not predict the respondents reporting having conducted financial transaction activities on these platforms (federal: OR=1.74, p>0.05, 95% CI: 0.747-4.051; provincial: OR=1.47, p>0.05, 95% CI: 0.620-3.465; municipal: OR=2.26, p>0.05, 95% CI: 0.955-5.360).

When examining the predictive value of respondents' age, no statistically significant associations were identified with respect to their reporting having conducted financial transaction activities on the federal government's online service platform. However, statistically significant findings were identified at the provincial and municipal levels for two age groups. Specifically, respondents in the 38-47 (OR=3.09, p<0.05, 95% CI: 1.133-8.405) and the 48-57 age groups (OR=6.33, p<0.05, 95% CI: 1.742-23.021) were found to be more likely to have reported having conducted financial transaction activities on provincial-level e-government service platform than their counterparts in the 18-27 age group category. Similar results were identified at the municipal-level (see Appendix 6.1). This finding presents somewhat of an anomaly insofar as it is unclear why these particular age categories would have predictive value at the provincial and municipal levels, but not at the federal level.

With respect to the predictive value of gender, the results showed that male respondents were more likely to report having conducted financial transaction activities on federal- (OR= 3.11, p<0.05, 95% CI: 1.781-5.442), provincial- (OR=3.97, p<0.05, 95% CI: 2.206-7.159), and municipal-level (OR=4.50, p<0.05, 95% CI: 2.504-8.089) e-government service platforms than their female counterparts. This observation is broadly consistent with the findings of Okunola (2015), Haight et al., (2014), and Vicente and Novo (2014), all of whom found that very recent and recent and established male

immigrants are more likely than female immigrants to report having used ICTs, Internet, and e-government services.

The findings regarding education levels showed that respondents with graduate level education were more likely to report having conducted financial transaction activities on federal- (OR=13.15, $p<0.05$, 95% CI: 5.968-28.981), provincial- (OR=9.32, $p<0.5$, 95% CI: 4.131-21.021) and municipal-level (OR=16.43, $p<0.05$, 95% CI: 7.153-37.727) e-government service platforms than those with secondary education or lower. Respondents in the professional/vocational (OR=6.43, $p<0.05$, 95% CI: 2.685-15.402), and undergraduate (OR=8.91, $p<0.05$, 95% CI: 2.781-28.538) education categories also were more likely to report having conducted financial transaction activities on the same platforms, when compared to their counterparts with secondary or lower education levels. These findings are broadly consistent with those of Williams et al. (2017), Alam and Imran (2015), Okunola (2015), and Haight et al. (2014) all of whom identify education as a predictor of immigrants' use of online service platforms.

In terms of annual household income, respondents in the middle-income category were found more likely to report having conducted financial transaction activities on at the federal- (OR=4.27, $p<0.05$, 95% CI: 4.146-22.930), provincial- (OR=3.34, $p<0.05$, 95% CI: 1.847-6.044), and municipal-level (OR=3.91, $p<0.05$, 95% CI: 2.139-7.148) e-government service platforms than their low-income counterparts. Respondents in the high-income category were more likely to report having conducted such transactions on federal- (OR=4.71, $p<0.05$, 95% CI: 1.722-13.165) and municipal-level (OR=5.69, $p<0.05$, 95% CI: 0.285-14.158) e-government service platforms, but not provincial-level e-government service platform (OR=2.20, $p>0.05$, 95% CI: 0.992-4.889). These results

are broadly consistent with those of Okunola (2015), Haight et al. (2014), and Barth and Veit (2011). It is plausible that immigrants from households with high and mid-level annual income may have more reasons to engage with the federal and municipal e-government service platforms than the provincial government, when compared to their counterparts with lower annual incomes.

Lastly, when examining the predictive value of the respondents' employment status, the findings showed that those who identified themselves as self-employed (OR= 12.67, $p<0.05$, 95% CI: 3.375-47.543), employed (OR=5.56, $p<0.05$, 95% CI: 2.397-12.89), and students and other (OR=2.96, $p<0.05$, 95% CI: 1.094-8.023) were more likely to report having used the federal-level e-government service platform than those who reported being unemployed. Similar findings were identified at provincial and municipal levels (see Appendix 6.1). These findings are broadly consistent with the findings of Okunola (2015), and Vicente and Novo (2014), who found that employed respondents were more likely to report having conducted financial transaction activities on e-government service platforms than their unemployed counterparts.

To sum up, seven of the nine socio-demographic variables examined (i.e., English language proficiency, ICT skills, immigration category, gender, education, household income, and employment status) were found to predict the likelihood of the respondents having conducted financial transaction activities on federal-, provincial-, and municipal-level e-government service platforms. Of the remaining two variables (i.e., age and immigration status), age was found to be a predictor at the provincial and municipal levels, but not at the federal level, and immigration status failed to predict the likelihood of the respondents conducting transaction activities.

The discussion has thus far examined the one-to-one relation between independent and dependent variables, and found that eight of the nine variables predict the likelihood of respondents' use of e-government services. This indicates that each dependent variable shares a relationship with multiple independent variables. Moreover, and as noted in Chapter 5, the outcomes of bivariate analyses can differ from those of multivariate analyses. With this in mind, the discussion in the next section examines the respondents' financial transaction activities on federal-, provincial-, municipal-level e-government service platforms using multivariate logistic regression analysis to assess whether more than one variable may influence for similar outcomes.

6.1.1 Respondents' Transaction Activities on e-Government Service Platforms

The discussion in this section presents the results of multivariate logistic regression analyses of the nine socio-demographic variables with respect to the respondents' reporting having conducted financial transaction activities at federal, provincial and/or municipal levels. In conducting this analysis, the same 3-column model as discussed in Chapter 5 was applied for each level of government.[9] There are two reasons why it is appropriate to use the same model. First, the same nine socio-demographic variables were examined to assess the respondents' financial transaction activities on federal-, provincial-, and municipal-level e-government service platforms. Second, the 3-column model provides a means of identifying, and thereby avoiding, instances of

[9] Recall that Column 1 presents the findings regarding the predictive value of the respondents' English language proficiency and the other six controlling variables on their financial transactions on federal e-government service platform; Column 2 sets out the findings dealing with the predictability of ICT skills, and the other six controlling variables on the same platform, and Column 3 presents the results pertaining to the predictability of the respondents' level of education, and the other five variables on the platform (see Section 5.2.3).

multicollinearity between strongly correlated variables: the first column highlights English language proficiency, the second columns focuses on ICT skills, and the third column emphasizes respondents' level of education.

Table 6.2 presents the results of the multivariate logistic regression analysis of the associations between nine socio-demographic variables and respondents reporting having conducted financial transaction activities on the federal-level e-government service platform. The findings suggest that:

- Respondents with stronger English language proficiency were more likely to report having conducted financial transaction activities on the federal-level e-government service platform than their counterparts who reported being less proficient with the English language (Column-1: OR=1.93, $p<0.05$, 95% CI: 1.223-3.033).
- Respondents with stronger ICT skills were more likely to report having conducted financial transaction activities on the federal-level e-government service platform than those who identified as having limited ICT skills (Column-2: OR=2.22, $p<0.05$, 95% CI: 1.459-3.395).
- Respondents in graduate level (OR=9.69, $p<0.05$, 95% CI: 3.325-28.241), and professional/vocational education (OR=9.05, $p<0.05$, 95% CI: 2.234-36.640), undergraduate level (OR=6.16, $p<0.05$, 2.046-18.573) categories were more likely to report having conducted financial transaction activities on the federal-level e-government service platform than respondents having secondary level education or lower.
- Immigration status, immigration category, age group, gender, household income, and employment status were not found to predict respondents having conducted financial transaction activities on the federal-level e-government service platform.

Table 6.2: Respondents' Financial Transaction Activities on Federal-level e-Government Service Platform

Variables	No.	%	Respondents' Financial Transaction Activities at the Federal Level											
			Column 1				Column 2				Column 3			
Immigration status			OR	P-value	95% CI		OR	P-value	95% CI		OR	P-value	95% CI	
Very recent	41	15.7	1.00		L.B.	U.B.	1.00		L.B.	U.B.	1.00		L.B.	U.B.
Recent & established	220	84.3	0.56	0.207	0.234	1.369	0.49	0.125	0.198	1.217	0.58	0.212	0.248	1.362
Language proficiency														
English	261	100	1.93**	0.005	1.223	3.033								
ICT skills														
ICT Skills	261	100					2.22***	0.000	1.459	3.395				
Immigration category														
Refugee	65	24.9	1.00				1.00							
Family	35	13.4	1.09	0.872	0.371	3.214	0.84	0.761	0.277	2.553				
Economic	135	51.7	1.75	0.218	0.718	4.270	1.68	0.256	0.686	4.127				
Age group														
18-27	25	9.6	1.00				1.00				1.00			
28-37	89	34.1	2.82	0.134	0.727	10.983	2.69	0.159	0.679	10.698	1.61	0.500	0.402	6.479
38-47	97	37.2	2.37	0.212	0.609	9.272	2.82	0.145	0.699	11.354	1.43	0.609	0.360	5.703
48-57	27	10.3	2.62	0.145	0.641	20.482	3.93	0.130	0.669	23.119	2.18	0.381	0.382	12.386
58-67	13	5.0	1.68	0.604	0.237	11.878	2.55	0.358	0.347	18.666	0.96	0.970	0.118	7.792
Gender														
Female	77	29.5	1.00				1.00				1.00			
Male	183	70.1	1.82	0.130	0.837	3.972	1.39	0.434	0.612	3.135	1.79	0.150	0.809	3.995
Level of education														
Secondary or lower	46	21.5									1.00			
Professional /vocational	21	8.0									9.05**	0.002	2.234	36.640
Undergrad	51	19.5									6.16**	0.001	2.046	18.573
Graduate	124	47.5									9.69***	0.000	3.325	28.241
Household income														
Low	113	43.3	1.00				1.00				1.00			
Middle	94	36.0	1.97	0.109	0.858	4.543	1.89	0.137	0.815	4.424	1.77	0.174	0.777	4.014
High	35	13.4	1.54	0.459	0.493	4.792	1.28	0.674	0.403	4.076	1.59	0.420	0.517	4.868
Employment status														
Unemployed	33	12.6	1.00				1.00				1.00			
Others	42	16.1	1.82	0.387	0.469	7.038	2.13	0.299	0.512	8.834	2.04	0.319	0.503	8.277
Self-employed	24	9.2	2.15	0.369	0.405	11.378	2.33	0.331	0.422	12.912	3.79	0.124	0.693	20.727
Employed	151	57.8	1.14	0.829	0.344	3.771	1.22	0.754	0.350	4.251	1.27	0.688	0.385	4.234
Number of observations			206				206				215			

*Level of significance: * = p<0.05, **=p<0.01, ***=p<0.001*

To sum up, only three of the nine variables (i.e., English language proficiency, ICT skills, and level of education) were identified as predictors of the respondents' likelihood of having conducted financial transaction activities on the federal-level e-government service platform. These results are broadly consistent with those of Baum and Mahizhnan (2015), Haight et al. (2014), and Reddick and Turner (2012) who also found that immigrants with high level of education, ICT skills and regular usage of Internet, and English language proficiency were most likely to engage in online activities, and use government websites.

Table 6.3 presents the findings of the multivariate logistic regression analysis of associations between the nine socio-demographic variables and the respondents' reporting having conducted financial transaction activities on the Ontario government's online service platform. The findings suggest that:

- Respondents with stronger English language proficiency were more likely to report having conducted financial transaction activities on the provincial-level e-government service platform than their counterparts who report being less proficient with English language (OR=1.63, $p<0.05$, 95% CI: 1.063-2.509).
- Respondents with stronger ICT skills were more likely to report having conducted financial transaction activities on the provincial-level e-government service platform than those who identified as having limited ICT skills (OR=1.94, $p<0.05$, 95% CI: 1.295-2.906).
- Respondents in graduate level (OR=5.19, $p<0.05$, 95% CI: 1.807-14.916), undergraduate level (OR=6.19, $p<0.05$, 95% CI: 2.178-20.707) and professional/vocational (OR=6.72, $p<0.05$, 95% CI: 1.605-23.879) categories were more likely to report having conducted financial transaction activities on the provincial-level e-government service platform than respondents in secondary level education or lower.
- Age, gender, and employment variables could not be considered as significant predictors of respondents' financial transaction activities on the provincial-level e-government service platform because they were not found to be statistically significant across all three columns.
- Immigration status, immigration category and household income were not found to predict respondents' having conducted financial transaction activities on the provincial-level e-government service platform.

Table: 6.3: Respondents' Financial Transaction Activities on Provincial-level e-Government Service Platform

Variables	No.	%	Respondents' Financial Transaction Activities at the Provincial Level											
			Column 1				Column 2				Column 3			
Immigration status			OR	P-value	95% CI		OR	P-value	95% CI		OR	P-value	95% CI	
Very recent	41	15.7	1.00		L.B.	U.B.	1.00		L.B.	U.B.	1.00		L.B.	U.B.
Recent & established	220	84.3	0.64	0.312	0.271	1.517	0.57	0.213	0.236	1.378	0.59	0.223	0.254	1.376
Language proficiency														
English	261	100	1.63*	0.025	1.063	2.509								
ICT skills														
ICT Skills	261	100					1.94**	0.001	1.295	2.906				
Immigration category														
Refugee	65	24.9	1.00				1.00							
Family	35	13.4	1.11	0.844	0.379	3.266	0.89	0.846	0.296	2.710				
Economic	135	51.7	1.12	0.801	0.455	2.771	1.06	0.903	0.428	2.609				
Age group														
18-27	25	9.6	1.00				1.00				1.00			
28-37	89	34.1	3.83	0.067	0.908	16.147	3.76	0.072	0.887	15.951	1.93	0.355	0.478	7.807
38-47	97	37.2	4.16	0.051	0.992	17.489	5.05*	0.030	1.174	21.710	2.17	0.273	0.543	8.645
48-57	27	10.3	8.89*	0.015	1.526	51.785	10.05*	0.011	1.682	60.066	5.32	0.054	0.971	29.087
58-67	13	5.0	4.45	0.133	0.633	31.207	6.51	0.064	0.896	47.305	3.15	0.281	0.390	25.532
Gender														
Female	77	29.5	1.00				1.00				1.00			
Male	183	70.1	2.13	0.050	1.001	4.531	1.72	0.071	0.791	3.763	2.46*	0.024	1.127	5.378
Level of education														
Secondary or lower	46	21.5									1.00			
Professional /vocational	21	8.0									6.19**	0.008	1.605	23.879
Undergrad	51	19.5									6.72**	0.001	2.178	20.707
Graduate	124	47.5									5.19**	0.002	1.807	14.916
Household income														
Low	113	43.3	1.00				1.00				1.00			
Middle	94	36.0	1.65	0.224	0.736	3.699	1.55	0.295	0.682	3.519	1.34	0.466	0.609	2.955
High	35	13.4	0.74	0.572	0.255	2.126	0.60	0.364	0.204	1.791	0.75	0.569	0.269	2.109
Employment status														
Unemployed	33	12.6	1.00				1.00				1.00			
Others	42	16.1	2.30	0.231	0.588	9.017	2.74	0.163	0.663	11.359	3.07	0.114	0.765	12.326
Self-employed	24	9.2	5.67	056	0.955	33.729	6.31*	0.048	1.014	39.265	4.97	0.065	0.907	27.234
Employed	151	57.8	1.96	0.271	0.589	6.545	2.13	0.234	0.614	7.395	1.91	0.287	0.578	6.334
Number of observations			201				201				211			

*Level of significance: * = p<0.05, **=p<0.01, ***=p<0.001*

As with the federal level, the findings suggest that respondents with a high level of education, strong English language proficiency, and strong ICT skills were most likely to conduct financial transaction activities on the provincial-level e-government service platform. Three other variables (i.e., age, gender, and employment status) could not be considered statistically significant predictors of conducting financial transaction activities.

Table 6.4 presents the findings of the multivariate logistic regression analysis of the associations between nine socio-demographic variables and the respondents' reporting having conducted financial transaction activities on municipal-level e-government service platforms. The findings suggest that:

- Respondents with stronger ICT skills were more likely to report having conducted financial transaction activities on the municipal-level e-government service platform than those who identified as having limited ICT skills (OR=1.73, $p<0.05$, 95% CI: 1.144-2.622).
- Male respondents were more likely to report having conducted financial transaction activities on the municipal-level e-government service platform than their female counterparts (Column-1: OR=2.97, $p<0.05$, 95% CI: 1.364-6.499; Column-2: OR=2.39, $p<0.05$, 95% CI: 1.054-5.344; Column-3: OR=2.25, $p<0.05$, 95% CI: 1.176-5.722).
- Respondents in the graduate level education (OR=9.93, $p<0.05$, 95% CI: 3.379-29.166), professional/vocational education (OR=7.21, $p<0.05$, 95% CI: 1.829-28.419), and undergraduate level education (OR=6.12, $p<0.05$, 95% CI: 1.984-18.864) categories were more likely to report having conducted financial transaction activities on the municipal-level e-government service platform than those in the secondary level education or lower.
- Age variable could not be considered as a significant predictor of respondents' financial transaction activities on the municipal-level e-government service platform because it was not found to be statistically significant across all three columns.
- Immigration status, English language proficiency, immigration category, household income, and employment status were not found to predict respondents' having conducted financial transaction activities on the municipal-level e-government service platform.

Table 6.4: Respondents' Financial Transaction Activities on Municipal-level e-Government Service Platform

Variables	No.	%	Respondents' Financial Transaction Activities at the Municipal Level											
			Column 1				Column 2				Column 3			
Immigration status			OR	P-value	95% CI		OR	P-value	95% CI		OR	P-value	95% CI	
Very recent	41	15.7	1.00		L.B.	U.B.	1.00		L.B.	U.B.	1.00		L.B.	U.B.
Recent & established	220	84.3	0.48	0.105	0.197	1.166	0.45	0.087	0.183	1.121	0.51	0.120	0.214	1.196
Language proficiency														
English	261	100	1.32	0.230	0.840	2.063								
ICT skills														
ICT Skills	261	100					1.73**	0.009	1.144	2.622				
Immigration category														
Refugee	65	24.9	1.00				1.00							
Family	35	13.4	3.31	0.131	0.778	6.882	1.77	0.314	0.582	5.406				
Economic	135	51.7	2.24	0.087	0.889	5.656	1.88	0.174	0.755	4.718				
Age group														
18-27	25	9.6	1.00				1.00				1.00			
28-37	89	34.1	2.51	0.178	0.659	9.544	2.49	0.185	0.645	9.639	1.21	0.781	0.316	4.617
38-47	97	37.2	2.83	0.130	0.736	10.865	3.51	0.074	0.885	13.941	1.46	0.579	0.383	5.566
48-57	27	10.3	7.36*	0.030	1.214	44.638	8.74*	0.022	1.359	56.163	3.54	0.170	0.581	21.664
58-67	13	5.0	6.73	0.084	0.776	58.306	10.08*	0.040	1.111	91.398	7.48	0.151	0.479	116.986
Gender														
Female	77	29.5	1.00				1.00				1.00			
Male	183	70.1	2.97**	0.006	1.364	6.499	2.37*	0.037	1.054	5.344	2.59*	0.018	1.176	5.722
Level of education														
Secondary or lower	46	21.5									1			
Professional /vocational	21	8.0									7.21**	0.005	1.829	28.419
Undergrad	51	19.5									6.12**	0.002	1.984	18.864
Graduate	124	47.5									9.93***	0.000	3.379	29.166
Household income														
Low	113	43.3	1.00				1.00				1.00			
Middle	94	36.0	1.59	0.265	0.702	3.623	1.45	0.378	0.633	3.338	1.24	0.612	0.544	2.814
High	35	13.4	1.91	0.270	0.604	6.053	1.53	0.467	0.482	4.921	1.46	0.520	0.457	4.702
Employment status														
Unemployed	33	12.6	1.00				1.00				1.00			
Others	42	16.1	1.89	0.366	0.474	7.568	2.16	0.296	0.509	9.162	2.79	0.173	0.638	12.201
Self-employed	24	9.2	2.57	0.258	0.500	13.214	2.73	0.243	0.506	14.804	5.08	0.062	0.922	28.030
Employed	151	57.8	2.18	0.218	0.632	7.497	2.38	0.187	0.657	8.648	2.63	0.147	0.711	9.751
Number of observations			205				205				217			

*Level of significance: * = p<0.05, **=p<0.01, ***=p<0.001*

To sum up, only three of the nine variables (i.e., ICT skills, gender, and level of education) were identified as predictors of the respondents' likelihood of having conducted financial transaction activities on a municipal e-government service platform.[7] These findings suggest that within the sample male respondents with a high level of education and strong ICT skills were most likely to conduct financial transaction activities on a municipal e-government service platform. These findings differ from what was observed at the federal and provincial levels. Specifically, English language proficiency, a predictor at the federal and provincial levels was not found to be a predictor of transaction activity at the municipal level. Likewise, despite being identified as a predictor at municipal level, gender was not a predictor of transaction activity at the federal and provincial levels. Age was not found to be statistically significant at the municipal level in all of the three columns of the model.

6.1.2 Synopsis of the Findings

The results of the bivariate logistic regression analysis suggest that all but one socio-demographic variable (i.e., immigration status) have predictive value with respect to the respondents' financial transaction activities on federal-, provincial-, and municipal-level e-government service platforms. The predictive value of some variables, such as age for example, is not equally applicable to all three levels of e-government service platforms (see Appendix 6.1). This points to the need for caution about generalizing across levels of government.

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[7] Recall, some statistically significant results in bivariate logistic regression analysis (controlling one independent variable against one dependent variable) may disappear in multivariate logistic regression analysis (controlling many independent variables against one dependent variable) because of strong correlation among controlled variables. See Pallant (2007).

The results of the multivariate logistic regression analysis suggest that ICT skills and level of education are predictors of engaging in transaction activities on federal-, provincial-, and municipal-level e-government service platforms. The predictive value of age, gender, and employment status was not uniform across the three levels of government. Age and gender were found to be predictors of transaction activity at the provincial and municipal levels, but not at the federal level. English language proficiency was another variable lacking uniform predictive value. It was a predictor of engaging in transaction activities at only the federal and provincial levels. Immigration status, immigration category, and household income all failed to predict the respondents' likelihood of having conducted financial transaction activities at all three levels of e-government service platforms.

These findings suggest that the sampled Nepali immigrants to Canada, regardless of their immigration status, are most likely to conduct financial transaction activities on e-government platforms at the federal, provincial and municipal levels if they possess strong English language proficiency and ICT skills. The findings also suggest that: (a) the respondents have different preferences when conducting financial transaction activities on e-government service platforms; and (b) the predictive value of some of the nine socio-demographic variables is not generalizable across all levels of government.

The varying degrees of predictive value of the socio-demographic variables may be linked with the capabilities and functionings of respondents. Put simply, each respondent has a unique set of capabilities and functionings for conducting financial transaction activities on e-government service platforms that is a product of their individual socio-demographic characteristics. The Capabilities Approach perspective helps one understand

these socio-demographic characteristics as comprising some of the conversion factors responsible for both perpetuating and tackling digital inequalities insofar as they affect the extent to which respondents are able benefit from potential opportunities afforded by e-government service platforms.

For this dissertation, I chose to use 95% confidence interval, which is standard practice among research studies (e.g., Pallant, 2007; Haight et al., 2014; Okunola, 2015). This said, I recognize that this confidence interval is based on a convention that some critique as being arbitrary, and about which there is ongoing debate (see, for example, Sim & Reid, 1999; Albers, Kiers, van Ravenzwaaij, & Savalei, 2018). As a researcher, I opted for the more narrow confidence interval of 95% or higher in order to minimize the likelihood of errors in the data interpretation. However, I acknowledge that widening the confidence interval can be important in some contexts wherein expectations of precision are more relaxed.

Had I, for instance, used a wider confidence interval, the conclusions presented about role of gender as a predictor would have been different. For example, if one widens the confidence interval to 90%, the results of my multivariate logistic regression analyses suggest that gender *is* a predictor of the respondent's use of e-government service platforms, including the conducting of financial transaction activities, at the provincial level (see Tables 5.6 and 6.3). Widening the confidence interval in this manner does not, however, alter my conclusions about the lack of predictive value of gender across the three levels of government.

The discussion in the next section deals with the respondents' experiences engaging in e-government service platforms with respect to various client service activities available on federal-, provincial-, and municipal-level e-government service platforms.

6.2 Ability to Engage in Government-hosted Online Activities

Slightly more than one-quarter (28.7%, n=75) of respondents reported having participated in some type of government-hosted online service activity (i.e., customer satisfaction survey, online polls, and online discussion) in the last five years. As shown in Table 6.5, completing online customer satisfaction surveys was the most frequently cited online activity on e-government service platforms across all levels of government, followed by participating in online polls and online discussions.

Table 6.5: Respondents' engagement in government-hosted activities on e-government service platforms (n=75)

Government-hosted Online Activities[8]	Federal	Provincial	Municipal
Completing a customer satisfaction or related online survey for a specific service	53 (70.7%)	47 (62.7%)	40 (53.3%)
Participating in a government-hosted online poll about an issue of public service	34 (45.3%)	37 (49.3%)	29 (38.7%)
Participating in a government-hosted online discussion about service delivery issues	32 (42.7%)	28 (37.3%)	28 (37.3%)
Other	7 (9.3%)	7 (9.3%)	7 (9.3%)

Only 17.6% (n=46) of respondents reported having interacted with a government agency or department via an e-government service platform to seek information, to request service, to register complaints, and/or to provide feedback. The frequency of such interactions was limited to one or two times per year for more than 40% (n=75) of these individuals.

[8] The list of purposes presented in Table 6.5 was set out *a priori* in the survey.

As shown in Table 6.6, the top three reasons for participating in online public activities cited by respondents were to enquire about government service information, make service requests, and submit feedback. Email was the most frequently reported medium for such interaction with federal, provincial, and municipal government agencies. Most respondents within this group (n=46) affirmed receiving timely responses when interacting with government agencies through e-government service platforms, as well as being satisfied with the responses from the government agencies.

Table 6.6: Respondents' Interaction on e-Government Service Platforms (n=46)

Purposes of interaction[9]	Federal	Provincial	Municipal
To enquire about service information	34 (73.9%)	27 (58.7%)	28 (60.9%)
To request a service	22 (47.8%)	21 (45.7%)	17 (37.0%)
To provide feedback	17 (37.0%)	14 (30.4%)	13 (28.3%)
To register a complaint	9 (19.6%)	10 (21.7%)	11 (23.9%)
Others	3 (6.5%)	6 (13.0%)	5 (10.9%)

In order to assess the impact of immigration status, English language proficiency, and ICT skills on respondents' likelihood of participating in online public activities on Canada's e-government service platforms, I conducted a bivariate logistic regression analysis using these three variables. The results showed that immigration status did not predict the respondents' participation in any government-hosted online activities (OR=0.84, $p>0.05$, 95% CI: 0.396-0.789). This means there was no significant difference between very recent and recent and established Nepali immigrant groups regarding their participation in government-hosted activities on any of the three e-government service platforms. Immigration status did not predict the respondents' self-reported interaction

[9] The list of purposes presented in Table 6.6 was set out *a priori* in the survey.

with any government agency via e-government service platforms in the last five years (OR=0.75, p>0.05, 95% CI: 0.298-1.930). In other words, within my sample, there is no difference between very recent and recent and established immigrants in terms of their interactions with government agencies via e-government service platforms (see Table 6.7).

Table 6.7: Respondents' Engagement in Activities on e-Government Service Platforms

Dependent variables	**Respondents' participation in government-hosted online activities**				**Respondents' interaction with government agency to provide feedback**			
Independent variables	OR	P-value	95% CI		OR	P-value	95% CI	
			L.B.	U.B.			L.B.	U.B.
Immigration status	0.84	0.654	0.396	1.789	0.75	0.562	0.298	1.930
English language proficiency	1.59	0.003	1.173	2.164	1.31	0.124	0.928	1.858
ICT skills	2.03	0.000	1.485	2.780	1.98	0.000	0.003	0.073

Respondents with stronger English language proficiency were found to be more likely to report having participated in government-hosted online activities via e-government service platforms than their counterparts with lower English language proficiency (OR=1.59, p<0.05, 95% CI: 1.173-2.164). However, they were not likely to interact with federal, provincial or municipal government agencies via e-government service platforms in terms of providing feedback regarding the services available to them (OR=1.31, p>0.05, 95% CI: 0.928-1.858).

Respondents with stronger ICT skills were found to be more likely to report having participated in government-hosted online activities than their counterparts with limited ICT skills (OR=2.03, p<0.05, 95% CI: 1.485-2.780). These high-skilled individuals were also more likely to report having interacted with government agencies and departments to

provide feedback via e-government service platforms than their counterparts with limited ICT skills (OR=1.98, $p<0.05$, 95% CI: 0.003 -0.073).

Overall, a majority of the respondents (65.5%, n=171) reported not having engaged in public activities on government-hosted online platforms in the last five years. Among those who participated in such activities (i.e., 28.7%, n=75), the results of the bivariate analysis suggest that English language proficiency and ICT skills were predictors of their engagement. Immigration status failed to predict the respondents' likelihood of engaging in government service activities on federal-, provincial-, and municipal-level e-government service platforms. These results suggest that both groups of Nepali immigrants in the sample, regardless of their immigration status, are most likely to engage in government-hosted online activities if they have strong English language proficiency and ICT skills.

6.3 Conclusion

In this chapter, nine socio-demographic characteristics pertaining to a sample of Nepali immigrants to Canada were analyzed to assess the experiences of these individuals when engaging with federal-, provincial-, and/or municipal-level e-government service platforms. As shown in Table 6.8, the findings of both bivariate and multivariate logistic regression analyses demonstrate that ICT skills and level of education have predictive value across all three levels of government, while immigration status does not have any predictive value with respect to conducting financial transaction activities on these platforms. The predictive values of the other variables were found to vary across the three levels of government examined.

Table 6.8: Predictors of Respondents' Transactions on e-Government Service Platforms

Variables	Bivariate logistic results			Multivariate logistic results		
	Federal	Provincial	Municipal	Federal	Provincial	Municipal
ICT skills	√	√	√	√	√	√
Level of education	√	√	√	√	√	√
English Language proficiency	√	√	√	√	√	
Immigration category	√	√	√			
Gender	√	√	√			
Employment status	√	√	√			
Household income	√	√	√			
Age group		√	√			
Immigration status						

Of the nine socio-demographic variables analyzed, only ICT skills were identified as a predictor of the respondents' likelihood of engaging in all activities on federal-, provincial-, and municipal-level e-government service platforms. For example, ICT skills predicted respondents having used e-government services, having conducted financial transaction activities, having engaged in public activities such as online polls, and having interactions with federal, provincial and municipal government agencies. The other eight variables predicted the respondents' likelihood of engaging in some but not all of these activities at federal, provincial, or municipal levels. This is noteworthy because it demonstrates that socio-demographic characteristics do not equally influence respondents' likelihood of using e-government service platforms. Sen (2005) maintains that even if individuals have equal access to available means or resources, there is no guarantee that people may attain similar outcomes. In line with this view, it appears that the Nepali immigrants in my sample were not using the available e-government services equally.

With respect to the notion, prevalent in the existing mainstream literature, that very recent immigrants may not be adequately familiar with Canada's e-government service platforms, findings from my analysis suggest that very recent Nepali immigrants actually are more likely to use federal-level e-government services than their recent and established immigrant counterparts. One possible reason for this is that very recent immigrants may be more concerned with e-government services at the federal level than the provincial and municipal levels because Canada's federal government handles most issues relating to immigrant settlement. Other than this finding, no observable differences were identified between very recent and recent and established immigrant groups in terms of using provincial and municipal e-government services, conducting financial transaction activities, participating in any government-hosted online activities, and interacting with government agencies via federal-level to municipal-level e-government service platforms.

Taken together, the analysis set out in this, and the previous, chapter suggest there is no significant difference between very recent and recent and established Nepali immigrants in my sample with regard to English language proficiency. This observation breaks from the common notion in the mainstream digital divides literature that very recent immigrants frequently have limited proficiency with their host country's national languages; and, in this case, Canada's official languages. Both groups of immigrants were found to have strong English language skills and poor French language skills. There are two plausible reasons for this: (a) English is one of the two most used languages of instruction (the other is Nepali) in Nepal’s secondary and post-secondary institutions (Gyawali & Khadka, 2016; Shrestha, 2018); and (b) most Nepali applicants who want to

emigrate to Canada participate in IELTS tests to prove their English language proficiency (British Council, n.d.). The findings from my analysis also suggest that very recent and recent and established Nepali immigrants who have strong English language proficiency are more likely to use e-government services than their counterparts with poor English language proficiency. Even though a majority of Nepali immigrants in my sample self-reported having strong English language proficiency, it cannot be taken for granted that they have required levels of proficiency, and can make informed decisions when/if conducting financial transactions on e-government service platforms.

The analysis from the two chapters also suggests that there is no statistically significant difference between the ICT skills of very recent and recent and established Nepali immigrants in my sample. Members of the both groups who reported having strong ICT skills were found to be more likely than their counterparts with poor ICT skills to use e-government services, conduct financial transaction activities, engage in government-hosted online activities, and interact with government agencies from federal to municipal levels. A majority of participants in my sample (57%, n=158) rated their ability to use ICT devices as 'very good' or 'excellent,' meaning ICT skills were not considered a serious concern either because of the normalization of ICT devices and Internet worldwide, and/or very recent and recent and established immigrants' increased familiarity with ICT devices. However, approximately 20 percent of respondents rated their ICT skills as 'poor' or 'very poor.' If we interpret these findings through a Capabilities Approach lens, Nepali immigrants in my sample may have access to resources (i.e. e-government service platforms) but they may not be able to convert the resources into valued functionings.

Considering the findings and analyses presented in this, and the previous chapter, three key issues were identified as requiring further detailed qualitative analysis. First, very recent Nepali immigrants to Canada in my sample were more likely to use federal-level e-government service platforms than their recent and established immigrant counterparts. However, no observable difference was identified between the two groups at provincial and municipal levels. As previously noted, this observation stands in stark contrasts with the dominant views expressed in the existing literature. Hence, further investigation was deemed warranted. Second, findings regarding the inconsistent predictive value of socio-demographic variables across the three levels of government suggest that both very recent and recent and established Nepali immigrants in my sample did not use e-government service platforms in the same way and for the same purposes. Whereas, to date, most studies of e-government use have tended to focus on only one level of government, the latter findings give pause for considering the differing dynamics that might be manifest across differing levels of e-government service platforms. Third, the quantitative data pointed to the presence of a possible trust gap regarding personal data protection on e-government service platforms but offered little in the way of understanding what may underpin this gap.

I turn my attention to these issues in the next chapter.

Chapter 7: Focus Group Discussions: Experience-Sharing of Nepali Immigrants' Use of Canada's e-Government Services

The survey findings presented in Chapters 5 and 6 identified three issues requiring further examination:

1. Findings that contradict assumptions and claims advanced in the existing literature and/or identify unique trends regarding immigrants' use of ICTs and/or e-government services. These include observations that the very recent Nepali immigrants in my sample used federal-level e-government service platform more frequently than their recent and established immigrant counterparts, and that there was no difference between the very recent and recent and established Nepali immigrants in terms of their English-language proficiency and ICT skills.
2. Findings that are inconsistent across the three levels of government and which may be accounted for, in part, by the participants' unique socio-demographic factors. These include observations that: 1. both very recent and recent and established immigrants reported using e-government service platforms differently across the three levels of government for the same purposes; 2. despite having strong English language proficiency, high ICT skills, and university education, some 50% of the respondents had never conducted financial transaction activities on these platforms; 3. more than 80% of the Nepali immigrants in my sample did not interact in any way with government agencies via e-government service platforms.
3. Findings of an absence of trust among Nepali immigrants to Canada about the quality of data protection on e-government service platforms.

These considerations served as a basis for formulating questions to guide five focus group discussions with Nepali immigrants, with each event comprised of five

participants,[1] about their experiences using federal-, provincial-, and municipal-level e-government service platforms.

The discussion set out in this chapter presents the findings emerging from these focus group meetings. The first two sections present the challenges that focus group participants reported with regard to English language proficiency and ICT skills. The third sets out other challenges the participants had faced using e-government service platforms. The fourth section looks at differences in the participants' levels of engagement with e-government service platforms, and the fifth section deals with the participants' levels of trust in the protection of their personal information on federal-, provincial-, and municipal-level e-government service platforms. The sixth section discusses the focus group participants' reported motivations for using e-government services and platforms. The seventh section identifies key observations emerging from these discussions.

7.1 Challenges Relating to English Language Proficiency

All the focus group participants reported having used at least one e-government service in the previous five years, including searching for information, completing online forms, downloading/uploading documents, paying service fees, participating in government-hosted online surveys/polls/discussions, and/or submitting feedback to relevant agencies and departments. A majority of these individuals (72%, n=18) reported having experienced challenges on federal-, provincial-, and municipal-level e-government

[1] Recall that the majority of the 25 focus group participants (76%, n=19) were recent and established immigrants. Of these 25 participants, 64% (n=16) were male and 36% (n=9) female, from nine different cities, i.e., Brampton (n=1), Guelph (n=1), Kitchener (n=1), Mississauga (n=3), Ottawa (n=12), Peterborough (n=1), Scarborough (n=1), Toronto (n=3), and Waterloo (n=1).

service platforms as a result of a lack of English language proficiency. The reported challenges included difficulties in understanding content, following procedures, and interpreting legal terms and/or technical jargon. Among these 18 participants, 11 reported they only experienced such challenges during the early months and/or years of their immigration to Canada, and seven indicated that they continued to experience these language proficiency-related challenges. The other remaining seven participants claimed not to have experienced any challenges relating to English language proficiency.

Some of the participants, whether very recent or recent and established immigrants, who reported having experienced challenges relating to English language proficiency claimed to have found it difficult to understand the content on federal-, provincial-, and/or municipal-level e-government service platforms. For example, discussing their confusion while preparing to submit their Canadian citizenship application online, FGD12 stated:

> I understood the questions literally, but I was not sure what the statement actually said. I feared that selecting wrong [among alternative] answers would add further risks and could disqualify me from becoming a citizen.

When expressing their low confidence in their ability to understand English content on e-government service platforms, FGD13 also indicated that they could not understand questions posed on the federal government's Job Bank portal (www.jobbank.gc.ca/findajob). In their words:

> The [federal government's] jobs platform has approximately 150 questions to be answered. Most of them looked repetitive. I didn't get any clue what exactly they're asking. It could be my [English] language barrier.

FGD42 likewise shared a bitter experience resulting from, as they put it, “poor English language proficiency”:

> When I submitted an OSAP [Ontario Student Assistance Program] application, I tick-marked a statement, without clearly understanding it, that asked me to agree to receiving email letters instead of paper copies [via Canada Post], if there was any information update or document required. My application was successful, and I received OSAP funding with over a 60% grant. Since I was not aware of my action, I did not check the emails sent to my OSAP account. Meanwhile, they emailed me two or three times requesting updates about my income back home because it was my first year in Canada as an immigrant. As I said, I was expecting printed letters. Consequently, my OSAP grant was converted to a loan because I did not reply to them on time with my updates.

FGD24 reported that they and their spouse had tried to complete a passport application online and failed because of their limited ability to understand the English content. Instead, they opted to visit a nearby federal government office. Two other focus group participants, FGD33 and FGD35, reported that their children's English language proficiency was much better than their own, and so they often called upon their children to help them use online services.

Eight participants across the five focus groups who reported understanding English language content on e-government service platforms without difficulty nonetheless pointed out that they often encountered difficulties in understanding technical jargon, colloquial expressions, and legal terms. Some example observations from these individuals included:

FGD14: Language is obviously difficult for immigrants like us. Especially, if the language is related to legal provisions, such as contents from Acts, we can't understand [...]. The language is difficult if it is full of legal jargon.

FGD22: I have used federal, provincial and municipal government services. I have not experienced any significant challenges [relating to English language proficiency], but I often get confused with technical jargons.

FGD53: I also find technical and legal terms confusing. I know that general communicative language is not enough to use e-government service platforms effectively.

In addition to legal and technical terms, FGD41 reported often fearing cliché or colloquial expressions. In conveying their view, this individual did not provide any specific examples they had come across in terms of e-government content. Instead, they provided an example of the common Canadian coffee-shop expression "medium double-double" to convey their point. According to this individual, despite being widely used, such short-cut expressions are not understandable to immigrants, especially new ones.

The focus group participants were all asked about their strategies to resolve challenges relating to their English language proficiency when using federal-, provincial-, and municipal-level e-government service platforms. Five different strategies and combinations thereof were reported (see Table 7.1): (a) consulting with friends; (b) asking family members for help; (c) contacting the client support service[2] of the same government agency; (d) searching for information on Google and YouTube; and (e) visiting a physical office. Participants' use of multiple strategies is noteworthy because it suggests that the limited English language proficiency of some focus group participants impeded their ability to use e-government services effectively by themselves without additional measures.

Table 7.1: Strategies Used to Resolve English Language Proficiency-related Issues by the Number of Participants in order of Their Preferences

Strategies Used	**Order of Preference**		
	First	Second	Third
Consulting with friends	13	4	N/A
Asking family members for help	6	1	N/A
Contacting a client support service	4	6	6
Searching on Google/ YouTube	2	3,	3
Visiting a physical office	N/A	6	3

[2] I visited more than 20 government websites, and found that several terms, including customer service, client support center, call center, telephone service, and telephone inquiry were used interchangeably when indicating a government telephone support service. For consistency, I chose to use 'customer support service' throughout this dissertation.

All the focus group participants who had lived in Canada for less than five years (i.e., very recent immigrants, n=6) reported that if they encountered challenges relating to English language proficiency when using e-government service platforms, their first strategy to resolve the matter involved consulting with their friends and family members. They offered three reasons for this course of action: (a) accent differences between themselves and government employees could be an obstacle; (b) friends might be familiar with the issues very recent immigrants often face; (c) friends could provide answers in their native language; Nepali. All the focus group participants who had lived in Canada for more than five years (i.e., recent and established immigrants, n=19) employed similar strategies to resolve challenges relating to their English language proficiency.

Thirteen of the focus group participants reported that consulting with friends was their most preferred strategy for resolving difficulties relating to English language proficiency (see Table 7.1). For instance, FGD11 maintained that:

> One's friends circle is the most effective tool to solve this kind of [English language related] issue. They can be asked what exactly the problem is, how serious the consequences it may create, and how they solved it. If that's not enough, then phone service and other alternative methods can be used.

Others expressed frustration with long wait times when using a telephone service, and identified people within one's circle of friends as a more efficient means of resolving English language-related issues. As FGD12 put it:

> When I come across some complications with online submission, I consult with friends. Only if none of them is available to talk do I call the office [client service]. I go with friends as my first priority because telephone wait times [in government offices] are too long and annoying. Sometimes before I get a chance to speak with a government representative, the online government service session expires. Then, it may need another login, and I may not get another opportunity to do something for a week or so. Due to such complications, once I was charged additional fees.

Three focus group participants described differences in people's accents as another reason to consult family and friends instead of telephoning or visiting government offices. FGD15, for instance, noted that their limited English proficiency negatively impacted their ability to understand others who speak with a different accent. As such, even when visiting government offices, they found themselves unable to understand much of what was said. FGD34 likewise pointed out that when visiting nearby government offices for specific services, the difficulties they had with properly understanding what the government employees said resulted in their increasingly calling upon their circle of friends to assist in resolving English language-related issues.

Drawing from their personal experiences, the focus group participants suggested potential ways of addressing the challenges and constraints they encountered when using federal-, provincial-, and municipal-level e-government service platforms. Participants FGD11 and FGD15, for example, said that it would be beneficial to provide demonstration videos to guide participants on how to use particular online services properly. Both of these individuals wanted to see step-by-step visual instructions available on federal-, provincial-, and municipal-level e-government service platforms to guide immigrants in successfully using specific services. FGD12 and FGD15 suggested that a language translation or interpreter service serving the diverse language needs of immigrants, when necessary, would help immigrants, especially very recent ones, to properly understand the content on e-government service platforms. FGD14 and FGD42 indicated a need for a simpler version of e-government content than currently is the case. However, they did not specify or provide more details about what exactly they had in mind.

In sum, a majority of the focus group participants, representing both very recent and recent and established immigrants, reported encountering few challenges understanding English language content on federal-, provincial-, and municipal-level e-government service platforms. The only exception was legal terms and technical jargon. They also reported having developed personal strategies, the most common of which was calling upon friends, to resolve issues relating to English language proficiency if and when they arose.

7.2 Challenges Relating to ICT Skills

All the focus group participants reported having experienced challenges related to ICT skills at least once in the previous five years when using federal-, provincial-, and municipal-level e-government services. Their concerns can be grouped into three categories (see Table 7.2): (a) challenges relating to hardware; (b) challenges relating to software; (c) challenges relating to browser incompatibility issues and logins.

Table 7.2: Challenges Relating to ICT Skills Experienced by Focus Group Participants (n=25)[3]

Hardware-related Challenges (n=12)	Software-related Challenges (n=12)	Browser- and Login-related Challenges (n=12)
• Limited knowledge of ICTs • Buying cheap devices without knowing minimum technical requirements (e.g., processor, memory, storage) • Lack of printers, scanners, and other ICT gadgets • Lack of affordability due to low income	• Lack of knowledge and skills about matching technical specifications • Problems in converting documents into specific formats (e.g., Word to PDF) • Problems with digital signatures • Difficulties with software upgrades	• Problems arising from a need for multiple login IDs on e-government service platforms • Problems in opening Canada Revenue Agency personal accounts • Canada's e-government service system not supporting particular web browsers

[3] Some focus group participants are reported in multiple columns because they experienced more than one type of ICT-related challenge.

7.2.1 Challenges Relating to Hardware: Twelve participants stated that they lacked the requisite knowledge and skills to select the type of Internet service (e.g., high-speed Internet with adequate upload/download speed) and ICT devices (e.g., a laptop computer with a good processor, adequate memory and storage, printers, and scanners) needed to easily and efficiently access and use federal-, provincial-, and municipal-level e-government service platforms. For example, FGD41 stated they "faced some technical issues including slow computer and low-grade Internet connection" when accessing and using e-government service platforms. Initially, they thought their difficulties were due to the e-government service system, but later discovered that their devices or Internet connections were inadequate. Participants FGD22 and FGD32 observed that they, along with many of their friends from the Nepali diaspora, were buying cheap ICT devices because they had a low income and/or had limited knowledge and skills regarding ICT devices. Sharing their thoughts on this matter, FGD22 noted:

> We often follow the C&B (cheap and best) formula when buying ICT devices, which creates problems with slow processing. Sometimes, we can't manage a lot of files on our computer, making the processor slow and overloaded. I classify this kind of problem in the ICT negligence category instead of an ICT challenge. We are not aware of how to make our ICTs work.

FGD55 shared that when they had first arrived in Canada five years previously, they "did not have adequate technological gadgets such as printers and scanners," and that their laptop could not even open PDF documents downloaded from federal government websites. They ended up relying on nearby government offices instead of using online services at home. FGD53 described having faced several ICT-related difficulties when accessing and using e-government services in Canada, not least because the ICT and software specifications needed to access government platforms were higher than those for

the ICT devices they had. FGD51 shared their experiences that they needed to upgrade their ICT devices replacing older versions of software by newer versions to access and use e-government service platforms successfully, and that low-income immigrants like themselves often had to visit community centers to access and use e-government services. The experiences of these participants suggest that challenges relating to their ICT skills started with their purchase of lower-quality devices and services out of financial necessity, and were reinforced by limited knowledge and skills in how to use these devices properly.

7.2.2 Challenges Relating to Software: Twelve of the focus group participants reported encountering difficulties because their devices failed to meet minimum technical specifications when trying to upload or submit documents on e-government service platforms, and not knowing how to download and run upgraded versions of necessary software (e.g., Windows 10, Acrobat Reader, and antivirus programs.). Participants FGD25, FGD42, FGD44, and FGD55 noted that they found it arduous to convert documents from one format to another (e.g., from Word to PDF) or to sign digitally on PDF and other electronic documents. FGD25 shared:

> Some online documents require a signature. I don’t know about digital signatures. So, I need to download the document, print it, sign on it, then scan it, and finally upload it into the system. It's really a hectic experience for many, including me.

FGD44 encountered similar challenges when trying to open PDF documents from the federal government; when they failed, they would visit a nearby office:

> Last year, I had to fill out a form downloaded from the federal government website. I downloaded the form but could not open it because it required a certain version of Adobe Acrobat Reader. Then, after I downloaded the reader and ran it, I still could not open the document. Some PDF documents need signatures that I can't do digitally.

FGD45 asserted that despite having years of experience using different ICT devices and online service systems in their previous job, they still faced technical challenges when using e-government service platforms at federal and municipal levels:

> I am very comfortable technically in computers based on my background […], but I got lost with the technical requirements of documents such as photo sizes and quality. Sometimes the e-government system asks for an updated version [of existing applications]; otherwise, I can't open documents. These requirements are high and specific. I don't understand these technicalities perfectly.

Seven focus group participants disclosed that they often lacked knowledge about the updates needed for Acrobat Reader, Flash Player, and other software applications in order to open government documents. They reported visiting nearby government offices such as Service Canada or Service Ontario, community centers, or newcomer welcome centers to consult about and resolve the technical issues they faced, as well as to access and use e-government services.

7.2.3 Challenges Relating to Browsers/Login: Eleven focus group participants shared their difficulties with respect to browser and login-related issues on e-government service platforms. The main issues raised during these discussions included: (a) obstacles with opening personal accounts with the Canada Revenue Agency that require a security code to log in; (b) login failures due to having multiple IDs in different government departments; (c) browsers being incompatible with some federal government websites. Seven participants reported that they could not log into federal e-government platforms such as the National Students Loan Service Centre and the Canada Revenue Agency (CRA account) due to these types of browser problems. FGD11 said:

> ICTs are not big issues for me, but there is confusion due to several user IDs and separate login requirements for different service departments. Having multiple accounts is challenging to manage and memorize…. Also,

> different government departments require different kinds of passwords, leaving users in trouble.

FGD13, who was working with the government of Canada as an IT professional, also reported having encountered problems with the CRA login system. They said:

> Once, there was an error when accessing my account in the CRA login system and I couldn't open it. The system suggested that I obtain a new code to open my account. It took almost two weeks to receive a new code via Canada Post. During the days waiting, I couldn't log into my account. I telephoned them, but they couldn't provide much information over the phone. So, control over password resetting with the CRA is another major ICT challenge for many of us.

FGD14 nearly missed an application deadline for the Ontario Scholarship Assistance Program (OSAP) due to browser-related complications. In their words:

> I tried to log into NSLSC [the National Students Loan Service Centre], but it did not work. I repeated the attempt several times. I telephoned the office to get help from them. The person on the other end was helpful, but whatever they suggested did not work on the system. It engaged me for over 15 days, and the OSAP application deadline was approaching soon. For this kind of service, there is nowhere to go—no physical office. Service Canada does not handle this kind of service. I kept telephoning everyday and sharing my problem with new persons each time. Everyone was suggesting the same as the first person did on the first day. Finally, a lady picked up the phone, carefully listened to my problem, and advised me to log in from Internet Explorer instead of Google Chrome. That was like a miracle to me.

FGD24 likewise found that their CRA account login would not work in Google Chrome. After consulting with friends, they learned that they could access their account using the Safari browser. However, they reported having no idea why such a complication occurred. FGD31 shared that they had been barred from accessing their CRA account because they had made mistakes a couple of times when trying to log in. Consequently, they had to wait approximately 15 days to receive a new CRA login code.

FGD43 shared their experience of frequently and successfully using mobile apps for banking, online purchases, and other everyday purposes. However, when they had

tried to submit an online application for Employment Insurance, and Canadian citizenship, they found that the document submission via mobile app was problematic because of difficulties in filling out or signing documents and converting them to PDF format.

Twenty-two participants spoke of not being able to submit annual taxes online without assistance (n=22, 88%), and, therefore, visited third-party offices and paid extra fees to submit their taxes online. In contrast to the 43% of average Canadians who filed annual taxes themselves electronically in 2019 using NETFILE-certified software,[4] only three focus group participants (n=3, 12%) reported having such tax filing without third-party assistance. FGD11 said:

> I faced some troubles while I started filling out information online for the CRA for tax purposes. I called the CRA, and they gave specific information about the login system, and suggested downloading certain apps to fill out and submit my tax information online. They recommended a tax submission form that was also very difficult to understand. Unfortunately, I could not do it, and I abandoned it.

FGD53 and FGD55 stated that they had purchased government-recommended software to complete their tax filing. They had made several mistakes regarding the information submitted, including failing to report expenses that could be claimed for tax deductions, calculation errors, providing incorrect information, and typos. Although FGD55 persevered through the confusion and trouble with their purchased software and managed to submit their annual taxes online by themselves, FGD53 eventually opted to visit a tax-filing agency to do the job.

Five participants across three groups reported using e-government services only for information purposes. Three of these individuals (FGD24, FGD52, FGD54) indicated

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[4] See: https://www.canada.ca/en/revenue-agency/news/2020/02/2020-tax-filing-season-launch.html

that if and when a technical issue arose, they would visit a nearby government office. The other two individuals (FGD33, FGD35) said that they would seek help from their family members (e.g., spouses, children).

As with matters of English language proficiency, the participants reported using various strategies to deal with the technical challenges they encountered. For example, nine participants across five groups stated that conducting a Google or YouTube search was their first strategy to address issues related to their ICT skills. FGD22 said:

> When I face a technical challenge [while accessing or using e-government service platforms], I search on Google as my first option. If I go to a government office to resolve such issues, I have to spend around 1-2 hours. My next option is to email them [instead of telephoning them] because telephone wait times are too long.

FGD51 similarly suggested that Google and YouTube searches were more effective in resolving ICT skills-related issues than consulting with friends or contacting client support services.

Seven participants across three groups disclosed seeking help from family members, not least because they were highly trusted and immediately available. FGD24 stated:

> I admit that I am not proficient in technology. So, I often face problems […]. Oftentimes, my husband solves most of the technical issues that I face.

FGD42 said that they often faced challenging situations when accessing or using e-government services, such as converting documents to PDF format, signing PDF documents, uploading photos on government websites that matched given specifications, or creating and managing user-names and passwords. To resolve these situations, they would seek help from their daughters before contacting friends.

Although friends are important sources of help for resolving problems relating to English language proficiency, only four of the participants (FGD12, FGD41, FGD44, and FGD45) identified consulting with friends as their primary strategy for resolving problems relating to ICT skills. For example, FGD45 said:

> I sometimes visit government offices [to resolve ICT related issues] and want to get help from client service centers, but I can't explain properly what the exact problem is [because of limited English language proficiency]. So, my friends' circle is the most important [helping] source for me.

Two of the focus group participants (FGD31, and FGD32) reported often revisiting the same website for additional instructions, while two other individuals (FGD52 and FGD54) said that they would visit a nearby office. Only one participant (FGD23) said that they would contact a government client support service as their first strategy to resolve browser or login-related problems. Interestingly, those who reported conducting Google or YouTube searches to resolve ICT skills-related issues all claimed to have had previous advanced knowledge or experience with IT, whereas those who said they would ask for help from family members did not have such knowledge or experience.

Fourteen of the focus group participants indicated that they would like to see improvements in federal-, provincial-, and municipal-level e-government platforms. One notable suggestion was to introduce a centralized system that would share users' personal information across different e-government service platforms. Three of the participants suggested that such an approach might relieve various issues related to password, login, and security verification complications.[5] As FGD13 put it:

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[5] A recent survey of Canadians on privacy issues, conducted by the Privacy Commissioner of Canada (2019) revealed that 92% of 1,516 Canadian respondents expressed some sort of concern with regard to the protection of their personal information on various platforms, including e-government service platforms; e.g., identity theft and possible misuse of information. Of the respondents to the survey, 81%

> A lack of a unified information-sharing system has created big trouble for users like me in remembering passwords and user-names for different accounts [...]. When we open an account on Zoom [the online conferencing platform], for example, our information can be shared on Facebook or Google, and an account can be created [immediately]. The same kind of unified system is required so that the e-government service system can share the same individual information with different government departments [without asking users to submit information frequently].

To sum up, all 25 focus group participants reported having experienced challenges regarding ICT knowledge and skills in the previous five years when trying to use federal-, provincial-, and municipal-level e-government service platforms. They resolved these challenges by using a wide array of strategies, most frequently, consulting with friends and family members.

7.3 Challenges Relating to Familiarity and Awareness

All the focus group participants were asked if they had experienced any challenges that were not related to English language proficiency or ICT skills when engaging with federal-, provincial-, and/or municipal-level e-government service platforms. Nine reported that they had not experienced any such issues. However, the 16 other focus group participants discussed a variety of challenges, including their limited awareness of government services available online, a lack of adequate information available to guide the platforms' users, and a sense that e-government service systems were unfriendly to immigrants. Twelve of these 16 participants reported having faced problems when using e-government services because they had no previous experience with e-government services in their country of birth. FGD13, for example, suggested that "a lack of

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of Canadians reported that they were somewhat comfortable with sharing their personal information on Government of Canada websites, but many of them were not sure about how their information would be handled. The report also revealed that the ratio of Canadians who expressed privacy concerns was growing compared to previous findings (i.e., 46% in 2016 versus 51% in 2018).

awareness of the information and services provided on e-government service platforms is the most important challenge" for immigrants. They further added that they did not know what services were available, or how to approach them. FGD41 also shared their experience relating to a lack of awareness about Canada's e-government services, saying:

> When I was a new immigrant, I did not know about government services available online even after four months in Canada. Then, I used to visit nearby government offices to update my address. One day I met a government employee who let me know about the government services available online that I could use while staying at home. Since then, I have started visiting government websites to look for information and to do necessary work that can be handled online. It's not because of a lack of English language proficiency, but a lack of awareness.

FGD45 shared a similar experience related to their limited knowledge of Canada's e-government services. Specifically, they had not been aware of what government services were available online when they were preparing to sponsor their parents to visit Canada. Instead, they prepared a paper application and sent it to the designated federal government office via Canada Post. A short time later, their application was rejected and returned with the instruction to apply online. That moment constituted a personal epiphany that their lack of awareness about what services are available online is itself a challenge for new immigrants like themselves. Likewise, FGD25 reported that they had not been "completely unaware about it [e-government services]" but faced "problems [such as finding right services, uploading and submitting documents, and paying service fees] when using e-government service platforms … because of a lack of past experience" with using any such e-government service.

However, all six of the focus group participants who had arrived in Canada in the previous five-year period (i.e., very recent immigrants) reported that they had accessed and navigated the federal-level e-government service platform and used one or more

services on it relating to their immigration settlement, such as permanent resident card renewal, citizenship application, and income tax information. Three of these six individuals reported having visited the provincial-level e-government service platform to apply for health cards and driver licenses, and only one of the six reported having visited a municipal e-government service platform. Compared with the focus group participants who had arrived in Canada five years or more previously (i.e., recent and established immigrants), the very recent Nepali immigrants in the focus group sample seemed to have engaged more frequently with federal-level e-government service platform.

Two of the focus group participants discussed lacking information to guide them on how to use online services. FGD11, for instance, reported that they did not get adequate information about annual tax filing in their first year after immigration to Canada. They had tried to fill out the annual tax form online but could not; only upon contacting their circle of friends did they learn that they were required to submit paper forms[6] in their first year as an immigrant. They described the situation "not as an English language problem" but rather a consequence of "a lack of adequate [guiding] information" on the Revenue Canada online service platform. FGD22 also experienced the challenge of not finding an option matching their situation when they were applying online for a visa application for their mother. FGD22 said:

> When I was applying online for my mom's visa renewal, none of the options provided on the federal-level e-government service platform was found to be suitable for my mom's situation. Unfortunately, there was no 'other' option where I could write my exact situation. Without selecting one of the

[6] I could not find specific information on government websites about the requirement for new immigrants to submit paper copies of tax-filing documents in their first year (see, for example, https://www.canada.ca/en/revenue-agency/campaigns/income-tax-benefit-return-paper.html). It is plausible that such a requirement has been relaxed in recent years. However, I had an experience similar to that of participant FGD11 of submitting paper tax forms in my first year of tax filing in 2010.

> given options, I could not move to the next step. I got lost and contacted customer service.

Two other focus group participants asserted that e-government service platforms in Canada are not friendly to new immigrants because not all the basic services for immigrants are available online. FGD44 said:

> I had a very frustrating experience when I tried to register online for my kid's daycare service. There was a 17-18 page-long online form that required a lot of minor and unnecessary details. The online system also required a login account with a personal profile on the website. After the online form submission was successful, I had to wait in a queue [in a physical location to enroll kids for daycare]. I got lost [trying to submit the online form before visiting a physical location]. It's really hectic. I could not submit the online form even after several attempts. Had there been any service from any physical office, I would have visited the [physical] office.

Drawing on their experience using e-government services in Australia, FGD55 claimed that Canada's e-government service system has relatively limited features. According to them, as in Australia, Canada's e-government services could make digital forms to obtain a social insurance number online, but users were required to print the completed forms and submit them physically as well. In their words:

> Why can't the e-government service system allow me to apply for a SIN card at home, and I must visit a physical office? Why can't new immigrants like FGD54 or me submit our tax files digitally in our first year? Why must a citizenship applicant submit information online, but also send paper copies via the mail? If the government of Canada genuinely wants to upgrade the digital system and provide services to Canadians at home, they have to upgrade and simplify their digital platforms and the system […]. Then, I can use the service. Verification [of individual information] is easy if the government wants to make it so.

All focus group participants indicated that they had applied a range of strategies similar to those discussed in the previous two sections to resolve issues relating to their familiarity and awareness of e-government services.

To sum up, 16 of the 25 participants described Canada's e-government service platforms as presenting challenges beyond those relating to English language proficiency and ICT skills. These challenges included: (a) people's lack of familiarity or awareness of the services available; (b) a lack of instructional guidance on e-government service platform to inform new users, such as recent immigrants, about what government services were available online and how to use them. Owing to these challenges, these 16 focus group participants perceived e-government services as less friendly to immigrants.

7.4 Users' Engagement with and on e-Government Service Platforms

The focus group participants were asked about the types of activities and services in which they had engaged or participated in on federal-, provincial-, and municipal-level e-government service platforms shown in Table 7.3.

Table 7.3: Activities Conducted by Focus Group Participants on e-Government Service Platforms (n=25)[7]

Activities Conducted on e-Government Service Platforms	Number of Participants	Percentage
Information search	25	100%
Document download/upload and/or information submission	21	84%
Service fee payment	15	60%
Participation in online surveys/polls/discussions	6	24%
Sending emails/feedback to government agencies	2	8%

For all 25 focus group participants, information search was the primary purpose in using e-government service platforms. Indeed, four individuals reported using these platforms solely to search for information. Of these four, two recent and established immigrants (FGD33 and FGD35) reported having used e-government services

[7] Focus group participants reported conducting more than one activity on e-government service platforms. The participants for one activity may be repeated in another activity, as shown in the table.

infrequently because of their old age and poor health, while the other two (FGD52 and FGD54) reported being very recent immigrants, having been in Canada only for around one year and were not adequately familiar with Canada's e-government service system.

Twenty-one of the 25 participants reported having downloaded or uploaded documents or submitted personal information such as dates of birth, home addresses, postal codes, and phone numbers on e-government service platforms. Fifteen individuals[8] shared experiences of making payments online through e-government service platforms for such things as permanent resident card renewal, citizenship or passport applications, license plate renewal, water and sewage fees, and parking offences.

Six of the focus group participants mentioned having participated in at least one government survey on a federal or provincial-level e-government service platform in the previous five years. Among these six, FGD13 stated:

> I often participate in online surveys in my areas of interest, such as surveys related to widening local roads, local park modification, data privacy, and service improvements in hospitals. I also participate in Statistics Canada-related surveys because of my interests.

Among those who provided reasons for not participating in online surveys, polls, or discussions on e-government service platforms, four (FGD21, FGD23, FGD24, FGD51) said they had no time for such activities, three (FGD12, FGD14, FGD22) were afraid of subsequently receiving fraudulent emails and spam links, and one (FGD41) indicated that they would provide feedback if they received a request by email or push notification from any government agency, but that they had never received any such request. FGD14, for example, did not "participate in any kind of survey or feedback sending activities" on e-

[8] Some participants (FGD21, FGD25, FGD41) reported that their spouses were responsible for all e-government payments, and two participants (FGD43, FGD45) did not participate in the discussion regarding this question.

government service platforms or any other corporate platform because they kept "receiving […] fraud emails." In sharing their motives for not participating in surveys, FGD23 pointed out:

> I use online services for things that are really urgent to me. There may be some kind of loss if I skip these things. In case of a survey or providing feedback, there is no compulsion and no loss if I do not participate. So, I don't spend time for this kind of engagement.

FGD41 also shared an interesting reason for not bothering to participate in government-hosted online surveys.

> When I buy something from Amazon.com, they send me emails and ask for feedback. In the same way, when I use some service from e-government [service platforms], they need to send me an email and ask for feedback. If so, I can provide my feedback. Otherwise, I am not going to use this tool [feedback template] effectively. I would send feedback for government services if there were a push notification via email.

The focus group participants were also asked if they had opened personal accounts on federal-, provincial-, and/or municipal-level e-government service platforms. Twenty-three of the 25 participants stated they had a personal login account on a federal e-government service platform such as the Canada Revenue Agency (CRA) or the National Student Loan Service Centre (NSLSC). Three participants said they had provincial personal online accounts, and one individual had a municipal account. Seven of those who had opened a CRA login account reported having only recently having done so in order to receive the Canada Emergency Response Benefit (CERB) during the COVID-19 pandemic. FGD52 shared their experience of opening a CRA login account:

> Recently, with much difficulty, I opened a CRA login account to receive CERB [Canada Emergency Response Benefit], but I could not receive money for a long time. Then, I called the government office, and found that I did not properly fill out the information.

Of the 19 focus group participants who were recent and established immigrants, 17 said they had used federal-, provincial-, and municipal-level e-government services based on their individual needs, including annual federal income tax submission, health card and driving licence renewal at the provincial level, and property tax and water and utility bill payments at the municipal level. The other two reported limiting their use of e-government services exclusively to gathering information. In contrast, all six focus group participants who were very recent immigrants reported having used at least one federal e-government service over the previous five years, and three indicated they had used at least one provincial e-government service. FGD51, for example, said that they used the Immigration, Refugees and Citizenship Canada website the most for their personal needs. No one in this group had used municipal e-government services in the previous five years.

To sum up, very recent Nepali immigrants who participated in the focus group discussions were found to have engaged more with the federal-level e-government service platforms than its provincial and municipal counterparts. However, most of the recent and established Nepali immigrant focus group participants were found to engage with all three levels of e-government platforms for services of their choice based on their individual needs. A majority of the focus group participants from both the very recent and recent and established immigrant groups tended to avoid non-mandatory e-government activities, such as participating government-hosted online surveys and submitting feedback, for a variety of reasons.

7.5 Users' Trust in e-Government Service Platforms

A majority of the focus group participants (92%, n=23) reported some degree of trust that e-government service platforms would protect personal information they submitted. Of these 23 participants, nine expressed trusting e-government service platforms but nonetheless feeling hesitant when submitting personal information. The following statements are illustrative of the concerns expressed:

> FGD11: Of course, I trust e-government services and platforms, but there is a lot of hesitation since I [have] been a victim of a fake web link that looked like a federal government website. Nowadays, each time before I give information to the e-government [service platforms] and if the website is new, I consult someone [in my friends' circle] or contact customer service [via phone].

> FGD15: I have seen my friends victimized by different fake/spam groups. Luckily, I have not yet been caught in such a trap. In this kind of confusing situation, I become extra cautious when submitting personal information online. There is no way of getting [e-government] services without [submitting personal information and] paying service fees in many cases. However, I feel hesitant.

> FGD54: There is no point in not trusting e-government services, whether federal or municipal. However, I never pay government service fees online because I feel hesitant. I visit a government office [for that purpose]. I use online services only for information-searching purposes.

Nine additional participants reported trusting only those e-government service platforms with which they were familiar or that they had used at least once previously. According to these participants, the reason for trusting only familiar e-government service platforms was that they had been confused by spam emails that looked like they had been sent from government agencies. The following statements are illustrative of the concerns they expressed:

> FGD25: When I become hesitant, I consult with my husband when paying service fees and/or submitting my SIN [social insurance number]. I am, however, confident with familiar government websites.

FGD41: If I am working on familiar websites, I can provide personal information without hesitation. If there is a new website, even if it is run by the government, I become hesitant.

FGD45: I provide information [on government websites] such as names, addresses, mobile numbers, and emails without any fear or hesitance. When the system asks for a SIN or date of birth, I become serious and try to verify if I am on the right website. If I am on familiar websites, I trust them because I know them.

The remaining five of the 23 participants reported having full trust in e-government service platforms. Their trust in e-government service platforms was anchored in the belief that protecting users' personal information was the government's duty. The following statements are illustrative of the concerns expressed by these participants:

FGD13: I do not feel hesitant at all if I am logged in on some government web portals, but if I am opening a link sent by others, that is always risky…. As I already said, the only thing I must be careful with is whether or not I log myself in on a particular government website.

FGD22: If I am using government websites using my own login information, I never feel any kind of hesitation or trust problem. However, I am aware that government websites are also not 100% secure.

FGD55: If I am sure it is a genuine government website, I fully trust it because the government has all our personal information. If our personal information is not protected on the government websites, it is their problem, not ours.

The remaining two participants (FGD33, FGD35) shared their confusion over not knowing which websites to trust. They noted how their trust depended on the suggestions of their children. Most of the focus group participants reported that if and when trust-related issues arose, they would consult their family and friends, conduct Google searches, or contact client support service to address these issues.

All the participants reported having worried about fake emails and spam links that looked as if they had been sent from government agencies, and by frequent news coverage about data breaches and identity theft.[9]

7.6 Motivations for Using e-Government Services

Twenty-two of the focus group participants reported having had a range of motivations for using federal-, provincial-, and municipal-level e-government service platforms (see Table 7.4). The remaining three participants (FGD21, FGD33, FGD35) did not participate in the discussion regarding this matter.

Table 7.4: Motivations for Using e-Government Services (n=25)

Motivations		Number of Participants
Positive	Time savings	16
	Cost savings	10
	Comfortable to use	6
	Preferred times	5
	Easy to obtain required documents	3
Negative	Wanting to avoid physical offices considering personal health and safety issues during the pandemic	3
	Wanting to avoid long wait times on the phone or at physical offices	3
	Being compelled to use e-government services since these services not available at physical offices	3
	Not having government offices nearby compelled to use e-government services	2
	Experiencing difficulties due to accent problems when communicating at a physical office or on phone service	1

Nine individuals noted having been motivated to use e-government services and platforms because they were very 'comfortable to use' at home at their 'preferred time'. FGD11, FGD15, and FGD34 said that they used e-government services because it was

[9] On August 15, 2020, the Canada Revenue Agency (CRA) revealed that credential-stuffing attacks had hit 5,500 CRA accounts for fraudulent purposes. See https://www.canada.ca/en/treasury-board-secretariat/news/2020/08/statement-from-the-office-of-the-chief-information-officer-of-the-government-canada-on-recent-credential-stuffing-attacks.html

'easy for them to obtain required documents' (such as government issued photo identity cards, banking information, and health cards) while being at home. For instance, FGD11 said:

> My motivations for online service use are mainly because I can collect documents that are needed to verify or submit. There are chances of missing a document if you visit a physical office.

FGD51, FGD53, and FGD54 maintained that they had become more motivated to use e-government services because of 'personal health and safety' concerns created by the COVID-19 pandemic.

Participants also expressed some considerations that motivated their use of e-government services. For example, FGD12, FGD42, and FGD51 reported using these services to avoid 'long wait times on the phone or at a physical office.' The causes of these negative motivations include, for example, fear (e.g., health risks when going outside), avoiding annoyances (e.g., long wait times on the phone or accent problems), and lack of choice (e.g., no physical government office nearby). Regarding negative motivations, FGD12 said:

> Sometimes I waited at the Service Canada office for hours and returned with a chit for the queue the next day. Similarly, as a housewife with small kids at home, I can't spare time to visit a Service Canada office. Then I used the service accessing [federal government] online [service platform].

FGD13, FGD23, and FGD44 reported having been obligated to use e-government services because some of the services they wanted were only available online; specifically, there was no physical office available to handle some services, such as submitting employment insurance (EI) applications, applying for children's daycare services, and annual tax submissions. FGD15 and FGD52, both of whom were very recent immigrants, reported preferring to visit nearby government offices instead of using

online services because they needed to become familiar with the environment of their new country. However, they used e-government services because some government offices simply were not sufficiently close to their residential areas. FGD15 stated:

> [My] motivation for using online services is because Service Canada is far from here [my place]. The place I have to visit requires multiple public vehicles and one and a half-hours' time. New immigrants like me are not comfortable in finding routes and offices. Therefore, online services are better than visiting a physically distant office.

FGD52 said:

> Service Ontario is near my house. So, I rush to the office instead of spending time online. If you are stuck on some issues, you need to phone them, and that takes one-two hours. I often use online government services at the federal level because there is no office nearby.

FGD42 expressed a different motivation for using e-government services. They claimed to use e-government services because their limited English language proficiency impeded their ability to converse with government service center employees. So instead of visiting a physical office or contacting a client support service, they used e-government service platforms with the help of family and friends.

The discussion in this section suggests that a majority of the focus group participants were motivated to use e-government service platforms thanks to the perceived conveniences they offered, such as time and cost savings. Those participants who preferred using traditional service delivery channels reported having used e-government service platforms mainly because of limited opportunities to use traditional service delivery channels in their areas. Additionally, various obstacles in using government services through traditional delivery methods were responsible for motivating Nepali immigrants to Canada in my sample to use e-government services.

7.7 Conclusion: Key Observations

In the light of the conceptual framework in which this dissertation is rooted (i.e., the Capabilities Approach), the focus group discussions were conducted to understand and interpret three key issues emerging from the of survey findings i.e., findings that contradict the assumptions advanced in the existing literature; findings about the inconsistent use across the e-government service platforms, and findings about the trust gap regarding the protection of personal information on e-government service platforms. Considering some of the key ideas of the Capabilities Approach such as the notion of conversion factors, and the dichotomy of choices and unfreedoms that are important tools for assessing the participants' wellbeing, the most notable observations emerging from the focus group discussions are:

(a) *Participants relied on their social support network of family and friends as their most-used problem resolution strategy when they encountered problems of different types (relating to English language proficiency, ICT skills and familiarity) while using e-government service platforms.* This observation is important because it appears to offer a possible explanation as to why the findings of my study appear to be at odds with what has been reported in much of the existing mainstream digital divides literature. The use of social support networks appears to be such an effective strategy that none of the focus group participants, despite their diversity of socio-demographic characteristics, reported having any outstanding challenges with respect to the use of e-government service platforms. In addition, these social support networks reportedly also played a role in shaping whether, and the extent to which, the focus group participants trusted e-government service platforms with their

personal information. This observation, however, does not suggest anything about the differences between very recent and recent and established Nepali immigrants in the sample other than the latter having practical needs for searching information, and preparing settlement-related documents using the federal-level e-government service platforms. From the Capabilities Approach perspective, the social support network of family and friends seems to be an important social conversion factor.

(b) *The focus group participants were motivated to use e-government service platforms on the basis of the perceived conveniences they offer*. This observation contributes to understanding both the first key issues insofar as *perceived conveniences* is the primary reason/motivation for Nepali immigrants in the sample view the use of federal-, provincial-, and/or municipal-level e-government service platforms in a positive light. According to Dijk (2012), motivation is the foundational concept, upon which the use of ICT devices and services rely. Considered from the Capabilities Approach perspective, *perceived conveniences* appears to be a personal conversion factor that plays an important role in converting available opportunities into valuable functionings.

These observations are examined in more detail in the next chapter.

Chapter 8: Capabilities-based Analysis of the Study Findings

The discussion in this chapter considers the implications of the key empirical findings emerging from the survey and focus group discussions in relation to investigating digital inequalities through the lens of the Capabilities Approach. The chapter is divided into four sections. The discussion in the first section centers on the role of social support networks of family and friends in minimizing differences in the use of e-government service platforms between very recent and recent and established Nepali immigrants. It is argued that these networks constitute an important conversion factor in influencing the use of these platforms. The discussion in Section two examines the role perceived convenience plays in accounting for inconsistencies in the use of federal-, provincial-, and municipal-level e-government service platforms. It is argued that individual perceptions of convenience condition Nepali immigrants' use of these platforms. In the third section, I offer a critical reflection on the role of conversion factors in examining Nepali immigrants' experiences of using federal-, provincial-, and municipal-level e-government service platforms. Here I posit that Robeyns' (2016b, 2005) categorization of conversion factors into three groups does not adequately account for the role of social support networks as a conversion factor. The fourth section concludes the discussion.

8.1 Role of Social Support Networks in Mitigating Digital Inequalities

As discussed in Chapters 5 and 6, the analysis of the survey data found:

1. no statistically significant difference between very recent and recent and established Nepali immigrants with respect to the frequency of use of federal-, provincial-, and municipal-level e-government service platforms; and
2. very recent Nepali immigrants were more likely to use federal-level e-government service platforms than their recent and established immigrant counterparts.

These findings are noteworthy, in part, because they contradict mainstream claims about very recent immigrants not being: (a) sufficiently familiar with e-government service platforms in their host-country environments; (b) adequately proficient in the host-country's language(s); and (c) sufficiently skilled with ICTs to access and engage with the services and opportunities afforded on e-government service platforms.

Sen (2005, p.153) explains that two factors mitigate the extent to which capabilities can be converted into functionings: "whether people are actually able to do things they value doing, and whether they possess the means or instruments to pursue what they would like to do." These two conversion factors directly influence (i.e., enable or constrain) the capabilities of individuals in transforming resources into desired functionings. Robeyns (2016b, 2005) divides conversion factors into three categories: personal, social, and environmental. Personal conversion factors (e.g., people's physical and mental abilities) can, for instance, influence – positively or negatively – people's ability to convert the resources and opportunities available on e-government service platforms into functionings they value and have reasons to value. For example, a majority of the survey respondents with high English language proficiency and ICT skills were found to be more likely to use federal-, provincial-, and municipal-level e-government services to apply for such things as employment insurance, renewing driver's licenses, and paying monthly utility bills than those who reported lower levels of English language proficiency and ICT skills.

Social conversion factors (e.g., public policies, social norms and hierarchies, power relations, class, gender, caste) can influence the usability and usefulness of the resources and potential opportunities afforded by e-government service platforms by either

encouraging or discouraging engagement with these service delivery tools. For example, due to the COVID-19 pandemic, the Government of Canada now offers an online citizenship test for all applicants to avoid in-person visits to government offices.[1] Likewise, environmental conversion factors (e.g., the physical and built environment) also can contribute to mitigating and/or reinforcing digital inequalities. Although not examined in this dissertation, the rural/urban divide in access to broadband bandwidth in Canada may, for example, be considered illustrative of an environment conversion factor affecting Nepali immigrants and others.

Taken together, the three categories of conversion factors outlined above modulate the effects of the gaps discussed in the digital divide literature regarding the experiences of very recent and recent and established immigrants in their host countries. It merits noting that all three categories of conversion factors were found to be quite peripheral in the focus group discussions conducted to ascertain what might account for the differences between my survey findings and what has been more widely reported in the digital divide literature reviewed in Chapter 2. The principal explanatory factor to emerge from these discussions was the role played by the social support networks of Nepali immigrants.

Indeed, the focus group participants noted relying on their respective social support networks of family and friends as their most frequently used problem resolution strategy. These networks were reported to be very useful for sharing experiences, helping to find information and services on- and off-line, coming up with various strategies to resolve on- and off-line dilemmas, overcoming language barriers, familiarizing oneself with government services in Canada, and with assisting to identify other opportunities

[1] See https://www.canada.ca/en/immigration-refugees-citizenship/services/canadian-citizenship/become-canadian-citizen/citizenship-test.html

available online beyond government services. Put simply, social support networks of family and friends were reportedly called upon for just about every type of challenge encountered by the participant Nepali immigrants.

This observation suggests that the capacity to draw from the practical knowledge and experiences of social support networks contributes to mitigating differences between very recent and recent and established Nepali immigrants vis-à-vis their use of e-government service platforms. Understood through a Capability Approach lens, access to this type of personal network tempers the impact of obstacles encountered thereby assisting individuals in converting resources and opportunities into valuable functionings. Hence, in much the same way that personal, social, and environmental conversion factors influence an individual's ability to use Sen's proverbial bicycle for the purpose they value and have reason to value, the social support networks of family and friends ostensibly served as a conversion factor for the Nepali immigrants in my sample, influencing the usability and usefulness of federal-, provincial-, and municipal-level e-government service platforms.

This said, these networks appear to fall outside the definition parameters of Robeyns's three broad categories of conversion factors insofar as they contribute to enabling individuals to pursue what they would like or need to do while simultaneously transcending people's internal qualities as well as social and environmental factors. More specifically, social support networks of family and friends sustain purposive interactions among a bounded group of people with the objective of obtaining and/or providing assistance in the form of immaterial and/or material support in converting services and opportunities into desired functionings. As such, I contend these networks comprise a

unique though complementary conversion factor that is founded on the collective capabilities of peoples' networks.

Collective capabilities refer to the abilities of individuals obtained through collective actions (Ibrahim, 2006; Steward, 2005). Whereas Sen (2005,1999) and Nussbaum (1997, 1995) primarily focus on individual capabilities, Steward (2005) and Ibrahim (2020, 2006) emphasize the importance of collective capabilities "that can only be achieved socially … as a result of social interactions" (Ibrahim, 2020, p.213). Steward (2005) argues that an individual can derive advantages for their wellbeing from group membership because groups such as ethnic groups, diaspora members, family and friends can influence choices and values at individual levels, and that when individuals cannot make mature judgements or informed decisions, groups can be helpful in facilitating the making of these types of decisions. Ibrahim (2020), likewise, emphasizes the importance of collective capabilities arising in the context of unions, political parties, women's groups, village councils, and posits that collective capabilities are not just accumulations of individual capabilities, but are "the results of social interactions" (Ibrahim, 2020, p.213). In case of this dissertation, and line with both Steward's (2005) and Ibrahim's (2020) arguments, it seems plausible that the collective actions of social support networks of family and friends likely play a role in mitigating digital inequalities by assisting in generating capabilities for using federal-, provincial-, and municipal-level e-government service platforms.

The mobilization of social networks to assist individuals with overcoming various obstacles is a well-known and well-researched phenomenon. For example, in their study of the socio-economic integration of immigrants and refugees in Canada, Kiziltan (2016)

finds that very recent immigrants to Canada lag behind their recent and established immigrant counterparts with respect to getting opportunities in Canadian labour markets, but that the former are likely to find jobs if they have effective social networks with friends of diverse backgrounds or membership with various social organizations. In their study of ICTs and elderly people in the Netherlands, Agahari (2016) identifies the social influence of trusted people (i.e., family members) as a conversion factor that influences seniors to use ICT devices in assisting their independent living (e.g., online shopping). Dasgupta and Serageldin (2001) likewise use the term social capital in reference to a broad network of inter-personal relationships that help people do things effectively, and which encourage them to learn from their past experiences. Veronis and Ahmed's (2015) study of the use of multicultural media among members of local immigrant communities also offers some insight into how social networks contribute to facilitating the settlement of very recent immigrants. In examining the use of multi-cultural media by very recent and recent and established Chinese, Latin American, Somali, and South Asian immigrants living in Ottawa, Canada, these authors found that members of these diasporic communities frequently communicated and shared information within their respective networks of family and friends in their respective languages of origin in order to help community members properly understand municipal government information, and to encourage them to make use of available services and opportunities.[2]

Within the context of this dissertation, a central issue of note is whether social support networks of family and friends enable individual Nepali immigrants to use e-government service platforms in a manner that contributes to the development of new

[2] These findings echo those set out in in Katz and Lazarfeld's canonical works establishing the two-step flow of communication model. See, Katz & Lazarfeld, (2017)

skills and competencies or merely facilitates their engagement with these platforms. For example, an individual might mobilize a friend to teach them how to use an e-government service platform and build their own capabilities, whereas another person may just as easily let the friend do all the work. The former scenario facilitates skills development, the latter risks fostering dependencies.

This, I contend, suggests that although social support networks of family and friends can be considered as facilitators that help Nepali immigrants resolve difficulties and use e-government service platforms, these networks do not necessarily enable Nepali immigrants to build their own individual abilities. Put simply, although social support networks may facilitate people's ability to pursue what they like to do, their presence is not sufficient to ensure individuals develop their own capabilities or 'real freedoms'.[3] If someone is content to rely on others in their social support networks to engage on their behalf with e-government services, then their functionings remain dependent on their family and friends. In aggregate, such activity could mistakenly be interpreted as suggesting the presence of individual skill-sets that are not, in fact, present.

There may also be other negative consequences arising from relying excessively on social support networks of family and friends. For example, in his examination of two immigrant communities in Canada, Bauder (2005) finds that former Yugoslavian immigrants living in Vancouver tended to be building managers and South Asian immigrants living in Toronto tended to be taxi drivers, in part, because they were guided or advised into pursuing these career options by their fellow diasporic community members. Although Bauder (2005) does not specifically use the term social support

[3] The term ‘real freedom’ refers to all the required opportunities and means necessary to achieve the functionings (beings and doings). It is not just a formal freedom to do or be, but also a substantial opportunity to achieve it. See Robeyns (2016b).

networks of family and friends, he does focus on how community members follow established social norms and/or tendencies in order to help and/or be helped by fellow community members, and thereby improve their wellbeing. This example suggests that over-reliance on community members may impede one's abilities to freely choose from available options, and instead encourage a person to follow what community members have recommended based on their experiences.

There is a parallel to be drawn here with Nepali immigrants who possess limited English language proficiency and ICT skills, and who may experience challenges understanding content on federal-, provincial-, and municipal-level e-government platforms. Assuming they have reason to value using these platforms, they may rely on their social support networks of family and friends to help them understand the content and use the services and, in so doing, may ultimately constrain their own options and reduce their familiarity with various facets of e-government service systems in Canada.

In sum, I posit that, a social support network of family and friends can be considered a distinct conversion factor that serves to modulate the consequences of language and ICT skills inequalities between very recent and recent and established immigrants, be they of Nepali or some other origin. This modulation process can contribute to reduce inequalities by fostering skills development or, alternatively, reinforce inequalities by fostering dependency.

8.2 Role of Perceived Convenience in Inconsistent Use

The Capabilities Approach considers individuals as unique entities who make different choices and who have different needs. According to Sen (1999), choices refer to the freedom of individuals to exercise their diverse preferences to lead the life they value and

have reason to value. Sen (1999, p.70) describes needs in relation to basic capabilities such as education, health, climatic conditions, nutrition, and shelter, and as being contingent upon individuals' "disparate physical characteristics connected with a disability, illness, age or gender." These individual choices and needs suggest that each person requires a specific capability set to achieve the functionings they value, which may lead users (e.g., participants in my study) to inconsistent use of resources (e.g., federal-, provincial-, and municipal-level e-government service platforms).

As discussed in Chapters 5 and 6, my survey findings revealed that despite sharing similar levels of English language proficiency, ICT skills and familiarity with federal-, provincial-, and municipal-level e-government service platforms, very recent and recent and established Nepali immigrant participants differed with respect to the frequency with which they used the federal-level e-government service platform. At first glance, this difference may appear to have been a matter of individual choice. However, it may also be a matter of differing needs. To this end, it seems plausible that very recent Nepali immigrants likely visited the federal-level e-government service platform more frequently than their recent and established immigrant counterparts, in part, because they have greater needs for engaging with immigration-related information matters such as citizenship applications, PR card renewals, and employment insurance that fall under the purview of the federal government.

When the issue of inconsistent use was raised in the focus group discussions, the principal message accounting for this observation was that Nepali immigrants used e-government service platforms in accordance with the perceived convenience of using them to access the services they value, while simultaneously seeking to avoid engaging in

non-mandatory activities (e.g., voluntary participation in a government-hosted online surveys, submitting feedback). The reader will recall that according to these participants, there were three reasons why these platforms tended to be perceived as convenient overall despite the engagement/use challenges they pose for recent immigrants: (a) the platforms can be accessed and used from the place of one's choosing at the time of one's choosing; (b) they can be used for select services based on people's knowledge and familiarity; and (c) people can call upon their respective social support networks of family and friends for assistance if/when difficulties are encountered when attempting access the services they want to use.

Choices, preferences and perceived convenience are related concepts. However, they are not synonymous. Heckman and Corbin (2016) view choices as options, opportunities or possibilities that are available to use but not used. As discussed in Chapter 3, Sen's (2005, 1999) notion of five instrumental freedoms (i.e., political freedoms, economic facilities, social opportunities, transparency guarantees, and protective security) is founded on the basis of choice. According to Sen (2005), choice expands the scope of freedom by providing multiple options and opportunities as well as allowing one to choose an option one values and has reason to value. In his famous analogy of fasting versus starving, Sen (1992, p.52) explains that fasting is a choice "to starve when one does have other options" but starving is a product of having no choice because it is the product of particular socio-political contexts. Within the context of immigrant experiences, using federal-, provincial-, and municipal-level e-government service platforms may be considered as a choice for many Nepali immigrants in the sample (i.e., they opted to use when the platforms even though other options were

available to them). However, for some elderly immigrants, who lacked English language proficiency and requisite ICT skills and who could not travel to physical offices, there was no choice relating to use; they had to use the e-government platforms to access the services they desired and/or needed.

Preference, by contrast, entails the selection of the most valued choice among available multiple options. It is understood as reflecting the real, positive, freedom that is not just the absence of external interference, but the ability of users to convert capabilities into functionings they value and have reason to value (Sen, 1999). Heckman and Corbin (2016) define preferences as valued skills or options influenced by incentives. In their view, preferences help a person decide what should be most valued and why. They write:

> Preferences can be understood as providing the desires and wants to choose which of the available actions agents choose to take. They generate the responses to incentives that determine how much or how little effort is expended in performing those actions. An individual, given sufficient cognitive ability and math skills, can be an accountant, a mathematician, or a financial analyst. However, his preference for earnings versus intellectual prestige will influence which outcome he pursues. (Heckman & Corbin, 2016, p.352)

For Heckman and Corbin (2016), preferences are crucial factors that help people to select the most valued option/opportunity and to convert it into functionings they value. For example, preferences can help the Nepali immigrants select federal-, provincial-, and/or municipal-level e-government services with which they are at least partially comfortable and convert the uses of these online resources into valued functionings.

The perception of convenience can influence individual preferences when it comes to making a specific choice among available options. It is not, however, the same thing as choice; it is a contributor and possible catalyst for making choices. In other words, perceived convenience comprises a combination of motivation, individual ability,

available opportunities, and socio-environmental factors informing the specific choices individuals make among available options. For example, since the spring of 2020, academic teaching and conferencing has predominantly been conducted virtually using various video conferencing platforms because stakeholders perceive these platforms as a convenient, though, imperfect means of continuing with academic work while avoiding the health risks arising from the COVID-19 pandemic.

The focus group participants in my study used the term perceived convenience to describe how they decided to use federal-, provincial-, and municipal-level e-government service platforms. Their everyday use of the term broadly aligned with notions of perceived usefulness and ease of use. It also broadly fits with the five factors Sen (1999) identifies as affecting socio-cultural contexts — personal qualities, environmental diversities, favorable social climate, suitable context, and resource distribution and use— insofar as each of these factors influences the perceptions of convenience individuals attach to available opportunities and resources. For example, two focus group participants reported avoiding using federal-, provincial-, and municipal-level e-government service platforms because they perceived these platforms as inconvenient owing to their poor health and old age. The perceived convenience of accessing these platforms also appears to have been a motivating factor for the survey participants insofar as a majority indicated that saving time and money were important considerations in their decisions about using.[4]

The notion of perceived convenience relates to van Dijk's (2012) account of the role of motivation in perpetuating the distinction he draws between 'wants' and 'want-nots.' According to van Dijk, positive perceptions about particular technologies motivate

[4] See, sections 5.2.1 and 7.6.

people to make, or seek to make, use of them, whereas negative perceptions dissuade people from doing so. Consider, for example, a person who visits a government office located five to ten kilometers away from their home in order to avail themselves of a government service. While some may view such journey as inconvenient, others may, for any number of reasons, perceive having face-to-face interactions with employees with whom they may or may not be familiar as somehow *more convenient* than accessing and using the same service via an e-government service platform from location and time of their choosing. Evidence of such practices is reported in Barth and Veit's (2011) examination of the usability of municipal government websites in Germany. In their study, some participants reported visiting government offices despite being able to access and use the same government services online precisely because they preferred interacting with human beings.

This observation suggests that perceived convenience may function as a quasi-personal conversion factor insofar as it is a subjective and contextual perception that is internal to the person, and which is likely to be influenced by both social and environmental considerations. Here, Sen's (1999) bike analogy can, again, be illustrative. The mobility function of the bike depends on personal skills and abilities (i.e., personal conversion factors), favorable safety standards for bike riding (i.e., social conversion factors), and decent roads and secured environment when travelling by bike (i.e., environmental conversion factors). Hence, individual considerations regarding each of these conversion factors can influence the perceived convenience a person attributes to using a bike to get from point A to point B.

Likewise, the Nepali immigrants who participated in my study may perceive using federal-, provincial-, and municipal-level e-government service platforms as convenient subject to similar types of personal, social and environmental considerations. For example, a Nepali immigrant may consider e-government service platforms convenient if they possess a high-level of education, strong ICT skills, and English language proficiency (i.e., personal conversion factors). They may also perceive e-government service platforms as convenient if governments have incentives in place (e.g. discounted service fees) to encourage and promote their use (i.e., social conversion factors). This hypothetical individual may also perceive these platforms as being even more convenient if they find them equipped with user-friendly features such as availability to access services in their preferred language, and if, for instance, they are able to access to the platform via a high-speed Internet connection (i.e., environmental conversion factors). In other words, any facet of the process of engaging with and using an e-government service platform that potential users view favorably may contribute to augmenting the perception of convenience attributed to them. Likewise, any facet of the process viewed in an unfavorable light may serve to limit and constrain perceptions of convenience.

In Section 8.1, I discussed the social support network of family and friends as a unique conversion factor that helped Nepali immigrants in the sample to use federal-, provincial-, and municipal-level e-government service platforms. These networks also play a role in mediating perceptions of convenience attributed to using the platforms. For example, a small minority of Nepali immigrants in my sample who had accessed the provincial-level e-government service platform, ontario.ca, reported initially being reluctant to use the platform for a variety of reasons including a lack of trust in the

security measures in place to protect their personal information. These individuals noted that it was only after their having consulted members of their social support networks that their concerns were allayed, and that they began using the platform. This suggests that perceptions of convenience may be linked to or with someone or something if one has ready access to other trusted sources (i.e., social support networks of family and friends) in times of need.

Individual choice also can contribute to inconsistent use of e-government service platforms insofar as it is based on what people value doing, and the abilities and means they possess (Sen, 2005). Even if these conditions are met, there are no guarantees that people will achieve the same outcomes or functionings because as Sen (2005, p.154) notes, "two persons can have very different substantial opportunities even when they have exactly the same set of means." To this end, I posit that access to social support networks can serve to establish and/or reinforce perceptions of convenience—as well as inconvenience— that immigrants attribute to e-government service platforms. As such, the inconsistent use of federal-, provincial-, and municipal-level e-government service platforms by the Nepali immigrants who participated in this study may be understood as an outcome influenced both by exposure to the perceptions of convenience of members of their social support networks of family and friends, and individual choice.

8.3 Role of Conversion Factors in Examining Immigrants' Experiences

Central to the Capabilities Approach is an emphasis on peoples' ability to convert available resources into valued outcomes and, thereby, achieve wellbeing, or the type of life they value and have reason to value. This wellbeing is assessed by focusing on capabilities and functionings. The former, the reader will recall, refers to what people are

able to do and be, including their freedom to choose opportunities to enhance their wellbeing, and the latter refers to actual outcomes one achieves (i.e., a combination of beings and doings).

Sen (2005, 1999, 1985), Nussbaum (2000, 1997, 1995), and Robeyns (2016b, 2005) maintain that conversion factors influence an individual's ability to convert resources and opportunities into valuable functionings. To this end, Sen (1999, 1984) observes that individual wellbeing is affected by five factors in different contexts: individual characteristics, environmental diversities, diversity in social climate, differences in relational perspective, and resource distribution and use within the family. Robeyns (2016b, 2005) groups Sen's factors into three broad categories: personal, social, and environmental conversion factors. The data about the experiences of very recent and recent and established Nepali immigrants that was gathered and analyzed for this dissertation suggests that not all conversion factors mediating their experiences neatly fall into this categorization scheme.

The scope of social support networks falls outside these three generic categories insofar as the synergetic effect of group capabilities emanating from such networks can stimulate and facilitate people to do something beyond their individual ability. In other words, the social support network is a way to integrate collective capabilities such that one can realize desired outcomes even if one lacks the personal abilities needed to achieve them.

The identification of social support networks of family and friends as a non-categorizable conversion factor speaks to a recognized shortcoming in the work of Robeyns (2005), Nussbaum (2000), and Sen (1999). Specifically, a seeming failure to

consider collective actions as conversion factors that enable individuals to do something they otherwise cannot do by themselves. One potential implication of considering social support networks as a conversion factor is that it may help to address criticism about the Capability Approach as being "too individualistic and pay[ing] insufficient attention to social groups" (Robeyns, 2005, p.107). Social support networks are a conversion factor built on collective capabilities of family and friends, and play a role in helping to inform, suggest, and guide individuals in realizing their valuable functionings. Very recent immigrants to Canada may, for example, rely on their social support networks when using federal-, provincial-, and municipal-level e-government service platforms because these individuals may not yet be familiar with the services available to them. In other words, collective understanding derived from social support networks of family and friends may become decisive for individual decision-making. If so, Sen's popular slogan on individual wellbeing and freedom—the kind of life one values and has reason to value—can be modified as— the kind of life one values and has reason to value based on *family, friends, and community's guidance*.

As a conversion factor, social support networks of family and friends can have three potential implications: (a) social support networks may enable individuals to benefit from capabilities of their family and friends in converting resources and opportunities into valued functionings. For example, social support networks reportedly enabled Nepali immigrants in the sample to circumvent their respective individual constraints impeding their engagement with e-government service platforms by drawing from the knowledge and skills of those comprising the network; (b) social support networks may increase individuals' dependency on their family and friends when using e-government service

platforms. For example, as discussed in Section 8.1, increasing reliance one's social support networks may intensify dependency rather than empowering one's own abilities; (c) social support networks may restrict individuals within their circle of family and friends from exploring opportunities. For example, excessive reliance on family and friends to overcome the challenges they face while using e-government service platforms may dissuade the Nepali immigrants in exploring external opportunities.

Based on the findings emerging from my study, I contend that unlike social support networks, perceived convenience does fall within Robeyn's groupings. Specifically, it can be categorised as a personal conversion factor that plays an important role in the exercising of individual choice. Sen (2005, 1999, 1985), Nussbaum (2000, 1997, 1995), and Robeyns (2016b, 2005) tend to discuss choices (i.e., available options) and preferences (i.e., the most preferred option) of individuals without specifying how choices are made (i.e., reasons and causes for a person’s specific choices and preferences). Perceived convenience may influence one's preference of most valued choice in a given context. For example, teachers may prefer speaking to their students face-to-face, but at the same time they may perceive online teaching using the Zoom video conferencing platform as a convenient tool for avoiding the health risks associated COVID-19. This suggests that perceived convenience influences individuals to make practically realistic choice(s) that may not be their most preferred choice(s) among available options. While making such choice(s), one may not have changed their mind about their most preferred choice, but only considered the usefulness of another option in the particular context. This helps us understand that choices are contextual, and that they are made based on individuals' perceptions of convenience.

Perceived convenience, then, maybe categorized as a personal conversion factor with the capacity to influence, alter, and modify how choices are made. Here, I would like to connect the idea of perceived convenience with Bourdieu's (1990) concept of habitus, which refers to socialized norms or tendencies that guide behavior and thinking of individuals.[5] Like perceived convenience, habitus, according to Bourdieu (1990), influences the identity, actions, and choices of individuals, and allows people in a typical situation to navigate their social environments. Habitus is not static, and changes under various unpredicted situations or over a long period (Calhoun, 1993). According to Bourdieu (1984, p. 170), habitus is created and reproduced unconsciously "without any deliberate pursuit of coherence … without any conscious concentration." Similar to the concept of habitus, perceived convenience is an individual's perception of something or a psychological factor that suggests individuals act (or not) in some direction. I posit that, like habitus, perceived convenience is not a permanent phenomenon, but rather a context-based conversion factor that influences one's decision-making based on their personal abilities and socio-environmental contexts.

Perceived convenience is grounded in an individual's psychology. Van Dijk (2012) discusses the role of psychology in decision-making relating to the use of ICTs and observes that the process of personal inquiry into the potential use of ICTs starts from individuals perceiving a specific technology or service in a positive light. Paralleling this view, I posit that my study findings suggest that the process of transforming capabilities into functionings starts from individuals' perceptions of convenience associated with

[5] One key difference between habitus and perceived convenience is that the former is unintentional activity, but the latter is an intentional choice in a particular context. The perception of convenience can be a stimulus connecting capabilities, which focuses on individual abilities with habitus, which focuses on the influences of context in one's actions.

potential and/or available resources and opportunities. Put simply, if one views something as convenient, one is more likely to use their, or others', capabilities to convert a resource into valuable functionings. Recognizing the role of perceived convenience as a catalyst for choice makes clear that the decisions one makes about their capabilities and functionings are not always guided by one's best interests and preference(s), but rather by perceptions that are adjusted to fit into particular contexts.

The implications of perceived convenience can be both positive and negative, since these perceptions may rely on, among other things, the collective actions of one's social support networks of family and friends. For example, if a person's perceptions suggest that e-government service platforms are convenient, they may start using them. If, however, one's perceptions suggest otherwise, one may not want to use these platforms despite having the necessary personal abilities to do so.

Taken together, both social support networks, and perceived convenience can contribute to enriching the capabilities perspective by drawing attention to how individual may still be able to pursue certain courses of actions despite their lacking the requisite personal abilities to do so, and how individual make choices even if they are not the most preferred options. Equally noteworthy is that these two conversion factors seemingly complement one another in the manner through which they contribute to the converting of resources and opportunities into functionings. For example, the Nepali immigrants in my sample may perceive the e-government service platforms as convenient because they are comfortable in knowing they have access to the resources of their social support networks of family and friends should they need help to proceed. Likewise, the perceptions of convenience of the participants in my study may plausibly be founded on

their previous experiences with the collective actions of their respective social support networks.

There is an additional observation emerging from a very small portion of my data that merits further elaboration. It pertains to the notion of adaptive preference. As set out by Sen (2005, 1999, 1985), Nussbaum (2000, 1997, 1995), and Robeyns (2016b, 2005), adaptive preference refers to a state of mind that appears after long-term exposure to a deeply unpleasant situation wherein people abandon hope of a better situation and, so, adjust their expectations to the unfavourable environment. In the context of this dissertation, a sense of hopelessness can appear when immigrants face persistent adversity over an extended period of time when adjusting and adapting into a new environment. Nussbaum (2000, p.113) provides a typical example of hopelessness in a situation of adaptive preference when she writes of an individual who "didn't even waste mental energy getting upset, since these things couldn't be changed." Put simply, adaptive preference is presented as something resulting from prolonged exposure to negative interactions with one's surroundings.

I contend there is a need to advance an alternative understanding of adaptive preference that is not anchored in the loss of hope. Among the Nepali immigrants who participated in my study, a small minority of focus group participants expressed a clear preference for face-to-face offline government services because of their limited ability to understand English, and/or their limited ICT skills, and/or their concerns about the security of their personal information. However, they had no choice other than to engage with e-government platforms because some of the government services they valued most (e.g., employment insurance, annual tax filing, and childcare registration) are only

accessible using online channels. These individuals made clear their displeasure with this state of affairs. However, they reported that despite not being happy with the situation, they nonetheless adapted to this 'challenging situation' and sought help from their respective social support networks to do so. This speaks to both an adaptation and an adjustment of preferences.

I contend such situations may be understood as examples of adaptive preference because the individuals in question had no option other than to engage with the e-government service platforms to access services they value and have reason to value. However, their situation(s) does not completely align with the definitions of adaptive preference set out by Sen (1999) and Nussbaum (2000). The notable difference in this instance is that despite their expressed preference for offline face-to-face government services, these individuals nonetheless perceived the e-government service platforms positively; they understood the platforms as useful and convenient, and were motivated to adjust their behaviour accordingly.

Sen and Nussbaum, I contend, tend to frame adaptive preference in a negative light insofar as they frame this concept as entailing people giving up hope of realizing something they value and have reason to value, and so try to adapt to the harsh realities in which they find themselves. By contrast, one can also frame adaptive preference positively, insofar as I suggest this term can also effectively describe situations in which people experience challenging realities and try to adjust their environment by improving their abilities and/or drawing on the abilities of others to achieve outcomes they value and have reason to value.

Sen's concept adaptive preference has a singular meaning that is solely negative. However, based on the findings of this dissertation, I posit that one can take both negative and positive viewpoints on adaptive preference. In a negative adaptive preference, people give up hope, but in a positive adaptive preference people keep struggling to overcome the challenges and improve their situations. As such, I contend that the singular understanding of adaptive preference is inadequate, and that my elaboration of this concept is better suited to understanding how immigrants may engage with the digital inequalities they frequently encounter.

8.4 Conclusion

The discussion in this chapter has set out a critical analysis of the implications arising from the key empirical findings of the survey and focus group discussions for the Capabilities Approach. Central to this analysis was the role played by social support networks of family and friends, and perceived convenience in enabling the participants to convert capabilities into valued functionings. Social support networks, it was argued, facilitate the ability of Nepali immigrants to resolve challenges associated with their use of federal-, provincial-, and municipal-level e-government service platforms and, ultimately, reducing the impact of digital disparities. Perceived convenience, likewise, influences the decision-making of Nepali immigrants, thereby, contributing to inconsistent use of e-government service platforms.

The identification of social support networks, and perceived convenience as conversion factors contributes to the advancing of the capabilities perspective by drawing attention to the ways in which individuals may still be able to pursue certain course of

actions despite their lacking the requisite personal abilities to do so, and how individuals make choices even if that are not the most preferred options.

In the next, concluding chapter, I move to drawing upon the empirical and theoretical observations, to directly address the research questions that have guided this dissertation.

Chapter 9: Conclusion

This dissertation has examined how very recent, recent, and established Nepali immigrants to Canada experience digital inequalities associated with accessing and using federal-, provincial-, and municipal-level e-government service platforms. Much of the mainstream digital divides literature posits that very recent immigrants are less likely to access and use e-government services than their recent and established counterparts because the former are more likely to have limited familiarity with their host-country government services whether on- or offline, inadequate proficiency in the language of their host-country, and/or possess limited ICT skills. In seeking to investigate these challenges, I undertook a survey of, and conducted focus group meetings with, some 286 very recent, recent, and established immigrants to Canada of Nepali origin.

The statistical analysis of the qualitative data collected for this dissertation identified no substantive differences between very recent and recent and established Nepali immigrants in terms of familiarity with e-government service platforms, English language proficiency, and ICT skills. Indeed, the only observed notable difference between these two groups was that very recent Nepali immigrants were found to more frequently use federal-level e-government services than their recent and established immigrant counterparts. When members of either group encountered challenges in seeking to use federal-, provincial-, and municipal-level e-government service platforms, these were resolved by invoking various problem-solving strategies the most frequent of which involved drawing upon the resources of social support networks of family and friends. The significance of this finding resides in its calling into question the efficacy of

examining digital media related immigrant experiences on the basis of time spent in a host country.

Chapter 2 outlined the evolution of the understanding of digital divides over the three decades spanning from the 1990s to now. This discussion also reviewed the objectives and scope of e-government service practices in different countries, along with how digital inequalities are claimed to impact very recent immigrants to Canada. In Chapter 3, the Capabilities Approach was presented as the conceptual framework to inform my analysis of the study participants' use of federal-, provincial-, and municipal-level e-government service platforms. Chapter 4 set out the research design and methodology used to conduct the study. The three subsequent chapters provided the empirical core of the dissertation. In Chapters 5 and 6, the findings and analysis of the quantitative data obtained from the questionnaire survey were presented. Survey findings that contrasted with the perspectives espoused in existing digital divides literature and/or called for further investigation served as the basis the focus group discussions reported upon in Chapter 7. A discussion of the implications of the survey and focus groups findings for the Capabilities Approach was presented in Chapter 8.

This final chapter, Chapter 9, is divided into five sections. In the next section, the research question and sub-questions are addressed individually in the light of the research findings. The discussion in the second section sets out the key contributions to knowledge of the dissertation. The limitations of the research are discussed in Section 3. In the fourth section, I propose some further avenues of research that can build upon the findings of this dissertation. The last section wraps up by offering a few concluding remarks.

9.1 Re-examination of the Research Question(s)

Much of the mainstream digital divides literature frames very recent immigrants as being less likely to use ICTs, including e-government service platforms, than recent and established immigrants. Within the context of this dissertation, this narrative was manifest in three assumptions that initially informed my thinking about the experiences of very recent Nepali immigrants to Canada. Specifically, at the start of this project, I had assumed that given their newness to the country they likely would:

1. have limited familiarity with the country's e-government service platforms;
2. experience difficulties due to limited proficiency with one or both of Canada's official languages, and
3. have limited ICT skills, thus impeding their ability to use federal-, provincial-, and municipal-level e-government service platforms.

The hypothesis emerging from these assumptions was that very recent Nepali immigrants were more likely to be negatively affected by digital inequalities than their recent and established Nepali immigrant counterparts. Indeed, it was this view that informed the formulation of the research questions guiding the dissertation.

9.1.1 Factors Motivating Nepali Immigrants

The first research question served as a means of investigating considerations that might be persuading and/or dissuading Nepali immigrants from accessing and using federal-, provincial-, and municipal-level e-government service platforms. It asked:

> *What factors motivate Nepali immigrant users of e-government service platforms to engage with these online tools?*

The findings identified two principal factors motivating a majority of the survey participants' use of federal-, provincial-, and municipal-level e-government service platforms. At the surface level, most survey participants self-identified as possessing

specific personal abilities associated with facilitating the use of these platforms (e.g., ICT skills, English language proficiency, familiarity, and advances levels of education).

At a deeper level, the degree of perceived convenience individuals associated with these platforms also appeared to impact user's motivation. Positive assessments of perceived convenience appeared to be anchored in recognitions that the platforms: (a) may be used at any time from any location of one's choosing; (b) can be used in accord with one's personal abilities and preferences to complete mandatory transactions (e.g., paying parking tickets, and utility bills within given deadlines) while avoiding non-mandatory engagements (e.g., providing feedback, and completing online surveys); and (c) can be used, even when difficulties are encountered, with the assistance of members of one's social support networks of family and friends. Varying combinations of these three considerations seemingly inform the perceptions of convenience that motivate the use federal-, provincial-, and municipal-level e-government service platforms by the Nepali immigrants in my sample.

The analysis of the data obtained from the survey and focus group discussions also supports the conclusion that socio-demographic variables and the presence of established social relationships influence decisions to use e-government service platforms. Specifically, a person with limited ICT skills may nonetheless be motivated to use e-government service platforms if this person has family or friends who can assist them. Likewise, despite having strong ICT skills a person may not be motivated to use e-government service platforms if they remain skeptical about the protection they afford to confidential information.

9.1.2 Very Recent versus Recent and Established Immigrants

The second research question was anchored in the assumption that very recent and recent and established immigrants experience digital inequalities differently. It asked:

> *What are the main differences between very recent, recent, and established Nepali immigrant users with regard to their respective use of e-government service platforms provided by federal, provincial, and municipal governments?*

The aim of this question was to guide the collection of data that would contribute to developing an understanding of the anticipated differences. However, the survey findings did not support this assumption and, instead, challenged dominant narratives suggesting recent and established immigrants are more likely than very recent immigrants to be users of ICTs, including e-government service platforms. The empirical research undertaken for this dissertation identified only one notable difference between these two groups: very recent immigrants use the federal-level e-government service platform more frequently than recent and established immigrant counterparts. The cause of this difference appears to rest, in part, in the need for very recent immigrants to access immigration settlement services that are administered solely online by the federal government.

The lack of observable differences may also be partially accounted for by the finding that members of both groups rely on the use of social support networks of family and friends to resolve challenges relating to English language proficiency, ICT skills and/or lack of familiarity of e-government service platforms. This, in turn, further suggests that social support networks may contribute modulating the consequences of digital inequalities.

9.1.3 Factors Perpetuating Absence of Difference

The third research question, an extension of the previous question, focused on factors that were anticipated to contribute to the expected differences between very recent and recent and established Nepali immigrants to Canada. It asked:

What are the key factors perpetuating these differences?

The observation of no difference between these groups in the reported use of federal-, provincial-, and municipal-level e-government service platforms led me to consider what might account for this finding. Some plausible explanations include:

1. *Pervasiveness of ICTs worldwide:* Much of the literature about digital inequalities that explore differences between recent and recent and established immigrants (and/or non-immigrants) was published prior to 2016.[1] It is plausible that the observed absence of difference between the two groups in my sample may be partially accounted for by the pervasive diffusion of ICT devices and access to Internet services worldwide throughout the past decade.
2. *Both groups are comprised mostly of economic-class immigrants:* More than 50% of my survey respondents, regardless of their immigration status (i.e., very recent and recent and established) were economic-class immigrants. This is in line with the observation that, 51% of all immigrants to Ontario, as reported in Canada 2016

[1] On July 2, 2021, I conducted an extensive search using the ProQuest, and Google Scholar databases to identify studies of digital inequalities published within the last 5 years dealing with the distinction between very recent and recent and established immigrants or non-immigrants. In my search, I identified 13 articles focusing on different challenges experienced by very recent immigrants (but not in comparison to recent and established immigrants), and two studies relating to differences between very recent immigrants and recent and established immigrants or non-immigrants in terms of their experiences in the Canadian labour market. See, Banerjee, Reitz and Oreopoulos (2018), and O'Neill et al. (2019).

Census, fall into this category.[2] Economic-class immigrants are welcomed into Canada based on their demonstrated competencies in English language proficiency, level of education, and work experiences, among other requirements. As such, it seems plausible that the absence of difference between the very recent and recent and established immigrants in my sample may be accounted for by their having arrived in Canada already possessing a number of attributes that serve to mitigate differences between these two groups. To this end, it seems equally plausible that had the sample been composed of a more equal distribution of individuals from all four immigrant categories, perhaps a more marked difference between very recent and recent and established immigrants may have been identified.

3. *Use of social support networks:* The reliance on social support networks of family and friends to assist in resolving challenges encountered when using federal-, provincial-, and municipal-level e-government service platforms also accounts for the absence of difference between very recent and recent and established Nepali immigrants in my sample. Even though individual participants may have unequal ICT skill sets, they were nonetheless being helped by their family members or friends who were familiar with such issues and who could help them resolve such challenges. Put simply, the collective actions of social support networks appear to be largely responsible for mediating how digital inequalities are experienced by individuals comprising the two groups of Nepal immigrants who participated in this study.

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[2] According to the Canada 2016 Census data, 51% of the total immigrants living in Ontario represents economic class, 31.9% represents family class, and 15.2% represents refugee class. See, https://www12.statcan.gc.ca/census-recensement/2016/as-sa/fogs-spg/Facts-PR-Eng.cfm?TOPIC=7&LANG=Eng&GK=PR&GC=35

9.1.4 Experiences of Nepali Immigrants in using e-Government Service Platforms

The central research question that served to guide this dissertation was:

> *What are the principal challenges Nepali immigrant users of federal, provincial, and municipal e-government service platforms encounter in seeking to engage with these online tools?*

This question sought to understand the challenges with which the very recent and recent and established Nepali immigrants to Canada must contend when engaging with e-government service platforms across three levels of government, and the strategies they employ tackle these challenges.

The survey results suggested that very recent Nepali immigrants in my sample were more frequent users of the federal-level e-government service platform than their recent and established immigrant counterparts, with no statistically significant differences between these two groups with respect to their use of provincial- and municipal-level e-government service platforms, the conducting financial transaction activities, participation in government-hosted online activities, or interacting with government agencies. In terms of very recent Nepali immigrants' English language proficiency, my findings revealed that despite self-reporting high proficiency levels, most participants had faced and/or continue to face some language-related challenges. When this matter was discussed in the context of focus group discussions, the participants reported resolving these challenges by mobilizing social support networks of family and friends and other more individualized strategies. When it came to the participants' ability to leverage ICT skills to benefit from the opportunities afforded by federal-, provincial-, and municipal-level e-government service platforms, here too, my findings pointed to a reliance upon social support networks of family and friends to assist in redressing skills-based challenges. In short, the presence of social support networks of family and friends

seemingly enable very recent Nepali immigrants to undertake and complete tasks that recent and established immigrants have largely already mastered.

There were three main domains for which the participants reported relying upon their respective social support networks to assist in resolving challenges associated with using federal-, provincial-, and municipal-level e-government service platforms:

1. familiarizing themselves with government services whether on- or offline. For example, knowing what specific government services are available online, searching and locating specific programs and webpages, and identifying key words when searching specific information that one is looking for.
2. overcoming English language barriers, or resolving issues relating to English language proficiency. For example, clarifying unfamiliar English phrases, interpreting technical jargon, and explaining legal terms; and
3. helping to solve challenges relating to ICT skills. For example, providing step-by-step guidance on how to submit application successfully and/or how to resolve technical issues related to computer software and Internet browsing.

In addition, social support networks were relied upon to facilitate the completion of such activities as information searches, document download/uploads, and participating in online polls and digital discussions. Some participants reported their social support networks also were influential in fostering their trust in e-government service platforms insofar as family and friends were consulted whenever they experienced any types of confusion, hesitance, or suspicion about the security of their personal information on these platforms. Reliance upon social support networks appears to be such an effective means of mitigating digital media related challenges that none of the participants reported

having any outstanding unresolved issues pertaining to their use of federal-, provincial-, and municipal-level e-government service platforms. To this end, it appears that the collective actions generated by the social support networks serve to reduce, and even eliminate post-access digital inequalities between very recent and recent and established Nepali immigrants. However, it seems equally plausible that an overreliance on such networks over extended periods of time may make one further dependent on family and friends, instead of developing, growing, and sustaining one's own abilities.

This dissertation also finds perceptions of convenience impact the strategies employed by Nepali immigrants when faced with the practical challenges of engaging with e-government platforms. For example, the participants reported engaging with federal-, provincial-, and municipal-level platforms when:

1. there were no government's offices nearby;
2. they wanted to avoid long wait times in physical offices or for telephone services;
3. they wanted to save on travel costs;
4. they wanted to protect themselves from COVID-19-related issues; and
5. they wanted to avoid government in-person services or telephone services so that their accent or remaining limits on English conversational skills would not impede discussion.

Additionally, one of the important contributors to the perceptions of convenience was the participants' ability to use their social support networks of family and friends who could help or guide them in resolving challenging issues they encountered when using federal-, provincial-, and municipal-level e-government service platforms.

In sum, and contrary to both what I had initially hypothesized and the predominant perspective in much mainstream digital inequalities literature, the analysis in this dissertation suggests that very recent Nepali immigrants to Canada should not be perceived as lagging behind their recent and established immigrant counterparts in terms

of their ability to access and use federal-, provincial-, and municipal-level e-government service platforms. Indeed, my findings suggest a need for researchers, policymakers and government agencies to re-consider often taken for granted assumptions about the ways in which immigrants experience digital inequalities.

9.2 Key Contributions and Implications

The findings of this dissertation contribute to the advancement of knowledge both in terms of theory and practice. At the level of theory, perhaps the most important contributions of this dissertation rest in its having identified the role of social support networks of family and friends in mitigating the effects of digital inequalities. Sen (2005) notes that individuals should possess the abilities to do what they value doing to convert opportunities into valuable functionings. Yet, if an individual does not possess these abilities, social support networks can become an instrumental channel for converting resources and opportunities into functionings. In the case of this dissertation, social support networks served as channels of immaterial and material support that, when mobilized were able to mitigate differences in how very recent and recent and established immigrants experience digital inequalities.

Relying on such networks in the long run, however, risks fostering dependency on family and friends and/or other diaspora members rather than empowering one's own abilities to exploit available services and opportunities. Illustrating a similar situation, Sen (2006) argues that in several countries multiculturalism is actually being practiced as ‘plural mono-culturalism’ since many diaspora communities are closely dependent within their diaspora members while remaining isolated socially and culturally from other geographically proximate community groups. This suggests a need for caution when

assessing the immediate benefits of calling upon social support networks given the potential for such actions to solidify into a form of constant comfortable reliance that may, in turn, serve to further isolate members of immigrant communities from integrating with other communities within their host country.

The identification of social support networks as a conversion factor serves to mitigate ongoing criticism about the individualism of the Capabilities Approach insofar as acknowledging the role of such networks contributes to fostering a more nuanced view of the ways in which collective ability impacts upon, and even may prevail over, individual decision-making.

The identification of perceptions of convenience as a conversion factor is another important contribution of this study. It too serves to advance a more nuanced understanding of how digital inequalities are lived and experienced insofar as perceptions of convenience, along with access to social support networks, appear to influence users' decision-making about transforming services and opportunities into valued functionings. Such perceptions of convenience were responsible, in part, for influencing the participants' decisions to engage with, and make use of, federal-, provincial-, and municipal-level e-government service platforms. For example, even though some individuals might prefer visiting government offices that were closed due to the COVID-19 pandemic, the federal-, provincial-, and municipal-level e-government service platforms have become a convenient way of bypassing on-going service limitations resulting from by the pandemic. Now, the cause of convenience is not the platform itself but the socio-environmental situation.

Lastly, the failure to identify any substantive differences between very recent and recent and established Nepali immigrants to Canada with respect to their use of federal-, provincial-, and municipal-level e-government service platforms was surprising and important. This finding, and the reasons associated with it, challenges the common narrative about very recent and recent and established immigrants experiencing, and their having to contend with, digital inequalities differently. It also suggests a need to reconsider the ways in which changing immigration criteria influence and/or otherwise mitigate the ways in which digital inequalities are lived and experienced among members of immigrant communities.

9.3 Limitations of the Study

The aim of this dissertation was to develop a better and more nuanced understanding of how digital inequalities are experienced by Nepali immigrants to Canada with respect to their use of federal-, provincial-, and municipal-level e-government service platforms. The evidence for the study was obtained in two phases. The first involved designing a survey questionnaire distributed to, and completed by, members of Nepali diaspora residing in the province of Ontario. The second involved conducting focus group discussions with members of the Nepali diaspora residing in the province of Ontario. The quantitative and qualitative data obtained were analyzed to assess how very recent and recent and established Nepali immigrants are contending with the challenges they encounter in accessing and using of federal-, provincial-, and municipal-level e-government service platforms.

Given a broad range of issues that may be incorporated into the notion of immigrant experience, any research project in this domain needs to limit its scope in

order to maintain its manageability. This dissertation attempted to identify and investigate factors accounting for what had been expected to be differences between very recent and recent and established Nepali immigrants. Given the available time and resources, this focus on Nepali immigrants came at the expense of examining the non-users and/or the experiences of broader range of immigrant communities. Had the sample consisted of both users and non-users as well as participants from across different immigrant communities, it may have been possible to identify points of commonalities, and differences across communities. That is, how immigrants' social support networks operate in different cultural contexts, which may, in turn, have implications in terms of developing a more precise understanding that may be widely applicable across these communities.

Another limitation pertains to the questionnaire survey. It was designed with multiple close-ended responses to be completed by selecting one of the given options in each question statement. Having open-ended responses for the writing of personal thoughts and perspectives, would have allowed for collecting additional information with the potential to shed light on, for example, why respondents did not use e-government service platforms in the same way across the three levels of government for the same purposes along with information about other considerations potentially influencing engagement with these platforms, or the lack thereof.

Some limitations also arose during the second stage of data collection. It was not possible to conduct the focus group meetings in person because of the pandemic-related public health guidelines in place at the time the meetings took place. Instead, these sessions were shifted to the Zoom video conferencing platform. The virtual focus group

discussions fell somewhat short of the research method's potential for two reasons. First, the focus group participants were participating virtually from their homes, and so often were surrounded by family members. This may have caused difficulties for some participants in terms of their capacity to concentrate on specific issues being discussed and/or may have contributed to their feeling hesitant to share their experiences freely. Second, some participants experienced Internet interruptions (e.g., slow connection, or fragmented voice, or disconnection and re-connection) that made it more challenging for them to follow the discussions. As the researcher, I tried my best to reconnect them with the context of discussion. However, this experience made me realize that in-depth focus group discussions can be impacted on virtual platforms due to the uncertainty of technological/internet-related flaws, and potential limitations on free expression amid family and/or friends in their homes.

Another limitation of this study pertained to selection of focus group participants themselves. The focus group discussions were centered around members of the Nepali immigrant community. However, there were no focus group discussions or interviews with officials from the three levels of government. In hindsight, the engagement of government representatives likely would have contributed to a better understanding of government efforts and perspectives about the constraints and limitations faced (e.g., financial burdens, legal frameworks, practical feasibility) in providing e-government content, government efforts and plans for making e-government service platforms user-friendly, and government's initiative about securing/protecting personal information submitted on e-government service platforms.

9.4 Directions for Future Research

This dissertation was designed to investigate how Nepali immigrants experienced digital inequalities with respect to their use of federal-, provincial-, and municipal-level e-government services platforms. The findings point to a number of possible directions for future research. The issues set out below are suggestive of potential lines of inquiry and are not meant to comprise an exhaustive list.

1. *Immigrant categories and digital inequalities.* The Government of Canada categorizes immigrants into Canada into different classes[3] (e.g., economic-class, family-class, refugee-class, and others), and a majority of those who participated in my study sample were part of economic class category. Economic class immigrants are selected based on a merit system that allocates points for such things as proficiency in Canada's national languages, education levels, age, work experience, and adaptability (e.g., Canadian education and work experience, job offers, and relatives in Canada). The three other immigrant categories are assessed using different criteria. It seems plausible that members of different immigrant categories may encounter different types of digital inequalities as well as experience these inequalities in different ways. This points to the potential benefits of investigating how different immigrant classes experience digital inequalities. The value or the benefits of investigating this issue rests in its potential to assist in identifying those who are most vulnerable to various digital inequalities and to help in developing focused programs and policies for addressing such inequalities.

[3] See this link for the classification of admission category of immigrants to Canada: https://www23.statcan.gc.ca/imdb/p3VD.pl?Function=getVD&TVD=323293&CVD=323294&CLV=0&MLV=4&D=1

2. *Role of social support networks in immigrant integration*. Different immigrant communities come from different cultural backgrounds. Presumably, all such communities have their own types of social support networks to assist family, friends and/or other diaspora members when adjusting into a new country environment. What merits investigation here is the ways in which different support networks operate across different immigrant communities to see if there are points of commonalities and divergence in the ways they function and the types of supports they provide to their respective community members. Such a study would be important because different immigrant communities in Canada and elsewhere may be experiencing challenges similar to those reported by the participants in my study. Effective use of various social support networks may be helpful to members of these communities in adjusting to a new country environment.
3. *Role of perceived conveniences and its implications in mitigating digital inequalities.* Van Dijk (2012) and Davis et al. (1989) observe that any kind of technology adoption is associated with users' psychology of perceived usefulness and perceived ease of use. Such perceptions of conveniences plausibly recur consistently in different stages of technology adoption, such as deciding to choose a particular technology, purchasing the technology, using the technology, evaluating the outcomes of the technology's use, and so on. In such a context, it is important to study the ways in which perceptions of convenience of one platform or technology impact upon people's willingness to experiment with different technologies or platforms. Such willingness of choosing ICT devices and digital platforms may be important in understanding how digital inequalities are experienced on, or associated with,

different technologies or platforms based on their perceptions of convenience.

4. *Challenges faced by non-users*. This dissertation focused exclusively on the experiences of Nepali immigrant users of e-government service platforms. Respondents who reported not using any e-government services were not consulted about the reasons undergirding their lack of engagement with such services. Now, and as a complement that builds upon the empirical and theoretical findings of this dissertation, it would be beneficial to investigate experiences of non-users and the reasons for their actions, or more precisely the lack thereof, with respect to engaging with e-government service platforms across federal, provincial, and municipal levels of government.

9.5 Final Thoughts

Five years ago, I started this dissertation project assuming that very recent immigrants to Canada were experiencing difficulties arising from digital inequalities when using federal-, provincial-, and municipal-level e-government service platforms because they might not be familiar with the available services or have the requisite language proficiency and ICT skills to access them. My assumption of was grounded on the literature available at the time. Having completed the project, I am surprised to find that there were no such observable gaps between very recent and recent and established Nepali immigrants in my sample. Equally interesting, very recent Nepali immigrants appear to be using federal-level e-government services more frequently than their recent and established immigrant counterparts presumably because of their settlement-related needs. The implications of these unexpected findings are important for understanding the evolving dynamics of immigrants and how their lived experience contrasts with

stereotypical perceptions and understandings of their encounters with digital inequalities.

This dissertation reveals a key insight that immigrants are capable of exploiting services and potential opportunities afforded by e-government platforms by catalyzing their social support networks of family and friends even in the face of limited familiarity with available services, and limited ICT skills and English language proficiency. This finding has both positive and negative implications. Having effective social support networks can, in the short-to-medium term, temper the impact of the digital inequalities, but at the same time, dependency on such networks, in the long run, can make immigrants dependent on such networks rather than strengthening their own abilities. Therefore, immigrants need to be cautious while using such networks for resolving their issues relating to digital inequalities.

Throughout the past three decades, our understanding of digital divides has been consistently changing and modifying from an initial understanding of this concepts as being anchored in access gaps, to skills gaps, to usage gaps, and outcome gaps in 2010s. Over the years, it has come to be understood that the idea of digital divides is not limited to technological access or connection. It also involves many other personal, social, and environmental dynamics. As this dissertation has shown, the synergetic effects of the collective actions of community members can go a long way to tackling and mitigating various digital inequalities immigrants encounter in their day-to-day lives.

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Appendix 4.1

CERTIFICAT D'APPROBATION ÉTHIQUE | CERTIFICATE OF ETHICS APPROVAL

Numéro du dossier / Ethics File Number	S-12-18-908
Titre du projet / Project Title	Impact of Digital Inequalities on Recent Canadian Immigrants' Access to e-Government Services: A Case of Nepali Immigrants
Type de projet / Project Type	Thèse de doctorat / Doctoral thesis
Statut du projet / Project Status	Approuvé / Approved
Date d'approbation (jj/mm/aaaa) / Approval Date (dd/mm/yyyy)	24/01/2019
Date d'expiration (jj/mm/aaaa) / Expiry Date (dd/mm/yyyy)	23/01/2020

Équipe de recherche / Research Team

Chercheur / Researcher	Affiliation	Role
Bhanu ACHARYA	École de gestion Telfer / Telfer School of Management	Chercheur Principal / Principal Investigator
Daniel PARÉ	Département de communication / Department of Communication	Superviseur / Supervisor

Conditions spéciales ou commentaires / Special conditions or comments

Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

Le Comité d'éthique de la recherche (CÉR) de l'Université d'Ottawa, opérant conformément à l'*Énoncé de politique des Trois conseils* (2014) et toutes autres lois et tous règlements applicables, a examiné et approuvé la demande d'éthique du projet de recherche ci-nommé.

L'approbation est valide pour la durée indiquée plus haut et est sujette aux conditions énumérées dans la section intitulée "Conditions Spéciales ou Commentaires". Le formulaire « Renouvellement ou Fermeture de Projet » doit être complété quatre semaines avant la date d'échéance indiquée ci-haut afin de demander un renouvellement de cette approbation éthique ou afin de fermer le dossier.

Toutes modifications apportées au projet doivent être approuvées par le CÉR avant leur mise en place, sauf si le participant doit être retiré en raison d'un danger immédiat ou s'il s'agit d'un changement ayant trait à des éléments administratifs ou logistiques du projet. Les chercheurs doivent aviser le CÉR dans les plus brefs délais de tout changement pouvant augmenter le niveau de risque aux participants ou pouvant affecter considérablement le déroulement du projet, rapporter tout évènement imprévu ou indésirable et soumettre toute nouvelle information pouvant nuire à la conduite du projet ou à la sécurité des participants.

The University of Ottawa Research Ethics Board, which operates in accordance with the *Tri-Council Policy Statement* (2014) and other applicable laws and regulations, has examined and approved the ethics application for the above-named research project.

Ethics approval is valid for the period indicated above and is subject to the conditions listed in the section entitled "Special Conditions or Comments". The "Renewal/Project Closure" form must be completedfour weeks before the above-referenced expiry date to request a renewal of this ethics approval or closure of the file.

Any changes made to the project must be approved by the REB before being implemented, except when necessary to remove participants from immediate endangerment or when the modification(s) only pertain to administrative or logistical components of the project. Investigators must also promptly alert the REB of any changes that increase the risk to participant(s), any changes that considerably affect the conduct of the project, all unanticipated and harmful events that occur, and new information that may negatively affect the conduct of the project or the safety of the participant(s).

Kim THOMPSON
Responsable d'éthique en recherche / Protocol Officer
Pour/For **Barbara GRAVES** Président(e) du/ Chair of the **Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board**

S-12-18-908 - MOD1-908 - Modification approuvée / Modification Approved

(English message follows)

Cher/Chère Bhanu Acharya,

Merci d'avoir soumis une demande de modification pour votre projet de recherche intitulé «Impact of Digital Inequalities on Recent Canadian Immigrants' Access to e-Government Services: A Case of Nepali Immigrants».

Ces modifications ont été approuvées et sont assujetties au certificat d'approbation éthique, valide jusqu'au 23-01-2021.

Research Design: As originally proposed, Phase 2 of data collection was meant to entail semi-structured interviews with 15-20 people. Due to the COVID-19 situation, in-person face-to-face interviews are no longer possible. Phase 2 will now use virtual group discussions and focus on members of the Nepali immigrant community. Revised documents have been submitted.

Si vous avez des questions, n'hésitez pas à communiquer avec le Bureau d'éthique au ethique@uottawa.ca ou au 613-562-5387.

Vous pouvez voir votre demande en vous connectant à votre compte eReviews .

Cordialement,

Kim Thompson
Responsable d'éthique en recherche
Président(e) : Barbara Graves
CÉR : Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board

Ceci est une réponse automatisée, merci de ne pas répondre à ce courriel.

Dear Bhanu Acharya,

Thank you for submitting a modification request for your research project titled "Impact of Digital Inequalities on Recent Canadian Immigrants' Access to e-Government Services: A Case of Nepali Immigrants".

These modifications are now covered under the certificate of ethics approval, valid until 23-01-2021.

Research Design: As originally proposed, Phase 2 of data collection was meant to entail semi-structured interviews with 15-20 people. Due to the COVID-19 situation, in-person face-to-face interviews are no longer possible. Phase 2 will now use virtual group discussions and focus on members of the Nepali immigrant community. Revised documents have been submitted.

If you have any questions, please contact the Ethics Office at ethics@uottawa.ca or 613-562-5387.

You can view your project at any time by logging into eReviews .

Best regards,

Kim Thompson

Protocol Officer
Chair: Barbara Graves
REB: Comité d'éthique de la recherche en sciences sociales et humanités / Social Sciences and Humanities Research Ethics Board

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Attachement(s) / Attachment(s)

uOttawa

UNIVERSITY OF OTTAWA

RESEARCH PARTICIPANTS NEEDED FOR A SURVEY !!!

✓ *Are you an immigrant of Nepali origin to Canada?*

✓ *Do you live in Ontario?*

✓ *Are you 18 years or older?*

If yes, **YOU** may be eligible for an important research on Nepali immigrants.

Why is this research important?

This research will be helpful to identify the consequences of digital divide among Nepali immigrants in terms of using government online services. It will assess different types of challenges faced by Nepali immigrants in Canada while using government online service portals at federal, provincial (Ontario), and local governments (such as City of Ottawa, and City of Toronto).

Note that it is a voluntary participation. All information provided for the survey is confidential, and will not be disclosed. The survey may take approximately 30 minutes to complete. You can receive a print or digital copy, fill up the form and send back to the researcher, or fill up the online questionnaire and submit online.

If interested, please scan the following QR code by using your mobile phone, or contact **Bhanu Acharya**, the principal researcher

Email: ,
Cell phone

Appendix 4.3

QUESTIONNAIRE SURVEY

The information you provide will not be passed on to any third party.
Your response will be treated confidentially.

Instructions
Please answer the following questions by ticking the boxes, and/or providing responses in the spaces provided.

SECTION 1. DEMOGRAPHIC INFORMATION

1. Please indicate the year in which you landed in Canada as an immigrant.

   Year .....

2. Please name the municipality in which you currently reside.

   Municipality .....

3. Please identify the Government of Canada's immigration category that applies to you. *(Please tick one box only)*

   ☐ Economic class
   ☐ Family class
   ☐ Refugee class
   ☐ Other *(Please specify)* .....
   ☐ Prefer not to specify

4. Please identify the age group to which you belong. *(Please tick one box only)*

   ☐ 18-27
   ☐ 28-37
   ☐ 38-47
   ☐ 48-57
   ☐ 58-67
   ☐ 68- and older
   ☐ Prefer not to specify

5. Please indicate your gender. *(Please tick one box only)*

   ☒ Male
   ☐ Female
   ☐ Prefer not to specify
   ☐ Prefer to self-describe: .....

6. Please indicate the highest degree or level of education you have completed. *(Please tick one box only. If currently enrolled, indicate the highest degree received.)*

   ☐ Doctorate degree
   ☐ Master's degree
   ☐ Undergraduate degree
   ☐ Secondary school (Grades 9-12)
   ☐ Elementary school (Grades 1-8)
   ☐ Professional degree
   ☐ Vocational certificate
   ☐ No formal education
   ☐ Prefer not to specify

7. Please specify the income range to which you belong. *(Please tick one box only)*

   ☐ $46,605 or less per year
   ☐ $46,606 - $93,208 per year
   ☐ More than $93,208 per year
   ☐ Prefer not to specify

8. Please indicate your current employment status. *(Please tick the one box that best corresponds with your situation, and, if applicable, indicate the sub-category)*

☐ Government employee
☐ Private-sector employee
☐ Self-employed
☐ Student
☐ Unemployed
☐ Prefer not *to specify*
☐ Other *(Please specify)*:.....

9. Please identify your proficiency with the following languages. *(Please tick the one box in each row that best corresponds with your situation)*

English	*Excellent*	*Very Good*	*Good*	*Limited*	*Don't know*
Writing	☐	☐	☐	☐	☐
Speaking	☐	☐	☐	☐	☐
Comprehension	☐	☐	☐	☐	☐

French	*Excellent*	*Very Good*	*Good*	*Limited*	*Don't know*
Writing	☐	☐	☐	☐	☐
Speaking	☐	☐	☐	☐	☐
Comprehension	☐	☐	☐	☐	☐

Nepali	*Excellent*	*Very Good*	*Good*	*Limited*	*Don't know*
Writing	☐	☐	☐	☐	☐
Speaking	☐	☐	☐	☐	☐
Comprehension	☐	☐	☐	☐	☐

10. Please indicate your skills in using the following information and communication (IC) devices. *(Please tick the one box in each row that best corresponds with your situation.)*

IC devices	*Excellent*	*Very Good*	*Good*	*Limited*	*Don't know*
Computer (Desktop/ Laptop)	☐	☐	☐	☐	☐
Smart/mobile phone	☐	☐	☐	☐	☐
Others (ipad/Tablet)	☐	☐	☐	☐	☐

SECTION 2. ABILITY TO ACCESS TO GOVERNMENT SERVICES ONLINE

11. Within the last five years, have you used any of the services provided online by the federal government of Canada at its www.canada.ca platform? *(Tick the one box that best corresponds with your situation.)*

☐ Yes ☐ No *(Please go to question 14)* ☐ Prefer not to specify *(Please go to question 14)*

12. Please identify the federal-level online government services you have used at least once within the last five years. *(Please tick the one box in each row that best corresponds with your situation.)*

Federal services offered online	*Yes*	*No*	*Prefer not to specify*
I renewed my Permanent Resident (PR) Card.	☐	☐	☐
I applied for Canadian citizenship.	☐	☐	☐
I applied for a Canadian passport.	☐	☐	☐
I submitted my income tax.	☐	☐	☐
I applied for Employment Insurance (EI).	☐	☐	☐
I searched for federal-level job opportunities within the Federal public service.	☐	☐	☐
I applied to sponsor a family member from my country of birth who wishes to immigrate to Canada.	☐	☐	☐
I applied for a Canada Student Loan.	☐	☐	☐
Other *(Please specify)*……..	☐	☐	☐

13. Please identify your motivations for accessing and using federal-level online government services. *(Please tick the one box in each row that best corresponds with your situation.)*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I am comfortable with using the federal government's online services.	☐	☐	☐	☐	☐
The types of federal government services I want to access are available to me online.	☐	☐	☐	☐	☐
The federal government’s online services are easy to use.	☐	☐	☐	☐	☐
Using the federal government’s online services saves me time.	☐	☐	☐	☐	☐
I can access the federal government’s online services at any time I wish.	☐	☐	☐	☐	☐
I can access the federal government’s online services from any place of my choosing.	☐	☐	☐	☐	☐

I can locate relevant content I need among the federal government's online service offerings.	☐	☐	☐	☐	☐
Given my past experience with the federal government's online service offerings I am likely to use them again.	☐	☐	☐	☐	☑
When dealing with federal government services, I prefer to visit an actual office.	☐	☐	☐	☐	☐
When dealing with federal government services, I prefer to speak with a government representative via telephone.	☐	☐	☐	☐	☐
I can afford the technologies (such as, computer, ipad, tablet or mobile device) needed to access and use the federal government's online services.	☐	☐	☐	☐	☐
I have adequate technology skills to use the federal government's online services.	☐	☐	☐	☐	☐
I understand the language used in the federal government's online service offerings.	☐	☐	☐	☐	☐

14. Within the last five years, have you used any of the services provided online by the government of Ontario at its www.ontario.ca platform? *(Please tick the one box that best corresponds with your situation.)*

☐ Yes ☐ No *(Please go to question 17)* ☐ Prefer not to specify *(Please go to question 17)*

15. Please identify the provincial-level online government services you have used at least once within the last five years. *(Please tick the one box in each row that best corresponds with your situation.)*

Provincial services offered online	*Yes*	*No*	*Prefer not to specify*
I renewed my driver's license.	☐	☐	☐
I renewed my Ontario health card.	☐	☐	☐
I renewed my car's license plate sticker.	☐	☐	☐
I applied for childcare benefits.	☐	☐	☐
I applied to the Ontario Student Assistance Program (OSAP).	☐	☐	☐
I searched for provincial-level job opportunities within the Ontario public service.	☐	☐	☐
I applied for my child's birth certificate.	☐	☐	☐
Other *(Please specify)* ……	☐	☐	☐

16. Please indicate your motivations for accessing and using provincial-level online government services. *(Please tick the one box in each row that best corresponds with your situation.)*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I am comfortable with using the provincial government's online services.	☐	☐	☐	☐	☐
The types of provincial government services I want to access are available to me online.	☐	☐	☐	☐	☐
The provincial government's online services are easy to use.	☐	☐	☐	☐	☐
Using the provincial government's online services saves my time.	☐	☐	☐	☐	☐
I can access the provincial government's online services at any time I wish.	☐	☐	☐	☐	☐
I can access the provincial government's online services from any place of my choosing.	☐	☐	☐	☐	☐
I can locate relevant content I need among the provincial government's online service offerings.	☐	☐	☐	☐	☐
Given my past experience with the provincial government's online service offerings I am likely to use them again.	☐	☐	☐	☐	☐
When dealing with provincial government services, I prefer to visit an actual office.	☐	☐	☐	☐	☐
When dealing with provincial government services, I prefer to speak with a government representative via telephone.	☐	☐	☐	☐	☐
I can afford the technologies (such as computer, ipad, tablet and mobile device) needed to access and use the provincial government's online services.	☐	☐	☐	☐	☐
I have adequate technology skills to use the provincial government's online services.	☐	☐	☐	☐	☐
I understand the language used in the provincial government's online service offerings.	☐	☐	☐	☐	☐

17. Within the last five years, have you used any of the services provided online by your municipal government? *(Please tick the one box that best corresponds with your situation.)*

☐ Yes ☐ No *(Please go to question 20)* ☐ Prefer not to specify *(Please go to question 20)*

18. Please identify the municipal-level online government services you have used at least once within the last five years. *(Tick the one box in each row that best corresponds with your situation.)*

Municipal services offered online	*Yes*	*No*	*Prefer not to specify*
I paid my property tax.	☐	☐	☐
I paid a monthly utility bill.	☐	☐	☐
I updated my mailing address information.	☐	☐	☐
I paid a fine.	☐	☐	☐
I registered a complaint (such as, noise, parking, flooding).	☐	☐	☐
I submitted a service request (such as, road maintenance, garbage collection).	☐	☐	☐
I searched for municipal level job opportunities within my municipal public service.	☐	☐	☐
Other *(Please specify)*……	☐	☐	☐

19. Please indicate your motivations for accessing and using municipal-level online government services. *(Please tick one box in each row that best corresponds with your situation.)*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I am comfortable with using my municipal government's online services.	☐	☐	☐	☐	☐
The types of municipal government services I want to access are available to me online.	☐	☐	☐	☐	☐
The municipal government's online services are easy to use.	☐	☐	☐	☐	☐
Using the municipal government's online services saves my time.	☐	☐	☐	☐	☐
I can access the municipal government's online services at any time I wish.	☐	☐	☐	☐	☐
I can access the municipal government's online services from any place of my choosing.	☐	☐	☐	☐	☐
I can locate relevant content I need among my municipal government's online service offerings.	☐	☐	☐	☐	☐

Given my past experience with my municipal government's online service offerings I am likely to use them again.	☐	☐	☐	☐	☐
When dealing with municipal government services, I prefer to visit an actual office.	☐	☐	☐	☐	☐
When dealing with municipal government services, I prefer to speak with a government representative via telephone.	☐	☐	☐	☐	☐
I can afford the technologies (such as computer, ipad, tablet or mobile device) needed to access and use the municipal government's online services.	☐	☐	☐	☐	☐
I have adequate technology skills to use the municipal government's online services.	☐	☐	☐	☐	☐
I understand the language used in the municipal government's online service offerings.	☐	☐	☐	☐	☐

SECTION 3: ABILITY TO NAVIGATE GOVERNMENT ONLINE

20. Please indicate the language you use when accessing government online services platforms. *(Please tick the one box in each column that corresponds with your situation.)*

Language	*Federal*	*Provincial*	*Municipal*
English	☐	☐	☐
French	☐	☐	☐
Both (English & French)	☐	☐	☐
Other *(Please specify)*	.....	.....	.....

21. *(If your answer to question 11 was 'No' or 'Prefer not to specify', please go to question 22.)* Please indicate your experience when navigating the federal government online services platform (i.e., www.canada.ca). *(Please tick the one box in each row that best corresponds with your situation).*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I am able to understand the English language content provided on the federal government's online services platforms.	☐	☐	☐	☐	☐
I am able to understand the French language content provided on the federal government's online services platform.	☐	☐	☐	☐	☐
I am able to search the information I need on the federal government's online services platform.	☐	☐	☐	☐	☐
I am able to find without difficulty the services I need to access on the federal government online services platform.	☐	☐	☐	☐	☐
I am able to locate specific webpages on the federal government services platform that I have visited before.	☐	☐	☐	☐	☐
I find the federal government online services platform designed to be user-friendly.	☐	☐	☐	☐	☐
It is easy to decide what the best key words are to search federal government online services platform.	☐	☐	☐	☐	☐

22. *(If your answer to question 14 was 'No' or 'Prefer not to specify', please go to question 23.)*
Please indicate your experience when navigating the government of Ontario's online services platform (i.e. www.ontario.ca). *(Please tick the one box in each row that best corresponds with your situation.)*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I am able to understand the English language content provided on the provincial government's online services platform.	☐	☐	☐	☐	☐
I am able to understand the French language content provided on the provincial government's online services platform.	☐	☐	☐	☐	☐
I am able to search the information I need on the provincial government's online services platform.	☐	☐	☐	☐	☐
I am able to find the services I need to access without difficulty on the provincial government online services platform.	☐	☐	☐	☐	☐
I am able to locate specific webpages on the provincial government services platform that I have visited before.	☐	☐	☐	☐	☐
I find the provincial government online services platform designed to be user-friendly.	☐	☐	☐	☐	☐
It is easy to decide what are the best key words are to search provincial government online services platform.	☐	☐	☐	☐	☐

23. *(If your answer to question 17 was 'No' or 'Prefer not to specify', please go to question 24.)*
Please indicate your experience when navigating your municipal government's online services platform (e.g., www.ottawa.ca). *(Please tick the one box in each row that best corresponds with your situation).*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I am able to understand the English language content provided on the municipal government's online services platforms.	☐	☐	☐	☐	☐
I am able to understand the French language content provided on the municipal government's online services platforms.	☐	☐	☐	☐	☐

I am able to search the information I need on the municipal government's online services platform.	☐	☐	☐	☐	☐
I am able to find the services I need to access without difficulty on the municipal government online services platform.	☐	☐	☐	☐	☐
I am able to locate specific webpages on the municipal government services platform that I have visited before.	☐	☐	☐	☐	☐
I find the municipal government online services platform designed to be user-friendly.	☐	☐	☐	☐	☐
It is easy to decide what the best key words are to search municipal government online services platform.	☐	☐	☐	☐	☐

SECTION 4: ABILITY TO CONDUCT TRANSACTION ACTIVITIES

24. Within the last five years, have you engaged in financial transaction activities using the federal government online services platform? *(Please tick the one box that best corresponds with your situation.)*

☐ Yes ☐ No *(Please go to question 27)* ☐ Prefer not to specify *(Please go to question 27)*

25. If yes, please indicate the type of transaction you have made on the federal government's online platform. *(Tick all that apply)*.

☐ Paying service fee
☐ Paying fines/charges
☐ Submitting annual taxes
☐ Other *(Please specify):* .....

26. Please indicate your experience with regard to conducting financial transactions using the federal government's online services platform. *(Please tick the one box in each row that best corresponds with your situation.)*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I trust the information available at federal government's online services platform regarding the conducting of financial transactions.	☐	☐	☐	☐	☐
The federal government's online services platform is a safe venue to conduct financial transactions (such as submitting annual taxes).	☐	☐	☐	☐	☐
The federal government's online services platform has adequate measures in place to protect my personal information.	☐	☐	☐	☐	☐

27. Within the last five years, have you engaged in financial transaction activities using the government of Ontario's online services platform? *(Please tick the one box that best corresponds with your situation.)*

☐ Yes ☐ No *(Please go to question 30)* ☐ Prefer not to specify *(Please go to question 30)*

28. If yes, please indicate the type of transaction you have made on the Ontario government's online platform. *(Tick all that apply)*.

☐ Paying service fee
☐ Paying for tickets and fines (e.g., trespassing, speeding)
☐ Submitting financial information (e.g., credit card information)
☐ Other *(Please specify):* .....

29. Please indicate your experience with regard to conducting financial transactions using the provincial government's online services platform. *(Please tick the one box in each row that best corresponds with your situation.)*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I trust the information available at provincial government's online services platform regarding the conducting of financial transactions.	☐	☐	☐	☐	☐
The provincial government's online services platform is a safe venue to conduct financial transactions (such as paying service fees).	☐	☐	☐	☐	☐
The provincial government's online services platform has adequate measures in place to protect my personal information.	☐	☐	☐	☐	☐

30. Within the last five years, have you engaged in financial transactions using your municipal government's online services platform? *(Please tick the one box that best corresponds with your situation.)*

☐ Yes ☐ No *(Please go to question 33)* ☐ Prefer not to specify *(Please go to question 33)*

31. If yes, please indicate the type of transaction you have made on the municipal government's online platform. *(Tick all that apply)*

☐ Paying service fee
(e.g., water and sewage)
☐ Paying for parking tickets
☐ Paying property taxes
☐ Other *(Please specify):* .....

32. Please indicate your experience with regard to conducting financial transactions using your municipal government's online services platform. *(Please tick the one box in each row that corresponds with your situation.)*

Statements	*Strongly agree*	*Agree*	*Disagree*	*Strongly Disagree*	*Prefer not to answer*
I trust the information available at municipal government's online services platform regarding the conducting of financial transactions.	☐	☐	☐	☐	☐
The municipal government's online services platform is a safe venue to conduct financial transactions (such as paying property tax)	☐	☐	☐	☐	☐
The municipal government's online services platform has adequate measures in place to protect my personal information.	☐	☐	☐	☐	☐

SECTION 5: ENGAGING IN CLIENT SERVICE ACTIVITIES

33. Within the last five years, have you participated in any government-hosted online client activities? *(Please tick the one box that best corresponds with your situation.)*

☐ Yes	☐ No *(Please go to question 35)*	☐ Prefer not to specify *(Please go to question 35)*

34. Please identify the types of government-hosted online client activities to which you have contributed for each level of government. *(Please tick the one or more boxes in each column that correspond with your situation).*

Online client activities	*Federal*	*Provincial*	*Municipal*
Completing a customer satisfaction or related online survey for a specific service	☐	☐	☐
Participating in a government hosted online poll about an issue of public service	☐	☐	☐
Participating in a government hosted online discussion about service delivery issues	☐	☐	☐
Other *(Please specify)*	☐	☐	☐

35. Within the last five years, have you interacted online with any government agency or department to provide input and/or feedback? (*Please tick the one box that best corresponds with your situation).*

☐ Yes *(Please proceed to the next question)*	☐ No *(Thank you for your participation)*	☐ Prefer not to specify *(Thank you for your participation)*

36. How frequently have you been in contact with a government agency in the last five-year period? *(Please tick the one box in each row that best corresponds with your situation.)*

	Very often *(5 times or more a year)*	*Often* *(3-4 times a year)*	*Seldom* *(1-2 times a year)*
Federal level	☐	☐	☐
Provincial level	☐	☐	☐
Municipal level	☐	☐	☐

37. What was the purpose of your interaction? *(Please tick one or more boxes in each column (i.e. Federal, Provincial, and Municipal) that apply to your situation the most).*

	Federal	*Provincial*	*Municipal*
To enquire about service information	☐	☐	☐
To request a service	☐	☐	☐
To provide feedback	☐	☐	☐
To register a complaint	☐	☐	☐
Other *(Please specify)*	.....	.....	.....

38. What online medium did you use to interact with the government agency(ies)? *(Please tick all that apply)*

☐ Email
☐ Feedback template on website
☐ Social media page
☐ Other *(Please specify)* .....

39. Did you receive timely responses from the government agency(ies) with which you engaged? *(Please tick the one box in each row that best corresponds with your situation).*

Government agencies	*Always*	*Very often*	*Sometimes*	*Never*	*Prefer not to answer*
Federal	☐	☒	☐	☐	☐
Provincial	☐	☐	☐	☐	☐
Municipal	☐	☐	☐	☐	☐

40. How satisfied were you with your online interaction(s) with government agency(ies)? *(Please tick the one box in each row that best corresponds with your situation.)*

	Very satisfied	*Satisfied*	*Unsatisfied*	*Very unsatisfied*	*Prefer not to answer*
Federal	☐	☐	☐	☐	☐
Provincial	☐	☐	☐	☐	☒
Municipal	☐	☐	☐	☐	☐

Do You Have Any Comments?

Please write your comment here

!!! THANK YOU FOR YOUR PARTICIPATION !!!

Please return the completed questionnaire by post or email to the following address:

Bhanu Acharya
55 Laurier Avenue East, Desmarais Building, Room 11128, University of Ottawa
Email to:

If you would like to receive a complimentary summary of the results of this survey please write your email here: Email: .....

Appendix 4.4

Report of the Pilot-test for Questionnaire Survey

A pilot-test is conducted in any typical research with a questionnaire survey as a data collection tool to confirm the appropriateness of the questions to the target population, and to ensure their effectiveness in accomplishing the purpose of the study (Dwivedi, 2005; Ruppel, 2016). Pilot-test is important in terms of limiting/reducing future complications created by data, missing information, and/or terminology used (Van Teijlingen, & Hundley, 2002).

In this research, a pilot-test was designed and conducted with a small sample population in order to ensure accuracy and clarity of the questionnaire (with regard to simplicity of language and appropriateness of the terminology), identify missing information (such as key questions on any related issue), and assess the quality of the survey data while exporting to SPSS software from the Qualtrics, an online platform on which the questionnaire was designed.

Prior to the actual large-scale questionnaire survey, a pilot survey was conducted in January 2019 with a sample of 22 participants, a slightly more than 10 percent of the intended survey population, with the purpose of testing the survey questionnaire, and making necessary changes, where applicable. The respondents were purposefully selected using a convenience sampling, which included recent immigrants (n=7), early immigrants (n=2), policy consultants (n=3), government employees (n=4), students (n=4), and researchers (n=2). Similarly, while selecting pilot survey participants, immigrants of all three categories (i.e. economic, dependent and refugee), of both genders (male and female), of different age groups (from 18 years to 68 and old), residing in different cities, and having elementary education to doctoral degree were incorporated. Of the 22 responses, 8 were collected from print version of the questionnaire whereas, rest of the responses was collected via online through this link: https://uottawatelfer.az1.qualtrics.com/jfe/form/SV_ePRYZwoUTDkGYVT

Suggestions and responses

After the submission of the survey responses, each of the participants was asked the following questions: (a) are question statements of the questionnaire clear and understandable? (b) do you feel any gap among questions that needs to be addressed by separate questions? and, (c) would you like to suggest something for further improvements of the questionnaire?

A variety of the suggestions were received from the respondents with regard to technical aspects of the online version of the survey, clarity of the language used (such as use of appropriate terminology, grammatical errors), and structural reformation. Suggestions of the pilot-test participants and my responses to their suggestions are provided below in three separate sub-topics.

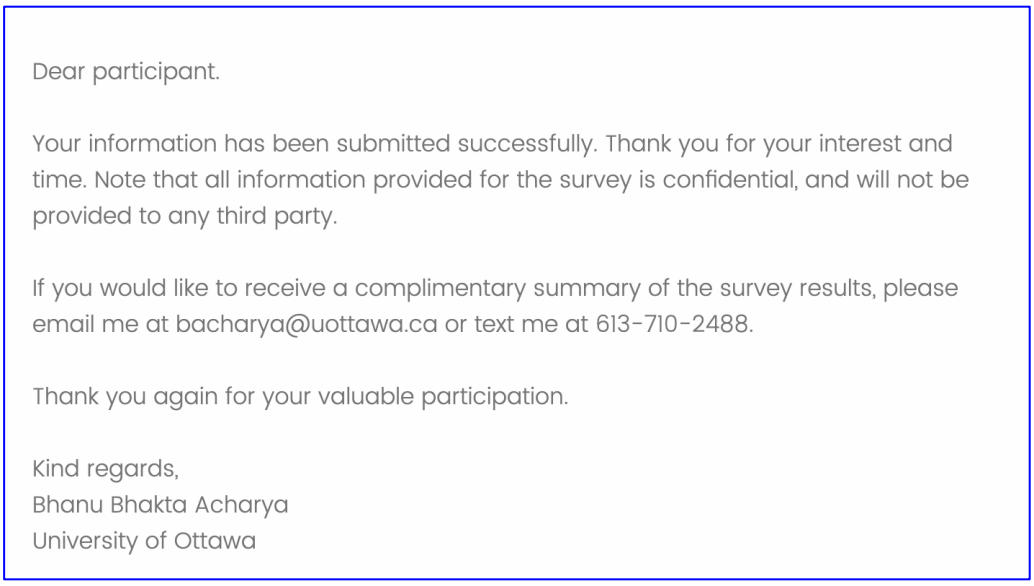
a) Technical issues

Respondents identified a few technical issues while using the online version of the survey. For example, two of the respondents pointed out the lack of consent statement in the beginning of the Questionnaire Survey. Another respondent suggested to change the font colour of the online survey from dark grey into black arguing that the latter might be more comfortable to readers than the former. Three of the survey participants experienced technical difficulty in choosing

multiple answers in question Q25, Q28, and Q31, and advised for modifying setting of the survey questionnaire. Similarly, five of the online respondents were confused about the submission icon, and asked how they would know whether their responses had been submitted successfully in the system.

Response to the technical issues:

- The consent statement is added at the beginning of the online survey questionnaire. By clicking the tab "Yes, I have read this consent statement and agree to participate in this survey", participants can access to the survey questions.
- The dark gray font of the online survey text has been changed into clear black colour.
- The technical difficulties experienced by participants in choosing multiple answers in Q25, Q28, and Q31 are fixed.
- The end of the survey will display the following message on the screen so that respondents will know their questionnaire is submitted successfully in the system.


Dear participant.

Your information has been submitted successfully. Thank you for your interest and time. Note that all information provided for the survey is confidential, and will not be provided to any third party.

If you would like to receive a complimentary summary of the survey results, please email me at bacharya@uottawa.ca or text me at 613-710-2488.

Thank you again for your valuable participation.

Kind regards,
Bhanu Bhakta Acharya
University of Ottawa

b) Structural reformation

Most of the pilot-test respondents experienced that the Questionnaire too long and repetitive. In order to avoid repetition and shorten the lengthy questionnaire, they suggested merging the following questions:

- ❑ Merge different sections of language (i.e. English/French, Nepali) of Q9 in a single table
- ❑ Access to federal e-government Q11 and Q12 (merge the both into a question),
- ❑ Access to provincial e-government Q14 and Q15 (merge the both into a question),
- ❑ Access to municipal e-government Q17 and Q18 (merge the both into a question),
- ❑ Motivation-related question Q13, Q16 and Q19 (merge into a single question),
- ❑ Experience-related question Q21, Q22, and Q23 (merge into a single question),
- ❑ Trust-related question Q26, Q29 and Q32 (merge into a single question).

In Q12, Q15 and Q18, two participants suggested to have a separate column entitled "not applicable" between "No" and "Prefer not to specify" columns.

Some respondents suggested removing Q20 about the language choice because they did not see the relevance of the question since there were language-related statements in Q21, Q22 & Q23. A respondent suggested removing the "Other (Please specify)" option only in Q20 since Canada's e-government services are provided in English and/or French.

Response to the structural reformation:

- Different sections of language in Q9 are merged into a single table in online and print versions.
- The other suggestions of merger of different questions could not be applied due to the technical limitations of the system in designing multiple dropdown menus in a single matrix table. Additionally, a data analyst advised that a merger of two or more matrix tables could make data transfer complicated while exporting the questionnaire data from the Qualtrics to the SPSS software.
- The suggestion of pilot-test participants to add a "Not applicable" column between "No" and "Prefer not to specify" columns of Q12, Q15 and Q18 was not found significant in data gathering, and, therefore, was not implemented.
- The "Other (Please specify)" option is removed from Q20 since e-government services in Canada are primarily provided in English and/or French, even though some municipalities in the Greater Toronto Area (GTA) are found providing multi-language translation option in their websites. However, the language translation option—while experimented for translating web content in Nepali language—generated a lot of errors, and found unable to translate documents attached on the websites.

c) Clarity of language

Different participants identified different issues in various questions in terms of clarity and word choice. In Q3, some respondents were not clear about the "economic class" immigration category. They argued that they came in Canada under "Federal Skilled Workers" or "Provincial Nominee Program" and whether these categories were under economic category or something else. In Q6, respondents were uncertain about the level of education. They asked if survey question was about the academic degree obtained in Canada or elsewhere. In Q7, respondents were not clear about income— whether the question refers to an individual or household income. In the same question, the participants suggested to change one of the three income categories (i.e., "$46,605 or less per year") into "0 to 46,605 per year" so that it would be easy for them to figure out the right category. In Q11, Q14, Q17, Q24, Q27, Q30 and Q33, respondents specified that these questions required examples of the services so that respondents could make informed decision among the given choices. Similarly, a user suggested adding a term "myself" at the end of the fourth statement of the Q12.

Similarly, some pilot-test participants suggested replacing "fair" with "good", "limited" with "poor", and "don't know" with "very poor" in Q9 and Q10. Respondents suggested to delete "don't know" column in Q13, Q16, Q19, Q21, Q22, Q23, Q26, Q29, Q32 and present the five point Likert-scale with "Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree" options.

One user identified inconstancy of word choice in Q39 and Q40, in which, the first question statement used "agency(ies)" but the second used "agencies".

Response to the clarity of language
Based on the above feedback, necessary changes have been made to improve the questionnaire as shown on the following table. The yellow highlight indicates added information.

Issue identified	Action taken
Q3 Immigration category	The "economic class" immigration category is presented with additional information in parentheses. ☐ Economic class *(Skilled Workers/ Provincial Nominees)*
Q6 Level of education	The question statement is presented as follows: Please indicate the highest degree or level of education you have completed in Canada or elsewhere.
Q7 Income range	The term "individual" is added to make the statement clear, and participants suggestion to change one of the three income categories (i.e., "$46,605 or less per year") into "0 to 46,605 per year" is accepted: Please specify the individual income range to which you belong. *(Please tick one box only)* ☐ 0 to $46,605 per year
Q9, Q10	The five point Likert scale terms "fair", "limited" and "don't know" are replaced with "good", "poor" and "very poor" respectively.
Q12	The statement is modified as follows: "I submitted my income tax myself"
Q13, Q16, Q19, Q21, Q22, Q23, Q26, Q29, Q32	Based on the suggestions of the pilot-test respondents the column "don't know" column is deleted and the five point Likert-scale with "Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree" options is added in Q13, Q16, Q19, Q21, Q22, Q23, Q26, Q29, and Q32.
Q40 inconsistency of a word choice	In Q40, the word "agencies" is changed into "agency(ies)" for consistency of word choice with Q38 and Q39.

Q11, Q14, Q17, Q24, Q27, Q30 Q33 The question statements need examples to make respondents clear in selecting right answers	The following examples (in yellow highlights) are added in the respective question statements: Q11 Within the last five years, have you used any of the services (e.g. renewing PR Card, submitting income taxes) provided online by the federal government of Canada at its www.canada.ca platform? Q14 Within the last five years, have you used any of the services (such as driver's license, health card, childcare benefits) provided online by the government of Ontario at its www.ontario.ca platform? Q17 Within the last five years, have you used any of the services (such as paying property tax, paying utility bills, updating mailing address, and registering complaints) provided online by your municipal government? Q24 Within the last five years, have you engaged in financial transaction activities (such as paying service fees, fines, taxes) using the federal government online services platform? Q27 Within the last five years, have you engaged in financial transaction activities (such as paying service fees, fines, tickets) using the government of Ontario's online services platform? Q30 Within the last five years, have you engaged in financial transactions (such as paying service fees, parking tickets, taxes) using your municipal government's online services platform? Q33 Within the last five years, have you participated in any government-hosted online client activities such as online survey, online poll, online discussion?

Conclusion

The most important strength of the Survey Questionnaire is that no participant of the pilot-test suggested any additional question to fill any kind of gap in order to accomplish the objectives of the survey. Similarly, while exporting data from the Qualtrics to SPSS software, the online version of the questionnaire is found perfectly fit to export data without any significant error.

The pilot-test participants, however, identified a number of technical, linguistic and structural issues in the questionnaire survey to make the survey questionnaire short, clear and understandable to all kinds of target participants. Most of their concerns have been addressed by improving the questionnaire, as described above.

However, participants' suggestion to shorten the questionnaire by merging matrix questions could not have been made because of the technical limitations. Similarly, such a merger, according to one of the pilot-survey participant and quantitative data analyst, may create difficulties while exporting data from the Qualtrics to the SPSS software.

References

Dwivedi, Y. K. (2005). *Investigating consumer adoption, usage and impact of broadband: UK households* (Doctoral dissertation, Brunel University, School of Information Systems, Computing and Mathematics).

Ruppel, J. (2016). *Development and Pilot-testing of a questionnaire about the use of technology for learning and communication in Small-and Medium-sized Enterprises (SMEs)* (Bachelor's thesis, University of Twente).

Van Teijlingen, E., & Hundley, V. (2002). The importance of pilot studies. *Nursing standard*, *16*(40).

Appendix 4.5

Focus Group Discussion Guide/Protocol

Research topic: Impact of Digital Inequalities on Recent Canadian Immigrants' Access to e-Government Services: A Case of Nepali Immigrants

PhD Researcher: Bhanu Bhakta Acharya, Digital Transformation and Innovation, University of Ottawa

Supervisor: Associate Prof. Daniel Paré, Department of Communication, University of Ottawa

Program: Focus Group Discussion (5-6 events, each event having 5-6 participants, 18 years or older Nepali immigrants, living in Ontario, Canada, and used any of the government online services in the last five years)

Location: Virtual via Zoom online conference platform (video recorded via the Zoom to the researcher's password protected laptop computer)

Duration: 45 minutes to one hour

Informed consent: Prior to participate in the focus group discussion, each participant will read and sign informed consent form, and send a copy via email to the researcher.

Focus Group Discussion Script

Namaste

Welcome and thank you for participating in this focus group.

My name is Bhanu Bhakta Acharya, PhD Candidate at the University of Ottawa. I am conducting a research entitled Impact of Digital Inequalities on Recent Canadian Immigrants' Access to e-Government Services: A Case of Nepali Immigrants. The purpose of the research is to assess the impact of digital inequalities on the ability of recent immigrants of Nepali origin to Canada to access and effectively use federal, provincial and municipal government online services.

As I have already informed you that this research involves two phases of data collection. We are here for the second phase of data collection, in which I will ask you 5-8 questions that are based on my first phase of data collection (i.e. survey findings). I am conducting 5-6 focus group meetings with Nepali immigrants to Canada, and this group discussion is the *first/ second/ third/ fourth/ fifth….* event.

As a reminder, this discussion will be video-recorded via the Zoom online conference platform on my laptop.

Before starting the discussion, I would like to request each participant to introduce themselves briefly (name, education and current affiliation) so that all participants can be comfortable to proceed for the discussion.

Each question will be asked for all participants. I would like to encourage you all to answer and comment each question as accurately and truthfully as possible. If there are any questions or comments that you do not wish to answer for any reason, you can do so. Please let me know.

As the researcher, I will take every precaution to maintain confidentiality of the data but guaranteeing confidentiality within the group participants is not possible. Therefore, I would like to request each member of this focus group to respect the privacy of your fellow participants, and do not disclose any information shared in this discussion by all participants with others.

Here are a few ground rules before we start the discussion:

(a) Only one person speaks at a time. We will follow alphabetical order of participant's first name. Please wait until your colleagues finish their part.
(b) All participants are encouraged to speak on each question. There is no write or wrong answers. This is an open discussion.
(c) You do not have to speak in any particular order, nor does each person need to respond to every question. Try to limit your saying within 2 minutes at a time.
(d) You do not have to agree with the views of other members in the group. You can endorse or reject information or arguments made by fellow participants, but try to avoid repeating the same information/argument.
(e) I, the researcher, will ask questions and/or probing questions where necessary.

Now, I will ask you questions based on the key findings of the questionnaire survey, the first phase of data collection.

Question 1: My survey findings suggest that when it comes to their respective levels of English language proficiency, there are no statistically significant differences between early and recent Nepali immigrants to Canada. This finding contradicts those set out in the most recent scholarly research (published six or more years ago) investigating differences in the English language proficiency skills of early and recent immigrants to Canada. My findings also suggest that Nepali immigrants to Canada with strong English language proficiency are likely to use of government online services at federal, provincial and municipal levels.

> *Have you experienced any **language proficiency**-based difficulties/challenges when it comes to interpreting and understanding English language content provided on government online service platforms? How have you sought to redress these issues if/when they have arisen? If not yet resolved, what possible solutions do you think might address these challenges/constraints?*

Question 2: My survey findings suggest that when it comes to their respective ICT skills, there are no statistically significant differences between early and recent Nepali immigrants to Canada. This finding also contradicts those set out in the most recent scholarly research (published six or more years ago) investigating the ICT skills of early and recent immigrants to Canada. My findings also suggest that Nepali immigrants to Canada with strong ICT skills are likely to use of government online services at federal, provincial and municipal levels.

> *Have you experienced any **ICT skills-based difficulties**/challenges when it comes to accessing and using government online service platforms? How have you sought to redress these issues if/when they have arisen? If not yet resolved, what possible solutions do you think might address these challenges/constraints?*

Question 3: My survey findings identified no differences the likelihood of early and recent Nepali immigrants to Canada using provincial- and municipal-level government online service platforms. However, my findings suggest that recent Nepali immigrants to Canada are more likely to use federal-level government online services than their early immigrant counterparts. This federal level finding also contradicts those set out in the most recent scholarly research (published six or more years ago) investigating differences in how early and recent immigrants to Canada access and use government online services. Specifically, previous research found that early immigrants to Canada are more likely to use government online services at the federal level than their recent immigrant counterparts (Note: previous studies did not look at the use of provincial- or municipal-level government online service platforms).

> *Thinking of the types of government services you access and/or use most frequently (at Federal, Provincial or Municipal level), what are your primary motivations for using them? Why do you access these types of services online? Are there any particular difficulties/challenges that you encountered when accessing and using www.canada.ca? How have you sought to redress these issues if/when they have arisen? If not yet resolved, what possible solutions do you think might address these challenges/constraints?*

Question 4: My survey findings showed that Nepali immigrants to Canada engage with government online service platforms to access and use a diverse range of services and activities. For example, approximately 50% respondents reported engaging in financial transaction activities, 28.7% reported participating in government-hosted online activities; and 17.6% reported having submitted complaints or feedback via online.

> *What are the types of activities and/or services with which you have engaged at federal, provincial and/or municipal government online service platforms? Are there any particular types difficulties/challenges that you encountered when using these activities and services? How have you sought to redress these issues if/when they have arisen? If not yet resolved, what possible solutions do you think might address these challenges/constraints?*

Question 5: When I compared my survey findings with a recent report of the Canadian Internet Registration Authority (CIRA, 2019), there appears to be a gap between average Canadians and Nepali immigrants to Canada with respect to how confident they are about government online service platforms protecting their personal information. According to CIRA, some 75% of Canadians are confident that their personal information is properly protected when they access and use government online service platforms. By contrast, only 48.3% of the Nepali immigrants to Canada who participated in my survey expressed trusting government online service platforms to protect their personal information.

> *Do you trust in the ability of different levels of government to protect your personal information when engaging with government online service platforms? How does your sense of trust impact on your willingness to access and use these platforms? Are there any particular types of trust-related difficulties/challenges that you encountered when accessing and using these platforms? How have you sought to redress these issues if/when they have arisen? If not yet resolved, what possible solutions do you think might address these challenges/constraints?*

Thank you for participating in this meeting. This has been a very successful discussion! Your opinions will be a valuable asset to my study. I hope you have found the discussion interesting. I would like to remind you that while transcribing the discussion, all information including names that disclose identity of any of the participants would be removed, and the data will be anonymized. Also, please kindly respect the privacy of fellow participants and do not disclose the information shared in this discussion with anybody others in any circumstances.

Thank you and Namaste again.

Appendix 5.1

Socio-demographic Information of Survey Participants

Immigration status	# of responses	Percentage (%)
Recent immigrants (2015 or later)	41	15.7
Early immigrants (2014 or before)	220	84.3
Immigration category		
Economic	135	51.7
Refugee	65	24.9
Family	35	13.4
Other	19	7.3
Prefer not to specify	7	2.7
Age group		
38-47	97	37.2
28-37	89	34.1
48-57	27	10.3
18-27	25	9.6
58-67	13	5.0
68- and older	9	3.4
Prefer not to specify	1	0.4
Gender		
Male	183	70.1
Female	77	29.5
Prefer not to specify	1	0.4
Education		
Master's degree	107	41.0
Undergraduate degree	51	19.5
Secondary (Grades 9-12)	31	11.9
Professional degree	18	6.9
Doctorate degree	17	6.5
No formal education	17	6.5
Elementary (Grades 1-8)	8	3.1
Vocational certificate	3	1.1
Prefer not to specify	9	3.4
Household income (annual)		
0 to $47,630	113	43.3
$47,631 to $95,259	94	36.0
$95,260 to $147,667	27	10.3
$147,668 to $210,371	7	2.7
Over $210,371	1	0.4
Prefer not to specify	19	7.3

Employment		
Private-sector employee	123	47.1
Student	37	14.2
Unemployed	33	12.6
Government employee	28	10.7
Self-employed	24	9.2
Other (Please specify)	5	1.9
Prefer not to specify	11	4.2

Appendix 5.2

Language Skills of Survey Participants

Language	Excellent=5		V good=4		Good=3		Poor=2		V poor=1	
ENG writing	68	26.1%	89	34.1%	74	28.4%	26	10.0%	4	1.5%
ENG speaking	63	24.1%	92	35.2%	79	30.3%	22	8.4%	5	1.9%
ENG comprehension	62	23.8%	91	34.9%	79	30.3%	21	8.0%	8	3.1%
FRE writing	1	0.4%	11	4.2%	11	4.2%	38	14.6%	200	76.6%
FRE speaking	1	0.4%	4	1.5%	10	3.8%	43	16.5%	203	77.8%
FRE comprehension	2	0.8%	6	2.3%	5	1.9%	37	14.2%	211	80.8%
NEP writing	130	49.8%	63	24.1%	46	17.6%	14	5.4%	8	3.1%
NEP speaking	171	65.5%	55	21.1%	34	13.0%	1	0.4%	0	0.00%
NEP comprehension	155	59.4%	53	20.3%	47	18.0%	6	2.3%	0	0.00%

Appendix 5.3

ICT Skills of Survey Participants

IC devices	Excellent=5		V good=4		Good=3		Poor=2		V poor=1	
Desk/Lap Computer	84	32.2%	66	25.3%	72	27.6%	31	11.9%	8	3.1%
Smart/mobile phone	96	36.8%	73	27.8%	61	23.4%	27	10.3%	4	1.5%
Others (Ipad/Tablet)	90	34.5%	67	25.7%	63	24.1%	36	13.8%	5	1.9%

Appendix 5.4

Bivariate Logistic Regression Analysis of Respondents' Use of e-Government Service Platforms

			Federal Level				Provincial Level				Municipal Level			
Variables	#	%	OR	P-value	95% C. Interval		OR	P-value	95% C. Interval		OR	P-value	95% C. Interval	
					L Bound	U Bound			L Bound	U Bound			L Bound	U Bound
Immigration Status														
Recent (2015 or later)	41	15.7	Reference				Reference				Reference			
Early (2014 or earlier)	220	84.3	0.292***	0.000	0.146	0.584	1.205	0.946	0.500	2.100	0.509	0.053	0.257	1.010
Language (Composite Score)														
English proficiency	261	100	3.472*	0.000	2.369	5.089	2.516***	0.000	1.823	3.474	3.533***	0.000	2.433	5.13
ICT Skill (Composite Score)														
ICT Skills	261	100	3.034*	0.000	2.179	4.222	3.31***	0.000	2.377	4.609	3.535***	0.000	2.51	4.978
Immigration category														
Refugee class	65	24.9	Reference				Reference				Reference			
Family class	35	13.4	2.989	0.014	1.253	7.13	4.456***	0.001	1.823	10.891	3.231**	0.007	1.369	7.619
Economic class	135	51.7	10.962***	0.000	5.278	22.769	7.7***	0.000	3.937	15.061	11.555***	0.000	5.691	23.462
Age group														
18-27	25	9.6	Reference				Reference				Reference			
28-37	89	34.1	0.839	0.755	0.279	2.523	0.768	0.618	0.273	2.159	1.273	0.631	0.474	3.412
38-47	97	37.2	1.08	0.891	0.357	3.263	0.936	0.901	0.332	2.634	2.227	0.118	0.815	6.081
48-57	27	10.3	0.877	0.848	0.229	3.359	1.176	0.807	0.319	4.331	2.584	0.157	0.694	9.618
58-67	13	5	0.225*	0.047	0.051	0.98	0.302	0.102	0.072	1.268	0.527	0.371	0.129	2.142
68 and older	9	3.4	1		Empty			1	Empty		1		Empty	
Gender														
Female	77	29.5	Reference				Reference				Reference			
Male	183	70.1	3.125***	0.000	1.736	5.624	3.333***	0.000	1.893	5.969	4.132***	0.000	2.323	7.348

Level of education														
Up to Secondary level	56	21.5	Reference				Reference				Reference			
Undergrad	51	19.5	5.028**	0.006	1.603	15.779	3.5*	0.021	1.211	10.109	7.6**	0.001	2.378	24.285
Professional/Vocational	21	8	3.771**	0.001	1.671	8.509	3.5**	0.002	1.572	7.793	3.681**	0.002	1.636	8.281
Graduate (PhD/Masters)	124	47.5	14.535***	0.000	6.474	32.633	8.925***	0.000	4.305	18.503	20.279***	0.000	8.937	46.012
Household income														
Low income	113	43.3	Reference				Reference				Reference			
Middle income	94	36	9.751***	0.000	4.146	22.93	3.68***	0.000	1.953	6.933	6.025***	0.000	3.061	11.86
High income	35	13.4	4.762**	0.003	1.722	13.165	9.127***	0.000	2.637	31.584	1		(empty)	
Employment status														
Unemployed	33	12.6	Reference				Reference				Reference			
Students (+Other)	42	16.1	6.49*	0.000	2.305	18.274	5.538***	0.001	2.012	15.24	3.833**	0.008	1.414	10.388
Self-employed	24	9.2	34.374*	0.000	6.588	179.352	13.333***	0.000	3.566	49.854	8***	0.001	2.409	26.566
Employed (Govt. + Private)	151	57.8	17.255*	0.000	6.934	42.938	8.941***	0.000	3.796	21.055	10.577***	000	4.456	25.107

Appendix 6.1

Bivariate Logistic Regression Analysis of Respondents' Financial Transaction Activities on e-Government Service Platforms

			Federal Level				Provincial Level				Municipal Level			
Variables	#	%	OR	P-value	95% C. Interval		OR	P-value	95% C. Interval		OR	P-value	95% C. Interval	
					L Bound	U Bound			L Bound	U Bound			L Bound	U Bound
Immigration status														
Recent (2015 or later)	41	15.7	Reference				Reference				Reference			
Early (2014 or earlier)	220	84.3	0.617	0.160	0.315	1.211	0.672	0.253	0.340	1.328	0.565	0.101	0.286	1.118
Language (Composite Score)														
English proficiency	261	100	2.802***	0.000	2.012	3.903	2.060***	0.000	1.536	2.764	2.089***	0.000	1.556	2.807
ICT Skill (Composite Score)														
ICT Skills	261	100	2.803***	0.000	2.069	3.798	2.207***	0.000	1.669	2.916	2.353***	0.000	1.772	3.123
Immigration category														
Refugee class	65	24.9	Reference				Reference				Reference			
Family class	35	13.4	1.739	0.200	0.747	4.051	1.466	0.383	0.620	3.465	2.263	0.063	0.955	5.360
Economic class	135	51.7	5.013***	0.000	2.632	9.548	3.201***	0.000	1.686	0.075	5.280***	0.000	2.736	10.191
Age group														
18-27	25	9.6	Reference				Reference				Reference			
28-37	89	34.1	1.667	0.305	0.627	4.427	2.143	0.135	0.788	5.825	2.006	0.157	0.765	5.262
38-47	97	37.2	1.937	0.184	0.731	5.136	3.086*	0.028	1.133	8.405	3.226*	0.018	1.224	8.506
48-57	27	10.3	3.167	0.075	0.890	11.267	6.333**	0.005	1.742	23.021	7.000**	0.004	1.889	25.932
58-67	13	5	0.625	0.517	0.151	2.586	1.250	0.761	0.296	5.272	2.042	0.316	0.506	8.231
68 and older	9	3.4	1		Empty			1	Empty		1		Empty	
Gender														
Female	77	29.5	Reference				Reference				Reference			
Male	183	70.1	3.113***	0.000	1.781	5.442	3.974***	0.000	2.206	7.159	4.500***	0.000	2.504	8.089

Level of education														
Up to Secondary level	56	21.5	Reference				Reference				Reference			
Undergrad	51	19.5	8.909***	0.000	2.781	28.538	8.190***	0.000	2.525	26.572	8.571***	0.000	2.646	27.761
Professional/ Vocational	21	8	6.43***	0.000	2.685	15.402	6.370***	0.000	2.552	15.897	5.869***	0.000	2.371	14.529
Graduate (PhD/Masters)	124	47.5	13.152***	0.000	5.968	28.981	9.317***	0.000	4.131	21.012	16.429***	0.000	7.153	37.727
Household income														
Low income	113	43.3	Reference				Reference				Reference			
Middle income	94	36	4.270***	0.000	4.146	22.93	3.341***	0.000	1.847	6.044	3.911***	0.000	2.139	7.148
High income	35	13.4	4.706**	0.001	1.722	13.165	2.203	0.052	0.992	4.889	5.688***	0.000	0.285	14.158
Employment status														
Unemployed	33	12.6	Reference				Reference				Reference			
Students (+Other)	42	16.1	2.963*	0.033	1.094	8.023	3.007*	0.040	1.051	8.604	2.870*	0.049	1.101	8.181
Self-employed	24	9.2	12.667***	0.000	3.375	47.543	11.143***	0.000	3.001	41.373	8.489***	0.001	2.509	28.721
Employed (Govt.+ Private)	151	57.8	5.560***	0.000	2.397	12.897	5.507***	0.000	2.242	13.527	7.745***	0.000	3.136	19.128